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स एव युक्तो भैषज्यं यदारोग्याय कल्पते।
स चैव भिषजां श्रेष्ठो रोगेभ्यो यः प्रमोचयेत॥

चरकसंहिता।

That alone is the right medicine which can remove disease:
He alone is the true physician who can restore health.

Charaka Sanhitá.

EDITED BY

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THE PRESENT STATUS OF HOMŒOPATHY.

By Charles E. Sawyer, M. D.

In considering the question, "The Present status of Homœopathy," it shall be my earnest endeavor to present facts, rather than theories; to show cause for professional differences in matters of creed; and to demonstrate that Homœopathy, as a principle and homœopathic physicians as a distinct school have a particular use at this time.

Until the tenets of the homœopathic law have become recognized and utilized as a rational system of drug application in the curing of disease, homœopathy should be maintained as a distinct medical organization, under a specific title. To elucidate the subject and to show why it should be perpetuated as a separate school, it becomes necessary to review the subject from its early history.

The father of homœopathy, Samuel Hahnemann, was a genius, born with an instinct for investigation, illustration and application. Like all men of his type, he was aggressive, and out of his aggression and his determination grew opposition, at first only to his theory, and to his practice.

The investigations of Hahnemann soon convinced him that he had become possessed of a new truth, and in seeking to give that

truth to the world, he crossed lines with the pharmacists of his day, whom the German Government at that time were fostering, and this brought upon him the ill will of those who were selling drugs.

Hahnemann showed by the homœopathic use of medicines that crude drugs were not essential to curative results, and because of this financial loss to the druggists of his day, he was ostracised and persecuted.

It was Hahnemann who first demonstrated that an infinitesimal dose was a powerful dose. He showed that a drug's power of action was increased many times by the division of its molecules.

Thus, he proved that a tenth of a grain of calomel triturated with nine times its weight of sugar of milk, would have many times more influence than if given in the crude drug. He showed also that drugs had affinities for special organs and tissues of the body; that toxic doses of any drug presented a concourse of symptoms, which, if met by its simillimum in disease, would be overcome by a small dose.

For over one hundred years homœopaths were rediculed for their belief in the infinitesmal dose. For a century opposing schools of medicine decried homœopathy, because it used and believed in small dosage.

For all these years homœopaths were supposed to be erratic. Note the conditions at present. The same individuals who belittled and decried homœopathy for its small doses in the past, are to-day acknowledging aggravation from doses so infinitely small that the most sanguine homœopaths hesitate in accepting the findings which are offered. Hahnemann lived 100 years before his time. As evidence of this, his theory of the infinitesimal dose stands pre-eminent.

It was Hahnemann who first advised removing the shackles from the insane, and it has required more than 100 years of energetic effort on the part of his followers to show that insane people are sick people who require humane treatment and careful scientific medication.

In this regard, even our great United States has not yet caught step with his advanced ideas; for even now in many of the United States our mentally afflicted are subjects of custodial care at public expense, rather than the beneficiaries of a sensible system of medical treatment.

It was Samuel Hahnemann who evolved the first practical idea of public sanitation and out of the thoughts he fathered, have finally come the laws of the present day in the prevention of disease by proper environments and corrective subsidiary conditions.

Had Hahnemann lived in 1914 he would doubtless have been one of the greatest of bacteriologists. He lived before the time of microscopes and the mechanical appliances of this day which make the way so easy for those who follow the light.

Hahnemann realized the germicidal theory long before bacteria were ever seen by microscopic eye. He had no mechanical powers to help him in locating specific germs. He had to read the physical signs by which the evidences of their presence were indicated, and so he applied his remedies according to the indications of specific, classified symptoms.

With the instinct of a genius he compiled these symptoms and classified his remedies with such definiteness of purpose that his associates and all of his followers have been able to select their remedies with precision and to prescribe them with most beneficial results.

Out of the darkness of his day came the professional light of the present. Unfortunately, like other great men, Hahnemann lived and died the target of opponents, opponents of influence. But while he has had enemies, and while he has been the subject of derision and falsification, he has also been the subject of emulation to many men and women, who rank high in the arts and sciences, and around him has grown up and developed the homœopathic school.

Hahnemann died recognized as one of the best physicians in all Germany, that, too, in a day when Germany afforded the best doctors the world knew. Hahnemann was not a novice, but in

experienced, educated, broad-minded, intellectual man, and the inheritance of homœopathy by his followers is well worth consideration here. The work he started is yet unfinished, and until the world has acknowledged the correctness of the principles he evolved, until all humanity shall realize the superiority of homœopathic medication and homœopathic doctors, homœopathy shall exist as a separate and distinct organization.

At this time it seems pertinent to ask, What is homœopathy? In answering, it is not my purpose to give a technical definition. I hope to consider the subject in a practical way. I wish to convey to you my conception of what homœopathy is, and I do not wish to bind the profession in general to my own personal conclusions.

The same signs and symptoms that indicated the way when Hahnemann was prescribing drugs in the seventeenth century, are just as applicable to the choosing of drugs now.

Hahnemann lived, however, in a time when many of the things with which we are familiar now did not exist. Many of the diseases now prevalent in the land were not known then, for many of the afflictions of life are vocational afflictions, and out of these conditions have developed many things that have become strictly surgical, many disorders which can be overcome by physical means alone and some of which are still in doubt as to the absolutely correct remedy to be applied.

Mechanics have demonstrated and scientists have formulated many laws. Many definite fixed facts have come from the work of the men who have followed the direction of Hahnemann. Out of these have evolved the great principles by which the homœopathic doctor of medicine goes forth to meet the demands of the times. Many of the most serious afflictions of humanity have been eradicated and such as have not been absolutely eradicated, have been so controlled and are so centralized, and are so quickly and easily recognized, and are so easily prescribed for, that they have been robbed of much of their danger.

These changes wrought have not all been the work of the present generation. The possibilities of this day have been

built upon the precepts of Hahnemann and Hahnemann's time and homœopathy and homœopathic principles during the decades that have come and gone, since Hahnemann lived and died. All other schools of medicine have changed their forms of prescriptions and their methods of applying drugs many times. But the same rule, the same signs, the same indications, the same class of diseases, the same remedies are still used by the homœopath of to-day that were used by Hahnemann.

The difference between this hour and the hours when Hahnemann was fighting this battle at Leipsic and various other German towns in which he lived, and to which he contributed to the welfare of the race, is, that in this day the principle has been tried and so often proven that there is no longer question as to results.

We know now that the results he declared possible are substantiated by physical findings. The blood stream is known to be improved, its bacterial resistance greatly increased, and out of this, no matter what the disease, comes the beneficial results of any prescription.

What has homœopathy accomplished? Let us see. It has relieved the suffering public from the necessity of strong and dangerous drugging. It has stopped the clock of allopathic empiricism. It has brought to the senses of those who are looking for the benefits of drugs hundreds of remedies which may be prescribed intelligently and with definiteness.

It has taken out of mysticism and doubt many of the things which heretofore have brought us danger and risk and has put us upon a careful systematized, regulated, basis of administering drugs to a specific end.

This and many other things has homœopathy done. Out of the theories and beliefs of its originator have come much of prevention, much of supervision, much of change, much of good. To-day the homœopathic physician of the land, where he is known and recognized, is regarded as one of the greatest benefactors of the race. So much for what has been done with

homœopathy. Let us cast our horoscope and see what it contemplates in the future.

We all learn by our experience of the past; but for the errors and mistakes of those who have gone before, we would not know of our present needs. Out of our failures must come our success. From the present and past we must make comparisons by which we go forth to meet the future. Today the homœopathic fraternity is looking about in every direction, with all the improved means and methods at the command of this inventive age, to help them carry forward the truth of a real, practical system of medicine, where results can be counted upon unhesitatingly and definitely.

In the near future all drugs that heretofore have been given empirically, will be given according to the law of similars. Before we have reached another epoch in the practice of the healing art, the homœopathic fraternity will have shown to the world by scientific observation, by careful research, by the findings of an educated, intelligent fraternity, positive physiological and anatomical changes which may be brought about by the homœopathic remedy prescribed according to symptoms alone, and out of this will come the thing sought by all, viz:—homœopathic recognition.

The leaders in the homœopathic school are men far advanced in observation; far along in practical experience; thorough in their compilation of facts; careful in their keeping of records; systematic in their way of doing things, and out of this are growing every day proof of the great principle underlying homœopathic belief. And I assert that before another decade shall have passed, homœopathy will be recognized by all who have stopped to consider the applicability of medicine to the treatment of the sick, as the only real law upon which drugs can be dispensed.

It might be well for us at this time to consider who are the present day homœopathic supporters. Who are the standard bearers upon whom is devolving the homœopathic principle, who are in the vanguard of this great homœopathic army?

Here let me say that the homœopathic profession of today is made up of educated men and women. In the United States at this time there are in round numbers, 15,000 doctors registered, regulated, recognized homœopathic physicians; numerically distributed proportionately over the entire United States, with a clientele of over seven millions of people who believe in it, who are in accord with the principles for which homœopaths are working, who know by close observation and by personal experience of the benefits that come from the homœopathic law.

It is being said by some of our contemporaries that homœopathy is practically dead. When I tell you that in the homœopathic ranks, among the every day practitioners of the United States, there are more homœopathic doctors than there are Methodist ministers, I believe that you will all agree that if homœopathy is dead, it could just as reasonably be said that Methodism is dead.

And when I say to you that the homœopathic school has within its ranks 15,000 homœopathic, practicing physicians, I can say to you also without fear of contradiction, that wherever they have tried their steel in fraternal combat, they have been shown to be equal in intellect, in ability, in heroism, in thoroughness, practicability, in up-to-date methods, to any and all who are practicing medicine and surgery in the United States.

And if you doubt that, I would ask you to visit the hospitals, colleges, and medical societies of the country and see comparatively what is being done by the homœopathic doctors of this day.

Besides doctors there are hundreds of trained nurses who have been instructed under homœopathic tuition, who have become grounded in the homœopathic faith, who by comparison know that out of homœopathic practice come the most glorious results. From homœopathic ranks have come some of the greatest surgeons of the country; some of the most progressive bacteriologists of the land. These are men who are being listened to, and are recognized as advanced men of the day.

It is interesting to contemplate our affiliations in colleges, in state institutions in sanatoriums. In the state institutions.

which have adopted homœopathic principles, which have allowed the homœopathic physicians equal rights in the effort to combat disease, he has demonstrated beyond question that the capabilities are always equal if not vastly superior to his co-workers.

In the insane asylum where comparative records are kept, where results are carefully tabulated and observed, in the penal institutions of the country; in the charitable institutions of the land, wherever, and by whomsoever homœopathy has been tried, it has proven itself equal to the exigencies of the occasion and nowhere has homœopathy been supplanted where public opinion had the right of the way.

Politics in medicine, as in other things of state, sometimes brings dissension where none should exist and occasionally brings disgrace where honor should abound. It is said of us by some, who do not know, that we are going into financial decline, but I say to you that in the United States, we have as physical property rights, buildings and institutions owned and controlled absolutely by homœopaths and homœopathic patrons, hundreds of thousands of dollars worth of property in the centers of our largest cities, in the United States ten colleges who have registered on their rolls of students a thousand of the brightest and best of the young men of the country. We have in our own library over 5,000 volumes of strictly homœopathic literature. We have 35 medical journals propounding in each of their issues, the truth of homœopathy. When we consider what all this signifies, all may know that homœopathy is far from being defunct, far from being delinquent, and far from being liable to the necessity of forced liquidation.

All of this vast amount of property, all of this concourse of doctors and nurses, all of this living list of clientele, would amount to nothing if it were not possible to show that we are a working unit of great value to this great country of ours.

In 50 of the strictly homœopathic hospitals of the country, over 50,000 patients were treated last year, as bed patients, to say nothing of thousands of dispensary patients; and when I say to you that the mortality rate of these hospitals comparatively is

more favorable than can be produced by any other school, and I say this without fear of contradiction, I believe you will agree that in the homœopathic hospital proposition alone, there stands one of the great living evidences of a very active, energetic, homœopathic fraternity.

When we stop to think of all of the homœopathic medical students who are now advancing along the lines of homœopathic principles, when we stop to consider that this rank and file of youth is coming forth to take their place in the general activities of a progressive world, we must agree that we have unquestionable evidences of perpetuity. In the United States at the present time we have over a hundred societies, homœopathic medical societies, organized bodies, with president, secretary and treasurer, all engaged in the promotion of the law of similars and in the general betterment of mankind. I believe you will agree that there is lasting evidence of a staple, intellectual, progressive organization of homœopaths, worth the support of you and your fellows in maintaining and keeping alive the principle for which homœopathic physicians have ever contended.

It may be asked what efforts are really being put forth by this great fraternity. Let me say to you that they are along the lines of modern research and investigative work in general diseases, medical and surgical. Out of our school are men far advanced, high in rank, standing in the most important of positions, seeking the truth, which ever adds to the comfort and welfare of mankind.

At the helm of many of the institutions of the country, standing as leaders in many of the sociological and civic organizations of the day are men of homœopathic education, men of homœopathic belief, men of homœopathic practice, men who believe in the homœopathic principle and the practical application of it.

The homœopathic fraternity of today is putting forth through their Council on Medical Education every possible effort, to standardize and bring up to the highest degree of perfection, and

the best administration possible, all of the hospitals that are working under homœopathic banners.

It was the homœopathic fraternity who first set the pace for the higher standard of medical education. It was the homœopath who fixed the high standard of rules for admission into their colleges, who increased the requirements of the medical fraternity. It is that same great fraternity that is now standing for the belief that it is possible to walk so straight that you may fall over backwards; and so, instead of carrying out their ideas in a dogmatic way to an unreasonable extent, they believe that there is a limitation to what can and may be done in the way of requirements of the medical students.

Homœopathy has always stood for freedom; it has always stood for the principles that go to the making up of a great influential, helpful body, and they stand today for the highest and broadest and best in education; but they condemn with vehemence self-constituted autocracies which have a tendency to limit and restrict the privilege of the healing art to a particular and a specified few.

Out of the common herd of humanity come the greatest of men, so we as homœopaths contend that any man, who has the natural instinct and endowments, with reasonable preparation, should be admitted to our colleges, and out of these colleges should come all that should be required by our government of these students, so that they should be able to practice their profession anywhere within the domains of this great country of ours.

A lot of the legislative rules and regulations that have been adopted and are being executed are absolutely ridiculous. They really do not mean a higher standard, they only mean a more circumscribed rule and regulation by which a certain few seek to promote themselves and to become masters of a situation for which they are incompetent.

I am opposed, absolutely opposed, to the restriction of medical legislation that takes from any man, who has a reasonable

education and who has the will and disposition, the moral character and the intellectual right to become a student of medicine, from practicing anywhere he may elect, after having once been passed upon by a recognized college. And if you will send good young men to the medical colleges that are now in existence in the United States, under the name of homœopathic colleges, affiliated with some university of rank, there never need be any fear but that credit will resound and redound to them and you.

Our colleges of today are being urged to become affiliated with the leading universities of the country, and they are becoming recognized as strong, organized, modern, up-to-date institutions. The universities in various states have accepted homœopaths as a great part of their medical training and this goes to make up all that is good of the medical doctor of the hour.

We are asking of our colleges that they bring forth men of such grade, rank and ability, that there can be no question when they are tried in the fire of actual experience, as to their proving true and capable.

We believe that there is a systematic, organized plan of education which is necessary to meet the requirements of the hour and we are establishing that in every homœopathic college in the country. We are seeking men who are capable of doing the things necessary to the promotion of the interests of the modern homœopathic doctor, and in the upbuilding of the homœopathic doctor of the future, we believe that we are bringing about one of the greatest benefactors of the human race. We are willing to compare our colleges with any of the institutions of learning of like kind of any school.

The proof of a medical education is in the practical results, by the bedside, in the field, before the public, wherever public health and public sanitation are on trial. In all this we know that the homœopathic physician of the day is equal to any competitor whatsoever.

Now, what do homœopaths seek? They seek the general recognition of their law. What I mean by recognition is, that

those who are opposing us and who are attempting constantly to absorb us or to eradicate us shall admit that we are not hypocretes; that we have not been misrepresenting the truth, but that we have been promoting a great principle to which sufficient credit has not been given. We want to be known among the doctors of the land as men entitled to respect for assiduity of purpose to an end, which has had the benefit and welfare of our fellowmen always at heart and which is capable of great good.

And when we have substantiated, as we believe we have, by all the proof that could reasonably be asked, that we have a law, that we have been standing for a truth that we are practicing a principle, which is now and always has been worthy of consideration we ask that we be recognized as being worthy the title of homœopathic doctor and this title should stand as a commendation to all associated.

The principle for which we have been contending is the principle that involves the life and health of you and yours. We have been fighting the same battles that have been fought by every other physician in the world, who has been marching on toward the general betterment of the human race, and we want to be known as having founded our belief upon a principle which has stood the test of time, and we want the laity, the people who have not stopped to consider whether their doctor was homœopath, allopath, eclectic, or what not,—we want them to know that there is a real difference between the homœopathic physician and the physician who does not practice according to the homœopathic law.

We want them to know that medical statistics, comparative statistics, under all conditions and circumstances, have shown, beyond the possibility of contradiction, that the law *similia similibus curentur* means more than just a title. It means the application of a definite means to an end; it means the difference between the man who knows and the man who guesses. It means the difference between scientific application and empirical employment; it means the difference between cure and disas-

trous consequences. It means through a policy and a principle that does not fail to relieve the public of a lot of the liabilities and dangers of diseases to which they are constantly exposed.

We want the laity to know that the homœopath believes first and foremost in the removal of causes; that he is a broad-minded, a generous spirited, a big hearted, a conscientious, moral, upright, straightforward man. These are the policies upon which he bases his practice, and we want all to know that all of his principles and characteristics are fortified by a specific law in medication, that puts him beyond question into the highest rank as doctor of medicine.

We want the world to know that homœopathy does exist, that it is a specific principle, that it is living, that it is active, that it is energetic for the good of mankind; that it has improved from the time it was promulgated by Samuel Hahnemann back in the 18th century up to the present time until it has finally become the surest, the most scientific and the best form of practice of medicine extant. The *Journal of the American Institute of Homœopathy*, November, 1914.

GASTRIC ULCER.

By Alfred E. Hawkes, M.D.

Gentlemen,—As you are aware, the Vice-President, Dr. Cash Reed, was called upon at short notice to take up the duties of the chair. He has not only been unable to complete his paper, but he cannot forego another engagement of a professional character, not wholly unconnected with events that are passing around us. At an earlier period I was prevented from presenting this paper at The Hague, in connection with our proposed International Meeting there. Circumstances with which you are all familiar hindered that intention, and through the kindness of Dr. Tuinzing I am free to offer you this contribution in lieu of the presidential address to-night.

In the course of general practice, especially after an experi-

ence of more than forty years, certain disorders stand out as having given one more that usual cause for anxiety. If one could only eliminate from his introspection cases of albuminuria discovered too late to be effectively dealt with, of certain cases of enteric fever prior to the introduction of the Widal reaction, where diagnosis was delayed, and last, but not least, the cases of gastric ulceration which have gone wrong, such self-examination would be fraught with fewer misgivings.

To my mind a case of gastric ulceration which has gone so far as perforation is comparable with the condition following *post partum* hæmorrhage. In the latter circumstance, the pallor of the patient, the rapid pulse, the extreme anxiety depicted on the countenance, and in the case I call to mind the sad farewells of a distracted husband, presently to be transformed into comfort, safety, and all-round satisfaction by the timely use of the transfusion apparatus, may be compared with the somewhat similar condition which a rapid incision, a few well-placed stitches, and a careful peritoneal toilet may accomplish in the former case. The subject falls to be considered in a variety of aspects—its cause, general phenomena, early treatment by diet and medicine, and also the surgical expedients available which must now engage our attention. I narrate first a borderland case.

Case 1.—M. M., aged 25, a housemaid whose duties seldom left her time for an undisturbed meal, was at the time I refer to pale, anæmic, and a sufferer from anorexia. Her pain was felt from the epigastrium to the back, of a cutting gnawing character, giving rise to a desire for food which she hardly dare take, although it usually relieved and then aggravated. She often vomited an hour or more after food. She never had real hæmatemesis, but occasionally blood came in specks. She vomited food and mucus, but not bile. The pain came a short time after food, went to the shoulders, was accompanied by restlessness, and was sometimes relieved by lying, although as a rule posture afforded but little amelioration. Arsenicum was the chief remedy. The patient, after many years, gives me this narrative: she has no gastric symptoms.

The following case illustrates fairly well the usual course of a gastric ulcer accompanied by hæmatemesis, but stopping short of perforation.

Case 2.—B. L. C., aged 19, a lady student, states that for two years she suffered from acute indigestion, manifesting itself by pain in the region of the xiphoid. The pain was gnawing, and always worse after food. There may have been an absence of pain at intervals of two or three weeks' duration, or if present at all, it was usually slight during such remissions. The pain did not go through to the back except at the menstrual periods, but it did so then.

At this early stage of the disorder charcoal biscuits relieved, and so did sips of hot water, about 6 oz. at a time. Such relief, however, only lasted till the next meal. The next step in the development of the malady took place at Christmas, 1907, when she felt worse, experienced some faintness and sickness, vomiting a frothy, watery fluid; sour, not stringy then, and not even streaked with blood. Later, during an attack, green bilious vomiting occurred, and this was mixed with slimy mucus.

On January 1, 1908, she had severe pain all through the day, and this was followed by copious coffee ground vomiting and abundant dark alvine evacuations. On my being asked to see her, she was kept in bed for a month. She abstained from food for two or three days, gradually returning to a carefully arranged dietary, after a course of milk and water. She also resumed her studies, had less pain, and went on apparently improving until May of the same year, when without any warning, while at school, she was attacked, with violent pain as if from a blow in the old spot below the xiphoid, this time extending to the back; she pluckily, if unadvisedly, continued to work, but soon gave up, and she was taken to the Hahnemann Hospital. While there she vomited a bowl full of red blood, and passed also a quantity of a darker hue from the bowel. On this occasion food was withheld for a longer period, ten to fourteen days, the patient being fed by means of nutrient enemata. These were composed of equal parts of cream and milk, beef tea, one egg and milk or egg

and water, and cornflour and milk, made up in each case to about 4 oz. My later reading does not show approval of these mixtures, but I place them on record without apology. The patient left the hospital after a stay of three weeks, the period being curtailed through the matron's cleaning arrangements. A nurse accompanied her home, and continued injections occasionally, until milk, meat juice, and the whites of eggs with water, could be satisfactorily administered in the usual way.

It may be remarked that the egg and milk mixture was not retained to an encouraging extent, so raw meat juice was early used, then custard fish, and so on. She never again vomited blood and seldom food, but occasionally liquid sour gastric contents were evacuated.

For eighteen months she suffered pain for four or five days at a time; it was relieved by lying on her back. At such times a hard pillow under the back also relieved, and then also the pain was aggravated by food. Arg. nit., bismuth, hamamelis and kali bichrom. were the chief medicines administered, but the indications for these remedies will be mentioned later on. After a year or two the pains did not return. She has been married four years and has two children. She was sick during the pregnancies with some faintness, but no gastric pain troubled her. She has no vomiting at other times, nor has she had for five years. She has gained a little weight, but is not so stout as she was before the gastric trouble. She can do her household work, occasionally needs medicine for threatening chlorosis, but otherwise she is well, as an interview a fortnight ago testified.

May I now relate a complicated case of ulcer of the stomach?

Case 3.—E. M., aged 28, was admitted into the Hahnemann Hospital, March 1, 1904. She stated that she had just vomited blood, and on the day following her admission she vomited nearly a pint of blood. Hamamelis was ordered, and the patient subsisted on nutrients for some eighteen days. After a few days it was noticed that the parotids were swollen, and on the evening of March 9 the temperature reached 101·8° F., remaining up to 101° F. or so for seven days, when both parotid glands had so far

suppurated as to require incisions. Much pus escaped and continued to do so, but in about three weeks the patient was much better and able to take bread and butter, beef, tea, pudding and cocoa. The temperature fell to 99° F., but the pulse continued at 100 per minute for some time. The case was further complicated by a suppurative cellulitis in the region of the tensor vaginæ femoris.

The following case exhibited many of the phenomena characterizing gastric ulcer, and is accordingly placed on record.

Case 4.—E. M. S., aged 37, a nurse, was admitted into the Hahnemann Hospital on October 30, 1902. There was a history of ulcer of the stomach and transgressions as to diet in spite of warnings. She was admitted at 1·30 p.m. on the day mentioned, and then stated that at 9 o'clock on the previous evening she had taken a drink and was seized with pain. She could not straighten herself, and thought she had taken a stroke. Fortunately she had not swallowed solid food for a week, having subsisted on bread and milk and cocoa during the first half of that period and on milk and water during the remainder of the time mentioned and until the seizure.

On admission she was not much collapsed; her pulse was 120 per minute, and the temperature was 96° F. After due consultation the son of our late learned writer, Dr. Richard Hughes, administered chloroform, and a son of another veteran, Dr. John Hayward, rendered valuable assistance. I opened the abdomen, exposed the gastric rent, which admitted the tip of my little finger, and drew the edges together with silk. The abdominal wound was closed with silkworm gut and a gauze drain left. My notes do not record the state of the peritoneum, but as nothing but milk and water had been taken the gastric contents had not done much damage. The edges of the ulcer were, however, very friable, and a wide margin was secured in the stitching process. The bowels were moved by means of an enema on the second day. She vomitted a little green bile, but soon was quite comfortable. The highest temperature was 99·6° F.; the pulse was 104, and soon fell to 56 per minute; and she seemed on this

account to need a little strychnia. She was fed by enemata of bovril, egg, cream, and so on, and had a meat enule administered in between. This patient was so unfortunate as to manifest yet another complication of the disorder we are considering.

Almost exactly eleven years afterwards I received a letter from the Royal City of Dublin Hospital, stating that she was an inmate of that institution, suffering from malignant disease of the stomach. I wrote as requested, sending particulars of her case, but no further word reached me, and of her later condition I am ignorant.

To show the difficulty of diagnosis sometimes met with in this class of case, it may be stated that the first patient on whom I operated was suffering from peritonitis of uncertain origin, and the incision in the first instance was planned to control the area of the Fallopian tubes, which were more under suspicion than the stomach. A rent in the latter organ was subsequently reached and stitched, but to no purpose. The patient was too collapsed, and the peritonitis too far advanced to afford much hope, and she succumbed.

A colleague asked me not long ago to operate as a last resort in a case in which the disease itself had so prostrated the patient, although watched in the hospital, as to render the perforation when it did occur speedily fatal. It took place, and my friend insisted that I should stitch up the rent in order to afford her just a bare chance of recovery. This was quickly done by means of a local and some general anæsthesia, but the enfeebled frame gave way under this added burden about six hours after the expedient had been adopted.

A short time ago another colleague, Dr. Charles Hayward, received into our hospital a patient from the slums. She was dirty and collapsed, but her case was recent. A small opening was stitched, much blood was removed from the abdominal cavity, and much was unavoidably left in, emphasizing the valuable lesson that early operation even under unfavourable circumstances is more encouraging than a more promising looking expedient

carried out too late. The patient, as you gather from my remarks, did well.

The importance of early recognition of a gastric ulcer need not be enlarged upon. To have to wait for hæmorrhage or perforation is not well for the patient, nor is it creditable to the physician, but it is often unavoidable. The phenomena connected with sudden hæmorrhage are well known. Pallor, rapid pulse; if the loss is rapid, hæmic bruits, dry mouth, delirium, rise of temperature (but sometimes this not great), and changes in the ocular fundus.

Parotitis may occur, and a case has been given. It happens in rectal-fed cases, and is due to the diminished flow of saliva and consequent non-flushing and bacterial invasion. Half the suppuration cases die. Sudden perforation of a gastric ulcer may occur in cases where no such lesion has been suspected. Who is not familiar with the sudden pain, perhaps the absence of vomiting, the collapse, and later the abdominal distension and exquisite tenderness from the acute peritonitis set up the escaped gastric contents? Later, who has not seen the congested, not to say matted intestines, the flakes of grey lymph telling the tale of agonizing pain? Moreover, the patient is often sensible, as her demeanour shows, her serious condition, until death approaches.

I have given a few cases, chiefly from the Liverpool Hahnemann Hospital wards, illustrating some of the symptoms occurring in ulcer of the stomach. I must now go over the points of etiology, prognosis, and the medicinal and finally the surgical measures sometimes required in this disorder. In this part of my paper I shall have to draw largely upon the writings of Dr. Charles Bolton, whose book I commend to your notice.

The disease was known to Celsus, and it was well known in the sixteenth century. It is characterized by the loss of substance in the wall of the stomach, commencing, according to our author, as a lesion of the mucous membrane which permits of the digestion of a portion of that structure by the gastric juice. It may be superficial or deep, from a mere erosion to an actual perforation.

The appearance varies very much—it may be that of a short red fissure, as I can testify, or of a deep, funnel-like shape. In some an artery may be seen in the centre, and a very small ulcer may open an artery and cause fatal hæmorrhage.

Scars are of much interest in regard to their formation, and also as lending themselves to the expedient of excision. They are often difficult to detect, as acute ulcer, chronic ulcer, and malignant disease may co-exist.

The hæmorrhage from a chronic ulcer may arise from small arteries, veins or capillaries—the blood being turned to a black colour by the acid of the gastric juice. In some cases the blood is not vomitted, simulating so far the internal hæmorrhage of the obstetrician. It is a disease of widespread occurrence. It is common in Denmark, rare in Russia, and it is said that 5 per cent. of persons dying from all causes were affected by it. The most frequent age is between 20 and 30.

Newborn babies and centenarians are not exempt. Acute ulcers are common in young women; chronic ulcers occur more frequently in men aged between 40 and 50. No occupation alone predisposes to it, and I am probably wrong in suggesting that housemaids are specially prone to it, from having to take their meals in instalments, due to frequent interruptions. It is rare among vegetarians, and a bad cook has heavy responsibilities herein. Alcoholic gastrities may be held to be under suspicion as a cause. Certain infective diseases, too numerous to mention, give rise to it, such as septicæmia, enteric, &c. Pyorrhœa alveolaris is a possible cause, but syphilitic ulceration of the stomach has been recorded.

Duodenal ulcer undoubtedly is associated in a certain number of cases with burning accidents. Anæmia cannot, it appears, be definitely stated to predispose to ulcer of the stomach. The association of perforating gastric ulcer and amenorrhœa seems to be established.

In heart disease the presence of gastric ulcer is attributed to bacterial infection. Ulcers may be single or multiple. The

usual position is the anterior or posterior wall or the lesser curvature, the posterior wall being the commonest site.

We cannot afford much time to discuss the formation of an ulcer in the stomach, but the part played by the digestive fluids must be recognized. Bolton refers to (1) Localized necrosis; (2) localized hæmorrhage; (3) inflammation affecting the lymphatic follicles at the base of the glands.

It is now known that bacterial poison can cause this necrosis, and the pneumococcus, staphylococcus, *Staphylococcus aureus*, the bacillus of dysentery, and the lactic acid bacillus, as well as Eberth's *Bacillus coli* are all credited with that power. To the question of serum immunizing we cannot at present turn.

Acute ulcers have been produced by mercury inunction and also arsenious acid inunction; to these may be added pilocarpine, atropine, phenol, and sulphate of copper, statements which the homœopath will not be slow to put to practical use.

I extract the following from Hughes and Dake's "Cyclopædia of Drug Pathogenesis":—

Antimonium sulphuratum: Stomach softening as in gastromalacia (dog).

Arsenicum album: Commencement of a perforating ulcer (in a cat).

Cadmium: Injected into cellular tissue causes gastric hæmorrhage, erosin and ulceration (animals).

Cantharis: A man swallowed 1 oz. of tincture. At the *post-mortem* the mucous membrane of the stomach was soft and pultaceous.

Colocynthis: Mucous membrane of the stomach pale, injected, easily torn (in a rabbit). It is specially indicated for peritoneal condition after perforation.

Conium: Congestion and extravasations (man).

Cuprum: Gangrene of coat of stomach at cardia, pylorus, and duodenum as well.

Iodine: Linear ulcers in animals (Hahnemann).

Mercurius: Blood extravasations and ulcers (animals).

Sabina: Stomach patches, congestion, and extravasation (young woman).

Scilla: Lesion of stomach (rabbit).

Secale: Congestion of vessels of stomach (young woman).

Stramonium: Congestion and extravasion (man).

Strychnia: Congestion.

Uranium: Hæmorrhagic spot near cardiac orifice (rabbit). Ulcers also of duodenum surrounded by congestive areola.

Zincum: Butyric and lactic acid excess; dilatation from thickening of pylorus (man).

N. B.—Merely local effects of irritant poisons are excluded.

Dr. Richard Huges gives indications for arsenicum, kali bichromicum, argentum nitricum, atropinum sulphuricum, and uranium nitricum, and he refers to ipecacuanha and hamamelis for the hæmatemesis.

A reference to Dr. Drysdale's article on kali bichromicum would seem to mark off that drug as the one medicine for all stages of the round gastric ulcer. I have used with success arg. nit. in chlorotic girls with the symptoms pointing to ulcer, with success. Atropine is useful in gastrodynia and uranium has well maintained the reputation its pathogenesis promises. Hence the medicinal treatment from the homœopathic standpoint may be thus epitomized:—

Threatening ulcer: Arg. nit., ant. sulph., canth., conium sabina, stram., strych., zinc.

Ulcer (established): Arsen, cadm., coloc., cuprum, iod., merc., scilla, secale, uranium.

Hæmorrhage: Hamam., ipec., secal.

Perforation, if surgical measures are impossible: Arsen., coloc., merc. cor., sabina.

Gastrodynia: Atrop., Sulph.

It may be accepted that the HCl of the gastric juice does not attack the healthy stomach, but that any local weakness immediately lays the part open to such influence.

As to chronic ulcer it is apt to spread, and it is very likely to extend deeply, ultimately reaching a blood-vessel. Given a state

of necrossis, going deeper and deeper towards the peritoneum, it is easy to see how the normal movements of the organ may precipitate a perforation.

In the event of a perforation all are familiar with the profound peritonitis set up thereby. If the rent is small and time has been afforded, localized peritonitis may have so far occurred as to prevent escape of the gastric contents by means of local adhesions. The healing of a gastric ulcer is a process of common occurrence, as numerous *post-mortems* testify. The slough separates, a single cell proliferation occurs, and ultimately the edge becomes smooth and rounded. Much interest attaches to the experiments on cats, showing that on a milk diet the healing process is nearly complete in twenty-one days, while cats fed on a meat diet require a much longer time for the ulcer to heal. It is thus of great importance to remember that milk is digested much more rapidly than meat—in a quarter the time actually—hence the prejudicial action of the gastric juice excited by the presence of the meat is avoided by a milk diet. Hyperacidity must therefore be guarded against as far as possible, and you may be able to say what success in this regard iris, robinia, nux, or zinc. have afforded.'

The only pathognomonic sign of ulcer of the stomach would seem to be hæmorrhage, but pain and vomiting, the former acute or gnawing, aching, or shooting, extending to the scapula or spreading to the abdomen may be very suggestive. The tender spot may vary in position; it is hardly ever indicative of the locality of the ulcer. The pain may come soon after food or late, but this is not a certain guide as to the locality of the lession. The symptoms of a chronic ulcer may be intermittent. It may run its course in a year or may last a lifetime (Bolton).

If a recurrence is noted another ulcer may have formed. X-ray examination often shows delay in the passage of the gastric contents.

The possibility of latent ulcer, ulcer without symptoms, must be borne in mind. Ulcer, like epilepsy, may be worse at the menstrual period. Amenorrhœa is an accompaniment only, as

times, not a symptom to be relied on. Further signs are oversensitives to pain, the muscular layer being very sensitive. Dorsal tenderness and pain require attention, but epigastric tenderness is important; it may be very circumscribed, but, as has been stated, this does not indicate the position of the ulcer.

Muscular rigidity and dilated stomach may be present, or the stomach may be contracted and misshapen through old adhesions. These cicatricial complications may indicate excision and gastro-enterostomy. One Liverpool surgeon, Mr. Monsarrat, records about a hundred operations of this character without a death. Spasmodic hour-glass contraction may exist. The chemical and microscopic examination of the gastric contents must be made by means of a test meal, and a gastric tube carefully used. Excess of HCl, torulæ, sarcinæ, &c., may be thus estimated and detected. I have referred to perforation and need say no more, save that immediate operation must be considered, as the longer it is put off the worse the outlook. No one should now hope for a perforation to heal spontaneously—although, of course, they often do—unless encouraged to do so by a responsible surgeon. That only simple fluids have been taken before the perforation enhances the chances of recovery.

A body of clinical experts will not ask me to differentiate when blood is simulated by other fluids. The microscope, the small hand spectroscope, and the guaiacum test will help, whether the blood be obvious or occult, whether vomitted from the stomach or passed by the bowel. Gastric neuroses and symptoms associated with appendicitis must be borne in mind. Vomitting is rare in duodenal ulcer, and a tender spot near the right costal margin may be suggestive.

Cancer requires diagnostic acumen, and only a laparotomy may settle the question. I have referred elsewere to a case where I suspected pyosalpinx rupture, when an incision was made low down in the first instance.

Obstructed bowel, lead colic, and other conditions will occur to all of us as we attempt to diagnose the condition. Surgery in chronic cases can await its opportunity; it is otherwise with

an acute perforation. Non-removal of the patient if possible; careful stitching with silk; a wide margin if obtainable; careful cleansing with iodine after washing, and a skilled chloroformist are within the reach of most of us. No one in these days neglects a careful peritoneal toilet.

Gentlemen, I thank you for such a patient hearing on such a familiar theme. I shall be more than content if one useful hint has fallen from my lips through my efforts in transcribing the writings of others, which I hereby again acknowledge, or from my own more meagre experience.—*The British Homœopathic Journal*, December, 1914.

EDITOR'S NOTES.

"John Moore's Worm Powders."

Mr. Wilfred Whitten ("John o' London") in his *Londoner's London* (Methuen and Co.) says that Lombard Street has other than banking associations. In Plough Court was born Alexander Pope. Of the poet's boyhood in Lombard Street nothing is known, but Mr. Whitten finds a trace of it in his mocking verses, "To Mr. John Moore, Author of the Celebrated Worm Powder." Moore was a quack doctor living in Abchurch Lane, which leads from Lombard Street into Cannon Street. His "learned Friend of Abchurch Lane," Pope calls him. "John Moore's Worm Powders" were very extensively advertised in the newspapers, with testimonials written in plainer language than would be tolerated to-day. Pope asks Moore to remember that "all humankind are worms":

O Learned Friend of Abchurch Lane,
Who sett'st our entrails free;
Vain is thy art, thy powder vain,
Since worm shall e'en eat thee.

When Moore died in 1737 the *Gentleman's Magazine* gracefully remarked that he would now "verify Mr. Pope's witty observation"—in the last line of the epigram quoted.—The *British Medical Journal*, July 18, 1914.

Hard Knocks for the Eugenists.

Bateson thinks that most of the schemes of the practical eugenists are "devised without regard to the needs either of individuals or of a modern State." He cites Beethoven as having come of "bad" stock. His mother was tuberculous and his father was a drunkard. "I doubt," he remarks, "if timid respectability will make a nation happy, and I am sure that qualities of a different sort are needed if it is to compete with more vigorous and more varied communities." Since we know so little about the laws of heredity we have no business to establish a government matrimonial bureau. The feebleminded

must be controlled and mental defectives should not intermarry. We can go no further than this without the most careful, thorough and systematic research.' This is refreshing indeed, coming from the leading authority of the present day. The *Medical Times, November*, 1914.

Evolution and Genius.

Professor William Bateson, the eminent English scientist, asserted in his recent address before the British Association at Melbourne, Australia, that evolution may be, not from simple to complex but from complex to simple, and that natural selection fails fully to account for diversity of species. Instead of assuming additions from without, Bateson pictures the possible course of evolution as an unpacking of an original complex which contained within itself the whole range of diversity which living things present. He goes so far as to say that Shakespeare once existed as a speck of protoplasm not so big as a small pin's head, and that to this nothing was added that would not equally well have served to build up a baboon or a rat. In short, in normal beings under-lying powers and faculties are controlled, masked or suppressed by forces which in the exceptional man, in other words the genius, are lost for some reason or others. Instead of thinking of the powers of the gifted as something added, we must think of them as releases of powers normally suppressed.

This new attack ought to please the theologians immensely, but we have yet to account more fully for the variation known as genius, for it cannot be explained how the normal controlling forces are modified in such a case. How did Carlyle come to differ so radically from his peasant ancestry? Who can ever say? The great juggler Nature is as inscrutable as ever, despite the ingenious Batesons.—The *Medical Times*, November, 1914.

War and Disease.

Despite the excellence of the medical departments of the warring nations, a certain amount of infectious disease is inevitable, and it is being reported that dysentery, typhoid, typhus and cholera have already been noted in the European forces. The Turkish army vaccinates against both typhoid and cholera, which we believe is more than can be said of England's or Germany's forces. Antityphoid inoculation is compulsory in the French army. It is strange that the British War Office is so backward, in view of the South African experiences with typhoid—over fifty thousand cases. With the value of typhoid inoculation thoroughly established, we can only conclude that the medical department has not as yet been permitted to functionate fully by those in military control. It will be strange if the British record in this war will compare unfavorably with that of the Japanese in the Russo-Japanese war. In that war there were ten sick to forty wounded, something never before known.—The *Medical Times*, November, 1914.

Lead Poisoning.

E. R. Hayhurst, of Chicago, examined 100 painters for signs of lead poisoning. Of these there were 49 married men of forty years of age or over, of whom 37 had living progeny.

There were 35 married men of forty-five years of age or over, of whom 26 had living progeny, whereas 7 had had none at all. In this group 2 had a total of 28 children with 16 living. The total progeny of the group was 116 children, or an average of 3·31 each; total living progeny was 75 children, or an average of 2·14 each; this includes the two large families, without whose statistics the respective averages would be 2·67 and 1·79 each. This is certainly very low for married men of at least forty-five years of age. Analysis showed that these same 35 men with their total of 116 living and dead progeny came from families having a total of 235 offsprings. While this group of forty-five-year-old painters may have more progeny, it is not likely they

will double the same, as would be necessary to equal their own ancestral average.

Just what part lead poisoning and what part various social conditions may have had to do with this decreased progeny is impossible of ascertainment.—*The Medical Times*, November, 1914.

The Indian Soldiers' Fund.

The Lady Hardinge Hospital.

We fear that the Indian Soldiers' Fund has been encountering a good many difficulties and disappointments in the fulfilment of its beneficent mission. Its general idea was to make the Indin soldiers feel that in coming to Europe to help the Empire in this great crisis they were coming among friends anxious to provide them with those smaller attentions and comforts by which a host seeks to express the welcome he extends to a guest. The British War Office is responsible for the supply of clothing and food and other necessaries, and also for the treatment of the sick and wounded, but there are comforts for the men at the front and special advantages in hospitals and convalescent homes which private benevolence can with advantage supply without casting any reflection on the official organization.

We mentioned a month ago that a hut hospital for 500 beds was about to be established in Brockenhurst Park, and indicated the staff which the Indian Soldiers' Fund was providing. This hospital, which will be known as the Lady Hardinge Hospital, has been pushed on as rapidly as possible and will, we understand, be available at a very early date. It was mentioned also that a general hospital had been established by the War Office in two hotels at Forest Gate, and Balmer Lawn, near Brockenhurst. These, however, we understand, turned out to be buildings unsuitable for the purpose and the men were removed to temporary quarters elsewhere, pending the completion of the Lady Hardinge Hospital in Brokenhurst Park, and the establishment of hospitals at Brighton. Sir John Hewett, the Chairman

of the Executive Committee of the Fund, stated at a recent meeting that provision would be made at Brighton for over 3,000 sick and wounded from the Indian contingent. There will be, in fact, four hospitals under one centralized administration; the Pavilion and Dome will afford accommodation for 600, schools in the neighbourhood for as many more, while the workhouse and infirmary will afford room for two hospitals of 1,000 each. As soon as the arrangements at Brighton are sufficiently advanced the Indian wounded in the Royal Victoria Hospital, Netley, and the Red Cross Hospital adjoining it, to the number of over 1,000, will be removed to Brighton.

Sir Waller Lawrence, who was private Secretary to Lord Curzon when Viceroy of India, and afterwards a member of the Council of India, has been appointed to take over the general superintendence of the Indian wounded both in France and in England, and the Indian Soldiers' Fund has accepted his suggestion that the more serious cases which would suffer by travelling should be sent to the Fund's hospital at Brockenhurst Park, which is only a few miles from Southampton. With the assistance of Sir Havelock Charles the Fund has obtained the services of a number of retired Indian medical officers, and through the help of the St. John Ambulance Association an adequate supply of nurses speaking Hindustani. It has also obtained from the same body thirty British orderlies, and through Mr. Mallet and Colonel Baker has been promised the services, should they be needed, of some younger Indian students who have been formed into an ambulance corps. The authorities in India are supplying a number of Indian orderlies and menial servants for the hospital. Pending the opening of the hospital at Brockenhurst Park, the Fund has placed at the disposal of the medical officer in charge of the hospitals at Brighton all its medical officers, with the exception of Colonel Perry and Colonel Meyer, who are engaged in arranging for the equipment of Lady Hardinge's hospital at Brockenhurst Park.

Among other arrangements which the Fund is making, one has reference to the supply of good milk, which is an essential

article of diet in hospitals for Indians. The Fund has also received an offer from the planters of the West Indies to send large supplies of fruit, especially bananas and apples.

It is believed that the difficulties which recently seemed to stand in the way of the Fund carrying out its plan of having its own motor lorries to carry comforts to the commands and units in the field are in a fair way to be overcome, and Sir James Willcocks has expressed his sympathy and promised his co-operation in carrying out the Fund's plans for the benefit of the Indian soldiers at the front. Sir John Hewett also announced that an appeal made in Dundee had met with a very generous response, and that within the first fortnight the Fund benefited to the extent of nearly £3,500.

As our correspondent in France mentioned last week, the principal general hospital in France for Indian troops is being established at Hardelot. At present the projects for establishing a hospital in Egypt, probably at Alexandria, are in suspense, although it is realized that circumstances may ultimately lead to the survival of the proposal.—*The British Medical Journal*, December 19, 1914.

Cholera.

Major E. D. W. Greig, I.M.S., has been for some time making special investigations on the subject of cholera, and in the *Indian Journal of Medical Research* some of his very interesting results have been published. These included inquiry into the invasion of the tissues by the cholera vibrio, and the lesions of the gall-bladder and biliary passages in that disease. Major Grieg's studies have supplied a scientific explanation of the mechanism of the production of cholera carriers. In connexion with the subject of cholera it may be mentioned that Dr. RENAULT, Director of the Sanitary Service of French India, has reported good results from the treatment of this disease by hypodermic injections of emetine, the method being suggested to him by the success obtained by Sir LEONARD ROGERS with the same remedy in amœbic dysentery. Evidence has accumulated show-

ing that the spread of cholera in India is associated in large part with the Hindu pilgrimages and bathing fairs, at which large numbers of natives assemble together under very unfavourable conditions and where after an out-break convalescents and chronic carriers convey the infection to distant parts of India. Sanitation of pilgrimages is therefore receiving increased attention. *The Lancet*, December 26, 1914.

Radium in the Treatment of Cancer.

The Columbia University has recently issued the first annual report of the George Crocker Special Research Fund for the investigation of the nature and cure of cancer. It indicates the general lines on which research has been conducted under the director, Professor Francis C. Wood, since the laboratory was opened in December, 1913. The working staff consists of a director with five assistants. From a summary of the report published in the New York *Medical Record* of December 5th, we gather that a special study has been made of the action of radium and *x* rays on tumour and normal tissues growing in culture media. The results show such discrepancies that the director insists on the necessity of great caution in drawing any conclusions, and deprecates hasty generalizations as to the sensitiveness or lack of sensitiveness of tissues to the action of these agents. A large series of experiments has been made with the object of testing the action of radium on primary tumours in mice, which are said to correspond very closely with tumours in man. The results have not shown that radium has any great therapeutic effect on such growths. Radium has also been used on a considerable scale on patients in hospitals, and it is hoped in this way to collect data on which an accurate judgment as to its therapeutic value may be based. Investigations with certain colloidal silver preparations, highly vaunted in Germany as well as in the United States as of great value in the treatment of malignant disease, have shown, according to Professor Wood, that these substances have no effect on cancer either in man or in animals.—*The British Medical Journal*, December 26, 1914.

Nitrous Oxide-Oxygen Anesthesia in Surgery and Obstetrics.

Nitrous oxide when combined with oxygen and properly given is perhaps the safest anesthetic known. The administration is difficult because the nitrous oxide given must be from eighty to ninety-five per cent. pure, and the problem of asphyxia is constantly present. Anesthesia is rapidly induced and elimination is very rapid. Muscular tone is maintained to a greater degree than with ether or chloroform. The previous administration of narcotics assists greatly in the induction of anesthesia. Different drugs have been used for this purpose—morphine, morphine and atropine, scopolamine and pantopon. When two doses of any drug are given the first should be given an hour before operation, the second half an hour before operation. When pantopon is used there is less nausea and vomiting than when morphine is used. This is true both during and following the anesthesia. Pure oxygen must be used in combination with nitrous oxide, as atmospheric air does not contain sufficient oxygen to produce a satisfactorily deep anesthesia when used with nitrous oxide gas. It is important to obtain definite and even flow of nitrous oxide gas and oxygen and the dose must be carefully measured. When the gases are administered warm they are twice as safe as when given under normal temperature and from three to five times as safe as when given cold. The time of induction of anesthesia is also decreased and the warm gases are more rapidly absorbed by the blood. Rebreathing of the gases causes no bad results, as there is practically no danger of carbon dioxide poisoning and there is not sufficient carbon dioxide to lower the tension of the nitrous oxide below that necessary to produce surgical anesthesia. Positive intrapulmonary pressure causes more profound anesthesia. The best working pressure is from four to six mm. Hg. This method of anesthesia is not suitabe for children under five years of age, or for old people who show an extensive degree of arteriosclerosis and alcoholics. The ideal patients are the very ill, the debilitated, and those possessing low vitality. It has given excellent results in the practice of obstetrics, and there has been no cyanosis noted as when scopolamine and morphine have been used.—*The New York Medical Journal*, December 26, 1914.

The protection of drinking-water supplies on railway.

The extension of facilities for dining and sleeping on railway journeys has brought into increased importance the supply of pure water to restaurant and other cars. This matter is naturally of greater importance in America than it is with us owing to larger quantities of water drunk usually by the American; and since the distances travelled are so great there is considerable probability that on any journey the supply will be renewed from several different sources, some of which may be of doubtful quality and many not under any sanitary control. The danger anticipated from this source has led to the appointment of a very strong commission by the American Treasury, which has fixed a bacteriological standard for the drinking-water supplied by common carriers in inter-state commerce. The fixing of bacteriological standards of purity, or rather, as is pointed out by the commission, of permissible impurity, is more readily accepted in America than with us, as here we rely chiefly on sanitary control and inspection to attain the same ends. A very reasonable standard has been suggested and adopted, based on the number of organisms developing on agar at 37°C. in 24 hours, and on the absence of B. coli in at least four out of five 10 c.c. samples. Since the control or its enforcement rests ultimately on a legal basis it is satisfactory to find that the standard to be adopted, the methods to be employed in its determination, and the organism which for legal purposes is to be regarded as B coli are all accurately defined. In these respects the report is instructive. In England there is no excuse for the use by any railway company of water from a polluted or uninspected source, and it is practically always drawn from a public water-supply. This does not, however, exclude danger from contamination during storage, and the publication of the report of the American commission may be of service in directing attention to this question of the purity of the water supplied by our railway companies. *The Lancet, December* 19, 1914.

Gleanings from Contemporary Literature.

THE POWER THAT CURES.

By Robert Walter, M.D.

Existence, in its ultimate analysis, is made up of power and product, of which power is necessarily first, the product being the result of its operations. These are properly distinct, though often confused, empirical science frequently seeking to extract the power from the product instead of deriving the product from the power.

The power is an invisible potency, intangible but none the less real, a matter of inference purely, while the product being obvious and usually tangible, is ever before us—a subject of observation. As a consequence, effects are observed long before the power that produces them is inferred, and so discovered, as the work of the great Newton clearly proved.

Power and product are the constituents of every science whose work consists chiefly in determining their relations in detail. Science being a description of Nature, necessitates that discovery of the power be the essential discovery from which we may proceed to deduce results preparatory to producing them.

Power is known in science as force, of which there are two classes, the exact opposites of each other in all essential respects, to distinguish which is a first step toward exact knowledge. Prof. W. Stanley Jevons (Univ. College, London) in his great work "Principles of Science," well says:

"'All logical inference involves classification' . . . . 'whose value is co-extensive with the value of science and general reasoning'; and he quotes Professor Bowen of Harvard College, as saying:

"Perhaps it will be found in the sequel that classification is not only the beginning but the culmination and end of human knowledge."

The two classes of forces mentioned, occupying opposite extremes in Nature, are well described as:

Inherent and Incidental,
Intrinsic and Extrinsic,
Producers and Produced.

The first class are known as chemical affinity, gravitation and vitality, the power of life. It is clearly proved, if not self-evident that these are producers that cannot be produced; inherent in the constitution of the things in which we find them, without which

the things could not have come into being nor can continue to exist; intrinsic, always operating from within, outward, so making all the processes of Nature to be evolution in its philological and only true sense, and not involution, as a great modern sophistry seeks to establish.

The second class of forces, described as incidental, extrinsic and produced, are heat, light, electricity, magnetism, etc. These are products and not producers; incidental to existence, but not essential; they constitute occasions of results but not causes; they induce but never produce; and being a large part of our environment, they influence production, but never supply the power that produces.

In view, therefore, of the value of classification as above quoted, what can one think of the so-called science or philosophy that jumbles these classes into one inexplicable mass, and makes them "all transmutable into one another, back and forth, without loss"? Gravity, affinity and even life may be made to produce heat, light, electricity and magnetism, but are never transmuted into them, but the absurdity of supposing that these may be returned to the source whence they come, requires no argument or evidence, the idea of heat or light being transmuted into gravity or affinity being too absurd for consideration.

The forces mentioned are also properly classed as causes and occasions, the cause being defined as "that by the power of which an event or thing is," while the occasion is an accidental or incidental occurrence which brings into operation the cause. To distinguish between these is an additional step towards exact knowledge. Both exist in Nature and both are necessary to production, but which is which? Which is cause and which occasion? Which is power and which is product, is a problem whose solution is involved in all science.

Perhaps no two words in our language are so frequently confounded as the words *cause* and *occasion* the cause of every result always being invisible, never a subject of observation, is invariably overlooked in any science based upon observation, as is medicine, while the occasion, being usually obvious, is naturally mistaken by rustic ignorance for the cause; but that a learned man should devote a whole life time to the establishment of a system of philosophy based upon this fallacy, is entitled to be regarded as an eighth wonder of the world. And that medical science so-called, after two thousand years of study and experiment, should still continue a fallacious practice based upon this enormity is hardly less wonderful. It is no more

reasonable to suppose that a drug supplies to the patient the power of cure than that a spark furnishes to a thousand tons of dynamite the power of the consequent explosion."

The truths thus set forth are especially applicable to any science of medicine. The power that cures is the same that made, and the process of cure is identical with the processes of production; the power that made the organism is the perfect analogue of that which made the spheres, revolves them in space and around their axes, producing eclipses, tides, etc., gathers the waters together in river, lake and sea, carries up the mists to form the clouds, wafts them over mountain and valley and brings them down again in the form of rain, sails the ship or sinks it, enables us to swim or drowns us, brings water to its level or raises the waves mountain high, floats kite or balloon or dashes it to earth, and does a thousand other opposing and contradictory things in response to what conditions exist or occasions are supplied. This, indeed, is the work of gravity, one of Nature's great, original, producing forces, the cause of all astronomical phenomena, the discovery of which by Sir Isaac Newton was the true beginning of physical science. Thus Newton paved the way into which the chemists were attracted, and chemical science, in perfect analogy with that which is physical and mechanical, was the result. Chemical affinity is the cause and source of all chemical combinations and disintegrations, exactly opposite results being produced by the same force in response to opposite conditions. Chemical affinity makes dynamite and explodes it and constitutes the force of the explosion, preserves our house or burns it to the ground, makes acid and alkali, heat and cold, electricity and magnetism, the very opposite results again being responses to opposite conditions or occasions. The cause or power that does the work is always from within the thing that works, any applications from without being occasions but never causes.

But nature is a trinity, composed of three fundamental departments, as Sir John Herschel long ago showed, the living world being as truly a part of the original creation as the mechanical or chemical ever were. These three complete the circle and include the whole of natural existence, and existing side by side, having the same origin, developed by similar processes, are necessarily analogous with each other. It were an outrage upon human reason to disconnect human life, any more than gravity or affinity, from the Source of all, as well as from the processes of creation, as some seek to do. Gravity, affinity and vitality are fundamental forces, derived immediately,

not mediately, from the Great First Cause; for there is no other conceivable source, any other theory being an affront to human intelligence as well as to divine revelation. And Prof. W. Stanley Jevons, before quoted, well says:

"The application of 'Scientific Method' cannot be restricted to the sphere of lifeless objects . . . . . Whoever wishes to acquire a deep acquaintance with Nature must observe that there are analogies which connect whole branches of science in a parallel manner, and enable us to infer of one class of phenomena what we know of another . . . . . The physical sciences may be made the practice ground of the reasoning powers because they furnish us a great body of precise and successful investigations . . . . . An interchange of aid most wonderful in its results may thus take place, and at the same time the mind rises to a higher generalization, and a more comprehensive view of Nature."

In the face of which truths who will say that vital science may not properly be developed on principles in perfect analogy with those of the sister departments? Who, indeed, will say that the phenomena of vital science are either more numerous or complex than are those of the physical realm?

We properly inquire as to methods by which astronomy became an exact science; and the answer is that astronomy is the product of the logical development of a great discovery, constituted of an original force, inherent in Nature, from which all mechanical phenomena are deduced. An identical discovery has yielded to us an exact chemical science; and we properly inquire, why not vital science be developed on the same principles. We have here a two-thirds majority, two out of three departments have yielded exact sciences by *deducing* from primary principles what Nature has *produced*. No one questions the existence of gravitation, chemical affinity or vitality, invisible potencies though they are; and no one can doubt that they have been in operation throughout all time, why not therefore regard them as original, producing forces, the cause and source of all the processes and products of their departments?

"Scientific method" is the logical method; when science is based upon observation purely it is a fallacy and a fraud. The deceptive nature of appearances is a age-lasting phenomena; only fools rest content with what they see.

But all things in accordance with law is the testimony of both science and revelation, and that the law distinguishes with wonderful

clearness between the apparent and the real, we all know, because Newton gave us the proof.

But whence the law? Both science and philosophy agree in the recognition of a Great First Cause, as the Source of all that is, law included, all of which however, exists in three fundamental departments, the product of three fundamental forces always operating in accordance with fundamental and unchangeable laws, illustrative of the character of their Author, to the nature and source of which we now turn.

Law is primarily the edict of a lawgiver, and the genesis of revelation records three great edicts as the underlying basis of all that is. When God said, "Let there be light and there was light," He established the great original source of light, chemical affinity; and when He said, "Let a firmament be established and let the waters be gathered together," He established that great law which does these very things. And when He said, "Let the earth bring forth grass and the herb yielding seed," He gave forth the law which supplies not only all living things, but all the manifestations of life in whatever form they appear. These laws, separated by an intervening night, are thus shown to be distinct and separate sources of power, the three including the whole, the additional days being employed in the practical application of the principles just established. And as science is a description of Nature, proceeding from cause to effect, as Nature does, and not in the opposite direction as does empirical science, a consistent knowledge of the three yields not only logical and exact science, but furnishes also the basis of a philosophy which shall not lose itself in bald agnosticism—a philosophy which shall become the basis of a reconciliation between science and religion, mind and matter, God and man—a philosophy which traces all results to the Source of All, and so shall not break the connection between the Great First Cause and His universe.

All things, therefore, being in accordance with law, an invisible principle of existence makes this discovery to be the primal element of all science as well as of all productions. As thus employed the term includes the power that works and the method of its operations, both of which are obvious in Newton's formula. It is this which gave to us both astronomy and chemistry, and it is this which must yield to us a reliable vital science, if such is ever to be secured. Newton's law is expressed in the words:

"Every particle of matter in the universe is attracted to every other particle with a force directly proportioned to the mass of the

attracting particles and inversely as the square of the distance between them."

While life's great law, the fundamental principle of an analogous department, couched in analogous language, the cause and source of all its productions, should yield equally reliable results.

LIFES GREAT LAW. Every particle of living matter in the organized body has been produced, and is sustained, by a power of life, properly called vitality, endowed with an instinct of self-preservation, the effectiveness of whose work is directly as the amount of the power and inversely as the degree of its manifestation.

The truth or falsity of this law will be proved by its application to the solution of all medical problems, success in which will answer to the needs of medical and hygienic science as nothing else has ever approximated. And the truth will be suggested, if not proved, by the fact that the conclusions of the law will be the opposite of what appears, and what has heretofore been accepted as reality. For Newton proved that the apparent and the real are opposed, a fact not more evident in the physical than in the vital realm. First then, disease instead of being an enemy to be vanquished is, on the contrary, a friend to be encouraged That most men sooner or later die of disease is no proof of its destructive nature, for how could it be otherwise when the learning and talent of our times are chiefly engaged in prevening the successful operations of the curative processes? It cannot be disputed that disease as well as health, is a process of life, which process may be carried forward with ease or disease, with comfort or discomfort, successfully or unsuccessfully, and whether the one or the other depends upon the amount of the power possessed and the character of the conditions supplied. Instead of being opposed and thwarted by contrary medication, disease should be added by that which is similar; instead of being treated by methods which deplete the power they should, on the contrary, recuperate it by methods which reduce activity and conserve power. The force of health and force of disease, we have seen, are identical, and both are the patient's vital force, seeking to maintain, repair and perpetuate the organism, and the difference between health and disease is one of environment first, to be followed soon, in cases of disease, by depletion of the power through unfavorable environments, generally aggravated by unfavorable treatments, due to erroneous conceptions of the nature and processes of health and disease. Definitions are in order:

Health is the normal, easy and comfortable performance of the functions of life, due to favorable conditions and sufficient power; while

Disease, as the name implies, is abnormal, difficult and even painful performance of the same functions due to unfavorable conditions with power insufficient to do the work easily under the conditions present.

But whether it be health or disease Nature's work is always self-preservative, preserving health or repairing injuries, but may be so diverted from its legitimate work by violent applications from without, such as drug poisons, cold baths, etc., as to greatly delay, or even stop the process of cure, and prevent recovery, all the while the treatments yield relief because the suffering being due to the curative process, relief is obtained by stopping the process. This is the work of all who operate according to appearances, unmindful of the law. Prevailing medical practice being wholly engaged in giving relief, makes invalids and prevents recovery, so yielding us five times as many physicians in this country according to population, as there are in continental Europe because of five times as much sickness; for how else shall we explain the paradox? Relief is, of course, the important element in every form of treatment, but this can be more readily secured by supplying favorable conditions and aiding the process of cure as in homœopathy than by stopping it through the use of violent appliances. Both plans may be effective but the one means permanent recovery while the other gives temporary relief only to necessitate renewed effort at cure at some future time, hence chronic diseases, the scourge of our country.

The word conditions is very generally synonymous with the word occasions, neither of which supplies any power, but only calls forth and expands what the patient possesses. Medicines, and other treatments, are occasions which supply or change conditions, as drugs always do, making the two words interchangeable in any discussion. It is, therefore, properly concluded that all results in Nature depend upon

First, the power that produces, which in this case is the patient's power of life; and

Second, conditions for the operation of the power.

The power being from within and always invisible, is easily overlooked, while the occasions of the result, being usually obvious, are easily mistaken for the cause or power, a mistake which Mr. Herbert Spencer has undertaken to exalt into a philosophy. His theory

that the power of life is produced from environment, and that all results are derived from external forces, if true, would justify the theory that all curative power resides in the medicines administered to the invalid, which medicines must be in sufficient dose to be effective; but let it once be conceived that the medicines supply no power of cure, but are only occasions which call forth the power already in the patient, and the crude dose is at once dispensed with. As an infinitesimal spark will liberate the power stored in a thousand tons of dynamite, or will start a conflagration that will burn a town, so an infinitesimal dose of medicine will start and continue curative operations in the worst diseases, provided only the patient possesses the power of cure. It were absurd to suppose that the power of cure resides in the drug; the fact that it is a poison destructive to life, contraindicates any curative virtues. On the contrary, when of a kind calculated to produce a similar disease, it arouses the vital powers to a more vigorous operation of cure, recognition of which truth will stop the constant tendency of the profession to increase the dose and so prevent recovery, instead of allowing the patient a reasonable chance to return to health by virtue of the power of cure inherent in him.

But results, it is to be noted, are not directly as the amount of the power simply, but inversely as the degree of its manifestation as well. On that word "inversely" hinges consequences inconceivably great in Life's Great Law as well as in Newton's. Power of necessity precedes product, the character of which corresponds to the amount of the power as well as depends upon its distribution. Hence all processes are properly employed to increase the power, in the attempt at which a most egregious error occurs, a recognition of which, it is believed, would soon double the average of human life, or at least empty a few insane asylums. The nervous diseases of our times in their infinite variety and disastrous consequences, would materially decrease or disappear once the forced manifestation of power is known to reduce its possession. Let it be clearly established that a forced appearance of power in the patient is power drawn from, not communicated to him, as is generally imagined, and medical theories and practice would undergo a wondrously beneficial revolution. This great truth was foreshadowed in that remarkable paradox of the great Teacher: "He that would save his life shall lose it," a declaration which must no longer be regarded as extravagant hyperbole, but a fact of history that has been in active illustration for thousands of years. Increased manifestation of power, under an extremely

narrow view, has for ages been mistaken for increased possession of it, and means are still everywhere in vogue seeking to increase this manifestation, not knowing that in doing so its possession is being correspondingly reduced. We protest that the physician is no more adding to a patient's power of life by increasing its manifestation through stimulation than the engineer is increasing the power of his engine by blowing off steam. Power is an invisible potency, its very existence being unknown except in the work it does, so that increasing the work increases the manifestation of the power, and correspondingly reduces its possession. We can not eat our cake and keep it too; power manifested is power expended, while reduced manifestation, as in rest and sleep, is the true process of recuperation; and all treatments that would yield permanent benefits should operate as sleep does, by reducing manifestation and hoarding power. It is vital power that cures and the rapidity and certainty of cure correspond with the amount of the power, so that all processes that would be permanently successful must accumulate or recuperate that power while nothing is done to deplete it. Bleeding and purging reduced force of disease because they reduced the force of health, but provided for worse diseases in the reaction. The profession, realizing this truth, started on a new series of experiments, and for sixty years medical treatments of all kinds, pure homœopathy excepted, have been engaged in depleting the vital forces, especially nerve power, because they have mistaken manifestation for possession. The marvelous increase in the number and violence of nervous diseases of our day, is due to nerve stimulation just as the choleras of the past were due to purging, and the frequency and virulence of smallpox, typhus, black death, etc., were largely due to impoverishment of the blood through bleeding.

But the manifestation of power which exhibits its expenditure is not confined to the use of tonics and stimulants, but is a concomitant of a variety of things, especially the use of food. It is still believed that things without life can communicate the power of life to living thing;—that it can give what it does not have. The digestion and assimilation of food induces work, and work expends power and so manifests it, but as we have seen, the manifestation of power reduces its possession. Food is material for the building up of structure, but it yields none of the building power. It is fuel to the organism just as coal is fuel to the boiler, but whoever heard of imposing more fuel and increasing the steam pressure as means of repairing boiler or engine. Food is material destitute of life and so cannot yield what

it does not have, but by combustion in the organism it yields physical force for the doing of physical work, but it is the organism that does the work and manifests the power, often doubling the blood pressure, giving an appearance of strength by the very processes which expend and exhaust it. Again we say, recuperation of power—a vital inheritance, possessed of all healing virtues, is secured through reduced manifestation as in rest and sleep, in which power is hoarded rather than expended as by activity, excitement and labor, which induce exhaustion and prevent recovery all the while they seem to be promoting it.

"The things which seem to be are not
And those which are seem not to be,
This world's a world of paradox,
We dare not trust e'en what we see.
The changeless moon seems changing ever,
The sun sets daily yet sets never,
The stars seem near and yet so far,
So small they seem, so great they are,
It is a world of seeming."

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HOMŒOPATHIC PHILOSOPHY: ITS IMPORTANCE IN THE TREATMENT OF CHRONIC DISEASES.

By John Weir, M. B., Ch.B.Glass.

What is homœopathic philosophy?—It is an understanding of the various phenomena of reaction to the like-drug-stimulus, supplied by the homœopathic remedy. It not only deals with the choice of the drug, but teaches us how to use it.

There is nothing more true in the world than this: *what we sow, we shall reap.* In homœopathy, especially in the treatment of *chronic diseases*, we shall get out what we put in. If we expect the impossible we shall be disappointed. If we despair and say "incurable," we shall miss many unexpected triumphs. If we sow mistakes we shall reap failures. And out of failure comes disheartenment and loss of faith in our work. The "efficacy of homœopathy in chronic diseases" depends on two factors that make for success on the part of the practitioner, viz., *knowledge* and *faithfulness.*

To begin with, we need to know our work from start to finish. To prescribe remedies peculiar to the homœopathic school is not enough. To understand the "grading" of symptoms (that is to say, their relative importance as regards the choice of the remedy) is not enough; to know our way blindfold about the

repertory, and to use it constantly in prescribing, is not enough. To prescribe according to the law of Similars, is not enough. To be able to hit the drug is much; but it is not everything. It is the right and necessary beginning; but it is only the beginning. To prescribe only high potencies—or low—is not enough.

Hahnemann, who gave us the Law of Similars: who showed us the relative value of symptoms: who told us how to use the repertories: and how to be led by them to the materia medica: gave us, besides this, a very great deal more. And unless we go the whole way with him we need not expect (as he warns us) ever to see "the efficacy of homœopathy in chronic diseases."

CHRONIC DISEASES.

In regard to chronic diseases (which he claims to be the first to treat successfully) Hahnemann has given us most explicit instructions, warnings, and exhortations. It is not enough, he tells us again and again, to find the curative remedy, we must know how to *use* it if we are to be successful here. Hahnemann (speaking of the necessity of letting the single dose of the indicated remedy act to its finish) says (all quotations are taken from "The Chronic Diseases"): "Unless the physicians imitates my method, he cannot expect to solve the highest problem of medical science (that of curing those important chronic diseases, which have indeed remained uncured up to the time when I discovered their true character, and proper treatment). . . .

"If physicians do not carefully practise what I teach, let them not boast themselves of being my followers; and above all, *let them not expect to be successful in their treatment.*"

An acute disease is self-limiting; the patient recovers, or dies. Of chronic diseases, on the contrary, Hahnemann says: "They never yield to the simple action of a robust constitution; or to the best regulated diet, or mode of life. On the contrary, they grow worse from year to year to the end of life, gradually assuming different and more dangerous symptoms."

"As when," he says, "phthisis passes often into insanity, drying up ulcers into apoplexy, intermittent fevers into asthma,

affections of the abdomen into pains in the joints or paralysis. It is not difficult," he adds, "to perceive that the new symptoms were founded on the existing primitive malady, and could only be parts of a much more extensive disease."

If our hamœopathy, then, is to exhibit its efficacy in chronic diseases, we must know our work. We must know how to take the case; how to estimate the relative value of symptoms, in order to find the correct remedy; how to administer that remedy; how to wait while the patient reacts to the vital stimulus; how to read the response of the patient when the reaction comes; how to wait till the reaction is wholly spent before again stimulating. "*He who observes these things with the greatest care will be*," as Hahnemann says, "*the most successful homœopathic practitioner.*"

For what is homœopathy? Homœopathy is "like" medicine, it is true; but it is much more. It includes the single drug, the single dose, the initial aggravation, non-interference with reaction, and potentization.

On all these, in his work on chronic diseases, Hahnemann strongly insists; and if we are to experience *the "efficacy of homœopathy in chronic diseases,"* we need all these.

Let me repeat, because it is so important: homœopathy means the "like" remedy (that is to say, the remedy whose disease-symptoms resemble the disease-symptoms of the patient we desire to cure) but besides the "like" remedy, it means the *single drug, the single dose,* the *initial aggravation, non-interference with reaction* and *potentization.*

Individualize.

What differentiates the school of Hahnemann from all other schools is, that we *individualize*; they do not. To treat a chronic disease *per se* is quite wrong. To send all patients suffering with rheumatism to Bath, or with gout to Harrogate, is all wrong. The waters that help *one* may be harmful to another. To prescribe the same diet for all patients whose diseases are called by the same name is useless. It agrees with this one and disagrees with the next.

What we must treat is the underlying dyscrasia of the patient. When we prescribe homœopathically, we are prescribing for idiosyncrasy, and that is where we get our success. If believed that medicines would cure our patients, we might think that the more of the right medicine we could get in the quicker would be the cure; whereas exactly the opposite is the case. The patient must cure himself. Medicine cannot cure him. All that medicine can do *curatively* is to stimulate his curative reaction. The dose of the drug to which his idiosyncrasy makes him sensitive merely acts as a vital stimulus. And it is in his reaction to that stimulus that lies his salvation. So we see that diseases and drugs are much alike in their effects. They provide stimuli to which there is more or less vital reaction.

Kent says: "*Susceptibility is only a name for a state that underlies all possible sickness, and all possible cure.*" There is the individual behind it all. Different individuals react differently to both diseases and remedies. It requires many cases of a disease to exhibit the whole disease picture. It is only from many provers that the whole of a drug-disease picture can be elicited. Everywhere it is the *ego* behind it all that has to be reckoned with. And it is only through *symptoms that denote the individual* (and his defective reactions to mental and physical environment in particular) that we can find his individual stimulus. This is the very essence of homœopathy as taught by Hahnemann.

Resistance.

The thing that concerns us, as physicians, is *the patient.* Surgery busies itself only with "ultimates," or disease-products. Remember that disease (or what we call disease), is really the result of disease, or deficient resistance. It is this resistance that we must stimulate. The true disease is the underlying condition, the susceptibility, the intangible cause of the pathological changes. It is this with which we have to do, or fail. Hahnemann tells us that our only mission in life, as physicians, is to cure the sick. And everything depends on our interpretation of *a sick man.* We often come across patients who give us plenty

of symptoms: yet on careful examination nothing definitely is found wrong. Yet that patient is a sick person, and if not treated will in the end have ultimates to show.

The individual behind the disease is shown in what we call the *generals* of the patient; that is to say, by his reactions, as a whole, to environment, mental and physical. This is where he betrays his weakness and deficiencies; this is where we can help him. You see, the patient is out of tune with his surroundings and therefore suffers. And suffering, of course, means damage. He is out of gear; he is failing to adjust himself; he is working along a wrong channel. His normal healthy rhythm is disturbed.

In machinery a want of perfect adjustment means stress, jar and friction. Friction, stress and jar are destructive to any machine. Parts are strained, worn down; presently adjustment fails and something gives. The machine is old and worn out and incapable before its time. It is just like that with the human machine. The man is not normal. He fails, therefore, to adjust himself, fails to react curatively to injury, strain, or invasion of disease. There are attempts at compensation; but these things do not make for health, and a vicious circle is established. Things are not working smoothly; there is distress, pain, perverted function. Presently something gives. Ultimates are established. When this happens we can give the disease name; but the man was sick long before, or all this would never have happened. The patient was wrong, out of gear, out of sorts, before he could show it by putting up diseased parts.

It is the patient himself, the primitive sick man, with which homœopathy is concerned: and he can only be got at through his morbid reactions, mental and physical. Therefore, for our purpose, the symptoms of importance are those which denote or express the patient; not those secondary to mechanical or pathological changes. This cannot be too often repeated. The symptoms complained of by the patient, the obvious symptoms, dependent on gross pathological lesions, are generally worthless from the point of view of prescribing. The *stiffness* of ankylosis,

the *dyspnœa* of pressure on the trachea, the *frequent micturition* of pressure on the bladder, the *itching skin* of bile-absorption, are not symptoms of any use, when we are searching for the constitutional remedy. But the symptoms that *are* of importance are the symptoms of the patient himself, as a whole; the failures to adjust himself to mental and physical surroundings. These are the things that cramp his vitalities, his healthy activities and enjoyment of life, that lower his resistance; it is on these that ultimates are established.

In speaking of the symptoms that express the patient it may be as well to explain the *terms used*, in case they should be unfamiliar to any here.

General symptoms are those which denote the patient as a whole. *Particulars* are those which refer only to a part or organ.

Of *generals*, the patient says "I," not "My." ("I suffer in the cold," "I have lost interest in everything—in work—in my loved ones." "I feel nausea at the sight or smell of food.") Of *particulars* he says, not "I," but "*My*." ("My knees suffer in the cold, or damp." "My eruption is more painful after washing.")

It is necessary to get generals and particulars clearly, since they may be contradictory. The patient may say, "I feel the cold, and cannot stand it; but my joint pains are much worse from heat." Such contradictory conditions are very valuable to the prescriber.

It is also necessary to distinguish clearly between generals and particulars, because the generals take far higher rank, as denoting the patient himself. Even in Homœopathy *the whole is greater than its part.* Of the generals the symptoms of highest rank are the *mental* symptoms, as expressing most perfectly, and indeed dominating the individual. These all are more especially important when they express a *change* in the mental or physical condition. Deviations from the normal of the race are important; deviations from the normal of the individual are much more so.

Take an example: A man who has always appeared light-hearted and open, becomes depressed and takes on suspicion. His very nature seems to change. This is of the utmost importance and it limits your work at once. Mentals are of the highest grade and such a marked symptom must be in high type. We know, therefore, that the remedy for this case must be in the group of suspicious remedies. Only drugs that have caused or evoked *suspicion* need to be considered. I say evoked because there must have been a latent tendency to suspicion in the patient, otherwise, neither sickness nor drug would probably have been able to bring it out. Mental symptoms, then, that express the patient's very self, take the highest rank in working out the case. When they are very definite and strongly marked they lead you at once to the consideration of a small group of remedies, and lighten the labour entailed in determining the drug. For we may get a long case with numerous symptoms. Something must be left out. The whole situation depends on what we *do* so leave out. If we remove the prop, the very foundation, why it must fall. Without the grading of symptoms, the knowledge of what is essential to the case, repertorizing would be an interminable task; with results so poor and uncertain as would soon lead to its abandonment. The symptoms of importance in repertorizing are those that denote *the patient*, his mental reactions, desires and fears; his physical reactions to temperature, storm and climate, to time, to food and drink, to position, motion, and such-like.

Of less importance are his particulars (the symptoms pertaining to his parts or organs), unless indeed, "rare and peculiar," when they at once become characteristic of *himself*, apart from his malady, and rank high.

Of least importance are *common* symptoms, whether common to his disease and therefore not distinctive, or common to a great number of remedies, and therefore useless for the selection of *one*. Common symptoms are practically useless in prescribing.

But notice, please, that the symptoms that go to make up the choice of the remedy, often lie quite outside those that go to

make up the pathology of the case. Beware of prescribing on a single symptom, however marked and characteristic. You may wipe out that symptom—only. You *will* do so, if you prescribe a remedy that does not cover the whole case. Whereas in prescribing for the patient as a whole, you will wipe out that symptom with the rest. More than that, you will often learn, later, that your medicine has cured symptoms that the patient never thought to mention to you.

Taking the Case.

The homœopathic taking of the case, then, must differ entirely from anything we have learnt outside the School of Hahnemann. The first rule is, *let the patient talk.* Don't interrupt. We want his whole story. By diverting his thoughts, we may lose something of the first importance. When he has finished, it is our turn. We must start questioning him, and get him to qualify all the statements he has made (because a common and useless symptom, when qualified, is often transformed into the "strange, rare and peculiar" that is so important in working out the remedy). We shall need to ask a great number of questions, in order to get the few symptoms of vital importance. But care is needed in framing our questions. They should be put in such a way that the patient is forced to consider, and make statements: that he is unable to answer them by *yes,* or *no.* Again remember: if we ask leading questions, we shall get misleading answers. Another point: it is useless to write down anything that is not definite and marked. If it is a question of "Yes—I *think* so?" "Well, you know, I *rather* prefer——" leave it out.

Next we have to get the generals, and mentals. The mentals we leave to the last, till we have had time to familiarize the patient with our methods, and to win his confidence. It is a difficult thing, often, to reach the very symptoms we need most—to probe to the depths of fears and depression. The friends of the patient may help us here, especially in regard to important changes of disposition. Besides that, we are helped by our own observations; the patient betrays himself in a hundred ways.

There is not only the *type* of the patient: the moist hand, the dusky complexion, the way he begs us to open (or shut) the window.

We may notice: restlessness and ceaseless movement, a suspicious look and manner, reserve, and resentment of sympathy, reluctance to tell even necessary symptoms, loquacity or slowness, easy weeping. Often our conclusions flatly contradict the patient's own description of his mental state.

In children the mentals are easy to get, and help you more than anything. There is the child you want to caress, and the child you want to spank. The child that wants to be comforted, and the child that twists angrily away.

In taking the case, the only things we have in common with the old school are, the *careful examination of the patient* and the *necessity for diagnosis*. Not because on diagnosis is based the remedy. It is *not*. But because, unless we diagnose the mechanical and pathological condition, we cannot prescribe either homœopathically or safely. For without examination and diagnosis, how are we to differentiate between the symptoms that are secondary to, or common to the disease, and those which are inherent in and peculiar to the patient? And for the discovery of the vital stimulus, the latter alone are of importance. Again if we neglect diagnosis, we may inadvertently, but irretrievably, damage the patient, by administering the vital stimulus in too high a potency. Where there is gross tissue-change, the remedy that ought to have been administered many years ago may provoke such a turmoil, such reaction, that the patient never rallies. In our attempt to cure what is incurable, we may actually kill.

Potencies.

And here let me say one word about *potencies*. Potentization was Hahnemann's great discovery. He considered potentized drugs essential in the cure of chronic conditions. He says: "Homœopathic dynamizations are processes by means of which the medicinal properties of drugs, which are in a latent state in the crude substance, are excited, and enabled to act dynamically

upon the vital force; that is upon the sensibility and irritability of fibres.

"I have been the first to discover and to promulgate this awakening of the latent dynamic properties of medicinal drugs, which is effected either by the process of trituration, or succussion.

"It is therefore improper to apply the term 'dilution' to a dynamized drug (though every new potency of a drug has to be mixed either with alcohol or sugar of milk, to enable us to carry on these processes still further, and to set free the very utmost power of the drug, which could not be done by simply triturating or shaking the original substance, were we to do it for ever so long a period).

". . . By employing proper care in the preparation of our potencies, even the 50th potency becomes exceedingly powerful."

He has, however, sanctioned potencies higher than he ever dreamed of, when he tells us the height to which potentization may, with advantage, be carried. For he says, so long as the potentized remedy is capable of provoking even a small aggravation of symptoms immediately after its administration, "*we have curative power.*"

Aggravation.

And here let us consider, for a moment, the question of *aggravation.* Aggravation is almost as precious to the homœopath, as amelioration. Where there is aggravation, there is evidence of *power.* Also, where there is aggravation, there is evidence of *reaction*; and it is on vital reaction that all our work is based. It is the reaction of the patient to the vital stimulus provided by the simillimum, that is curative. The remedy, as we said, never cures the patient, but it does far more: *It stimulates him to set about curing himself.* And that is why we must not repeat lightly. For while he is so busied, it is a fatal mistake to interrupt him, and cause him to swerve from his course. The symptoms presented by the patient, are really his reaction to disease. When we add a drug-stimulus of "like" nature, the preliminary aggravation is evidence of the enhanced endeavour of

the patient to resist. But aggravation is of two kinds, and we must distinguish between them. For with the one we *must* interfere; with the other, we must *not*.

There is the aggravation of the *disease*, where the disease is worse, and the patient is also worse; here we must antidote at once. There is the aggravation of symptoms only, when the symptoms are worse, *but the patient feels better*. Here we must let it alone. It will pass. Whenever there is aggravation of symptoms, but the patient says, "I feel better," that is of good prognosis—provided you keep your hands off.

Hahnemann says: "The physician need not feel the least uneasiness, if the ordinary symptoms of the disease are called out by the antipsoric remedies, in a higher degree of intensity than usually manifest.

"They will diminish more and more, one day after another.

"This so-called *homœopathic aggravation* is a proof that the cure is not only probable, but may be anticipated with certainty."

When there is not much tissue change, you get no real aggravation of disease, but a mere transient exacerbation of symptoms. Where the homœopathic aggravation is quick, and severe, and soon over, the amelioration will be long-lasting. (Always provided we keep our hands off.) A quick rebound on the part of the patient tells us several important things: That the remedy was well chosen; that the vital economy is in good state; that there are no gross tissue changes; that the patient will get well. Such cases give us no anxiety. So we see how all-important it is to our peace of mind, to know our work, and when we get results, to be able to interpret them.

The Language of Reaction.

It was important for us to be able to read the language of symptoms, to correctly interpret their cry for the curative drug. It is no less important that we should also master the language of reaction, and be able to rightly interpret what the remedy has to tell us, in regard to prognosis and the after-treatment of the case.

No aggravation, a sudden amelioration of all symptoms (a quick rebound to health) means: The remedy was right; the potency was right; the disease was not deeply seated.

A short, sharp aggravation, followed by long amelioration means—The remedy was right; the potency was right; reaction is good; patient curable.

In less favourable cases you may get: *Long aggravation, with slow improvement; long aggravation, with slow decline of patient; rapid improvement, followed by long aggravation;* these mean, prognosis not good. The normal curative reaction is not here. You must remember that there are cases that are incurable. In such, you must not give the constitutional remedy in high potency—the remedy that should have been given twenty years ago. It is too late. The reaction to such advanced disease would destroy the patient. You can help these patients a great deal, you can prolong life; only you must realize that you cannot cure them. In such cases we are told "to use short-acting remedies, and such antipsorics as do not relate to the case as it was at the beginning. The remedy that fits the previous condition will tear the case down."

There is one other group of great importance: *Amelioration, followed by return of old symptoms.* (By these we mean old, perhaps long-forgotten symptoms: not the symptoms for which the patient consulted us.) When these ancient symptoms return, in the reverse order of their coming, this is of the utmost importance. It tells us *that the remedy is deep-acting,* down to the very foundations; *that the patient will get well* (always provided that we will let well alone).

It proves, as Hahnemann says of the return of these old symptoms: "That the remedy has attacked the disease in its inmost nature, and will prove of great use hereafter. Therefore the remedy," he says, "ought to be left undisturbed."

Therefore, whenever the patient returns with the report of symptoms new to us, we must always ask whether they are really new to the patient, or whether they are not merely a return of ancient symptoms (*i.e.*, previous phases of the chronic life-long

disease), since these are of good prognosis, and must not be meddled with; for, as a rule, they do not persist. They return to make their bow before the curtain; then vanish.

We must let the Remedy act.

And now, most important of all, we must speak of the need to *let the remedy act.* It is at our peril we meddle with reaction. The first prescription was important. On the second hangs the future of the patient. It is no good to say, "I have found the curative drug, I will push it." Remember always, that if there is one thing the curative drug will not stand, it is being pushed. The result of such a course will speedily cause you to doubt whether you have got the curative drug at all. We must be loyal to the remedy, and to the reaction of the patient; or they will both fail us, and there will be no cure. The curative drug always demands that we shall watch and *wait*: for the curative drug strongly resents interference.

Even the Allopaths have come to recognize a state of hypersensitiveness or anaphylaxis following vital stimulus: and the uselessness, and even danger of repetition while this lasts. The disciples of Hahnemann knew of this condition ages before it got a long Greek name. They have Hahnemann's warnings, and his direction for practice. You have got to hasten slowly. You have, with the dose of your well-selected remedy, supplied the initial impetus: your patient is just able to stagger forward; but it *is* forward. Give him another push, and his direction is no longer forward, but *down.*

Hahnemann says: "The surest and safest way of *hastening* the cure, is to let the medicine act *so long as the improvement in the patient continues* (were it far beyond the period set down as the probable duration of its action). *He who observes this rule with the greatest care will be the most successful homœopathic practitioner.*"

There are more cases spoilt by improper repetition of the remedy than from any other cause. Whenever a remedy has produced a positive effect, whether of aggravation or of amelioration, no repetition is permissible until that action has wholly

spent itself. Symptoms were all important for the choice of the remedy: but after the remedy has given, and while the patient is reacting, symptoms must not betray us into prescribing. So long as a patient is improving, symptoms are *not* a call for a new prescription. Listen to Hahnemann again: "The physician must be on his guard against interrupting the action of the antipsoric remedy which he has given to the patient. Let him not exhibit an intermediate remedy, on account of a little headache, which may perhaps come the day after the antipsoric was given, or another remedy for a sore throat, or diarrhœa, or a little pain."

"*The rule is, that the carefully selected homœopathic remedy should act until it has completed its effect.*"

And again, he says, "A hasty repetition of the remedy, or every new dose of another remedy, would produce increase of morbid symptoms and interrupt the process of cure. It often requires a long time before so much mischief can be remedied."

And again, "By means of a single dose of a carefully selected remedy, the homœopathic physician often produces an improvement in the state of his patient, which continues even to the restoration of health. *This result could not have been obtained if the dose had been repeated, or if another remedy had been given.*"

And again, "The whole cure fails, if the antipsoric remedies which have been prescribed for the patient are not permitted to act uninterruptedly to the end. . . ." He talks of "the loss which the rash haste of the physician has inflicted upon the patient," by which "the benign action of the remedy, which was about manifesting its most beautiful and surprising results, is probably lost to the patient for ever."

And once again: "The surest and safest way to *hasten* the cure is, to let the medicine act so long as the improvement of the patient continues. He who observes this rule with the greatest care, will be the most successful homœopathic practitioner."

So long, then, as reaction is in progress, symptoms are not a call for a new prescription, even were it a repetition.

While the patient is reacting, and his symptoms mending, there is no cry for a drug, and you have no business to give a drug, except in response to a definite cry. A drug for which there is no cry is no stimulus to healthful reaction.

Reaction is still going on, so long as *symptoms continue to disappear in the reverse order of their coming*, or *ancient symptoms return* (to disappear) *in the reverse order of their appearing*, or *if symptoms pass from internal organs on to more superficial ones*, or, when symptoms change and move *from above downwards*.

Hering, in his preface to the "Chronic Disease," puts this point. He writes: "Every homœopathic physician must have observed that the improvement in pain takes place from above downwards, and in disease from within outwards. This is why chronic diseases, if they are thoroughly cured, always terminate in some cutaneous eruption. The thorough cure of a widely ramified chronic disease in the organism is indicated by the most prominent organs being first relieved; the affection passes off in the order in which the organs had been affected, the more important being relieved first, the less important next, and the skin last.

"Even the superficial observer cannot fail to recognize this law of order. *An improvement which takes place in a different order can never be relied on.*"

This, then, is the order of cure: *From above downwards*; *from within outwards*; *in the reverse order of appearing.*

But how long must we wait before repeating the dose? (Have you observed, by-the-bye, how Hahnemann always speaks about *the dose*, when he is dealing with chronic diseases?) There is only one rule in regard to repetition; wait till the patient feels less well, and the symptoms on which we prescribed begin to come back, *to stay*. They return *just to ask for a* repetition of the remedy. Here is a case of Hahnemann's. He says: "On one occasion I gave sepia against a chronic headache,

which came on at intervals. The attacks became both less frequent and less violent. Another dose stopped the headache for a period of one hundred days; from which I inferred that the remedy acted during all that time. At the end of one hundred days another slight attack came on. A third dose of sepia was given, and it is now seven years since the headache has completely disappeared."—"Chron. Dis."

I think I have shown you that this is all Hahnemann, of whom Dr. Kent is the greatest exponent in our day. Kent says in a recent letter: "It always seems so strange to me to hear that I have attempted a departure from Hahnemann's teaching. I simply try to show what it means, and how to apply it after one hundred years of application. I have made no discoveries. I have nothing that I can call my own."

On the question of letting the remedy act, he is at one with "the Grand Old Master," as he calls Hahnemann. Kent says: "The more ignorant the physician, the more he will do." "It is better to do nothing at all than to do something useless." "If you go at it like a common tinker you may cure acute sickness, but, on your life, do not tamper with these chronic diseases." "This flopping about, and not waiting for the remedy to act, is abominable! There are periods of improvement and periods of failure. Let the life force go on as long as it can, and *repeat only when the original symptoms come back to stay.*"

One last quotation from Hahnemann I will give you: "My doctrines in regard to the magnitude and repetition of the doses will be doubted for years, even by the greater number of homœopathic physicians. Their excuse will be, 'that is quite difficult enough to believe that the minute homœopathic doses have at all the power to act upon disease, but that it is incredible that such small doses should be able to influence an inveterate chronic disease even for two or three, much less for forty or fifty days; yea, that after so long a space of time important results should be obtained from those imperceptible doses.' . . ."

"Does the physician risk anything by imitating a method which I have adopted from long experience and observation?

Unless the physician imitates my method, he cannot expect to solve the highest problem of medical science, that of curing those important chronic diseases which have indeed remained uncured up to the time when I discovered their true character and proper treatment. . . .

"If physicians do not carefully practise what I teach, let them not boast themselves of being of my followers, and, above all, *let them not expect to be successful in their treatment.*"

There may be much in the foregoing that seems strange and almost inexplicable, but we must approach it with the humble mind of those eager to do all we can for suffering humanity. We do not yet understand what electricity is, but that does not hinder men from using it along directed channels to obey their wills—if we sit still and do nothing till we fully understand why and how things happen, we will not be busy or useful.

So with homœopathy—we cannot explain precisely how the simillimum acts—why such minute quantities of drugs should have any action at all—why it is dangerous to repeat too soon the phenomena of aggravation, but we use them intelligently. Now science comes along and clears up much that was dark. Recent excellent papers by Mr. Dudley Wright, Dr. Wheeler, and last month by our President, gave evidence of the forces of the infinitesimal, we need no longer apologize for using drugs in such imperceptible doses. The phenomena of anaphylaxis are analogous to the upset produced by the too early repetition of the homœopathic remedy. Sir Almroth Wright's so-called reaction in vaccine therapy explains to some extent the aggravation felt by the patient after the administration of our drugs.

So we may yet hope for many of the strange things that actually do occur in our practice being fully understood some day, but we must not wait till then before we utilize their messages.

Dr. Wheeler ably puts it in *The Homœopathic World*, February, 1914: "As regards many subjective symptoms and so-called 'general' symptoms, their pathology is as yet unknown;

but that does not mean that it is non-existent. There must be a reason why one patient reacts unfavourably to damp or cold more than another. Sometimes we can divine it, but when we cannot, the symptom is nevertheless a part of the pathology of the case, and it is not scientific to ignore all that we cannot explain. Rather we should seek to understand."

I have been almost entirely using Hahnemann's name, and that advisedly. It is impossible to conceive in these days of anyone blindly following teachings of 100 years ago, unless they be borne out by everyday clinical experience. Even to-day Hahnemann's warning holds good—and only those who closely follow his directions need look for his results.—*The British Homœopathic Journal*, January, 1915.

EDITOR'S NOTES.

The Order of St. John of Jerusalem.

A particularly fascinating little book at the present juncture is "Chivalry and the Wounded," which contains an historical account of the Hospitallers of St. John of Jerusalem (1014—1914), by E. M. Tenison. The St. John Ambulance is well known to the public, but the fact that it owes its origin to the modern successor of one of the old orders of chivalry is perhaps less generally realised. The author describes in the first two chapters the foundation of the hospital in Jerusalem for the succour of travellers, exactly 900 years ago—viz., in 1014—and the organisation of the Knights Hospitallers after the capture of Jerusalem in 1099 into a regularly constituted religious order, which was formally recognised by the Pope in 1113. In 1291 the Knights of St. John in Palestine sent the women and children in the galleys of the Order from Acre to Cyprus, and with the Red Cross Knights Templars defended Acre to the last against the hosts of the Sultan, only a small number under the Grand Master, Villiers, effecting their escape to Cyprus, where the Order established a new home, transferred in 1310 to Rhodes. They were driven thence by the Sultan Solyman in 1522, and after being homeless eight years established themselves in Malta in 1530, where they remained until 1798. Meanwhile, about 1102, a branch of the Order had been established in England, with headquarters in Clerkenwell, where the hospital gate is still standing, and forms the headquarters of the present priory of the Order. Henry VIII, suppressed the Order and confiscated its property, and in 1548 under Edward VI, its priory was blown up. A brief revival occurred under Mary, but Elizabeth desecrated it by conferring the priory on her Master of the Revels. In 1798 its Maltese stronghold supinely submitted to General Bonaparte, when resistance for only a few weeks would have brought the British Navy under Nelson to their relief. Von Homspech, the sixty-ninth and last Grand Master of the Order, whose supineness had led to the disaster, died in 1805, a poverty stricken member of a religious community at Montpellier. The

last chapter describes the revival in 1831 as a lay community of the English Order of St. John, which devoted itself to the relief of the sick and helpless, the support of cottage hospitals an convalescent homes, and the establishment in 1871 of the St. John Ambulance Association. There are branches of the Order also in Austria, Germany and Spain. The book closes with an appeal to the nation for funds to help the Order to meet the strain of the war, in which it is doing splendid work through its mobilised hospital orderlies and upwards of 130 highly trained nurses serving at the front.—*The Homœopathic World*, January 1, 1915.

A Heroic Proving of Apis.

A correspondent of *Gleanings in Bee Culture* relates the following: One day he visited his beehives and found that the bees were in an exceedingly bad humour, for they came at him by hundreds. Though well protected they got under or through his guard, stinging him from head to foot. The pain was not excessive, and by taking refuge in a cornfield he finally managed to get rid of his tormentors. On returning to his house he found that water was literally running from him, his clothes being very wet, though the day was not a warm one, and he had not indulged in any violent exercise beyond a slow walk and brushing off the bees from his garments. His face was swollen and almost purple. The next development was a fluttering and violently pumping heart. Next, though he did not faint, everything vanished from sight; he was weak and dizzy; the heart then grew weaker, being hardly perceptible. In a short time the vision began to return again, he being able to see dimly. All this occurred in the barn, where he had gone after returning to the house from his first experience. When vision began to return he started to the house, but at once sight vanished, he was in midnight darkness and had to slowly grope his way home. For half an hour his condition fluctuated between total blindness and very indistinct vision; was weak, limp, the heart very irregular and faint. Consciousness and reason never left

him, though there was a great depression. His looks, he was told, were pale and ghastly. In time, probably an hour, there was an urgent call for stool, and when the bowels were evacuted his sight returned to normal, the heart nearly so, and he felt that the danger point was passed.

During this experience there were no pains worthy of being called such. The following day he felt as though he had done a day's work of severe physical labour, the muscles of the whole body being very sore. The third day he was quite normal in all respects and has remained so.

All of this goes to confirm the accuracy of the homœopathic materia medica.—*The British Homœopathic Journal*, January, 1915.

Veronal, Poisoning.

In the *British Medical Journal* of April 18, 1914, are recorded three cases of veronal poisoning; a fatal case where the estimated amount of veronal taken was less than 50 gr., and two cases of recovery where the amount of veronal taken was in one case 125 gr. and in the other 35 gr.

The fatal case was that of a man, aged 50, who had suffered from mental depression and insomnia. He was found deeply comatose and breathing heavily, the pupils moderately dilated, the limbs flaccid but not paralysed, reflexes abolished, the temperature raised about a degree, and the pulse quickened and regular. There was some rattling of mucus in the upper air passages. The stomach was washed out with a solution of potassium permanganate. There was no return of consciousness. The patient was fed with nutrient enemata and with saline which also contained coffee and strychnine. Three and a half days after taking the veronal the temperature rose to 107·2° F. This was reduced by cold packs to 104·5° F., but in a few hours he died. At the *post mortem* degenerative changes were found in the heart muscle and there were deposits of fat on the surface. The other organs were œdematous or congested but showed no other change. Crystals of veronal were extracted from the urine and from the

tissues, and from the amount found it was estimated that the quantity of veronal taken was between the fatal dose of 50 gr. and the minimum recorded fatal dose of 15 gr.

The case of recovery from 125 gr. was that of a healthy young lady, age 20. She was found quite unconscious and could not be roused, with pupils semi-dilated and all reflexes abolished. The stomach was washed out and black coffee introduced, a hypodermic of ¼ gr. of strychnine administered, and a soap and water enema given. There was a good deal of cyanosis kept in check by oxygen inhalations. These measures were repeated and continued over a period of three days. Nutrient enemata were given, each consisting of 5 oz. of milk and the white of one egg. The pulse and temperature fluctuated but both were raised; the temperature on the second day reaching 103° F. and the pulse 130. The corneal reflex returned in about forty hours, but the period of total or partial unconsciousness lasted three and a half days. Several fits of weeping preceded her return to speaking consciousness. A transient erythematous rash appeared on the trunk and thighs about the fifth day, otherwise she was none the worse for her experience.

The case of recovery from 35 gr. of veronal was that of a single woman, aged 40, who took it for the relief of facial neuralgia. She was heard to be snoring, which was unusual with her, and it was then found that she could not be roused. Her breathing was quiet and pulse rate normal and the pupils were normal and reacted to light. She could be partially roused by flicking her face with a wet handkerchief but almost immediately relapsed into profound sleep. She continued in this state for fifty hours when the nurse roused her sufficiently to take some tea, but she slept again for another twenty-two hours when she roused herself but was for some time very confused and was unable to stand or walk. She slept more or less for a further thirty-six hours after which she was well.

In a subsequent number of the *British Medical Journal* (p. 1015), another case is published that of a cook aged 40, who recovered after taking 100 gr. She was found snoring and

quite unconscious, with all reflexes abolished and the limbs flaccid. Pupils equal and medium reacted to light. Breathing stertorous and slow (16), the pulse rather feeble but regular (66). No rise of temperature. A hypodermic of $\frac{1}{30}$ gr. of strychnine sulphate was given followed by one of $\frac{1}{10}$ gr. apomorphine, but no emesis being produced, the stomach was washed out with a weak solution of potassium permanganate and a breakfastcup full of strong coffee introduced. The patient was conveyed to the Galloway Royal Infirmary. Vigorous flagellation produced slow movements and moans, and the pulse being good she was left to sleep off the effects of the dose. The next day she was drowsy but partially conscious, and during the next three days gradually came round. There was no rash.—*The British Homœopathic Journal*, January, 1915.

Determination of Sodium Chloride in the Urine.

To determine the amount of sodium chloride in a specimen of urine, one c. c. of urine is drawn up into a pipette and placed in a porcelain dish, five c. c. of a mixture of equal parts of sulphate of iron and ammonium solution and nitric acid (which is used as an indicator) are added; then ten c. c. of distilled water and one c. c. one in ten ammonium sulphocyanide solution. A brown color appears. One c. c. of one in ten silver nitrate solution is added and then one in ten silver nitrate solution is dropped from a burette, with constant stirring, until the solution is colorless. The number of drops used multiplied by 0.0244 gives the percentage of sodium chloride in the urine. By this method the determination of sodium chloride can be carried out quickly and accurately, the limit of error being usually not greater than is accounted for by one drop (0.0244 per cent.).—*The New York Medical Journal*, January 30, 1915.

Food and Cooking.

The National Food Reform Association has published a small book with the title *Facts for Patriots*, urging that it is above all necessary at the present time that the people should learn to apply those principles of nutrition which the association has been endeavouring, with perhaps some amount of exaggeration, to instil into the public mind. As is well known, the association, under the direction of Mr. Eustace Miles, urges the adoption of a lacto-vegetarian diet, on the ground not only of its high nutritive value but of its economy. As we have often pointed out, there is a popular objection to many articles of food merely because they are cheap. The inquiry undertaken not long ago into the use of oatmeal in a large number of households, showed that the percentage in which this valuable food was employed was in inverse proportion to the rental of the houses, and even in Edinburgh the labour members of the town council protested against the action of the Education Committee in providing porridge for the free breakfast given to the children attending elementary schools. We may share the regret of the association that such valuable foods as cheese and oatmeal are neglected to a large extent, but it will take much spade work to uproot the prejudice existing against them. The value of pulses and lentils is exaggerated; their relative difficulty of digestion and assimilation was proved by Professor McCay in his interesting investigations of the metabolism of Bengalees; he showed that no less than 25 per cent. of the total nitrogen of the food was contained in the faeces, and he attributed this to the use of dhal (pulse), which he holds responsible for most of the bowel complaints so prevalent amongst these people. Undoubtedly the Food Reform Association is right in complaining of the abuse of tea, for it is no exaggeration to say that tea is now drunk four or five times a day, or with every meal, by large numbers of the poorer classes, and it is abused also in our own houses by servants. Sir James Crichton-Browne, in a recently published interview, speaks of tea as "one of the saviours of mankind," for he believes its use has to a large extent superseded that of alcohol. There is a good deal of truth in this, but stewed tea is at the present time responsible for a large amount of indigestion, nervousness, sleeplessness,

and other troubles. Not only is there in this country an enormous amount of ignorance of food values, but also great neglect of cookery and inability or unwillingness to provide appetizing dishes from food materials which are happily so abundant and so cheap. Instead of attempting to induce the people to eliminate animal food from their dietary, it would be more practical to teach them the proper use of the cheaper kinds of animal food and how to cook it so that with a considerable addition of all those articles which the food Reform Association rightly advocates, dishes could be made which would possess the sapidity which meat undoubtedly confers. This quality is perhaps too highly appreciated, but it cannot be ignored. The Food Reform Association has done good work in demonstrating the value of vegetable foods, but we have often heard complaints that the dishes sold at restaurants where its principles are carried out fail to please from the want of the sort of flavour that the popular palate seems to crave.—*The British Medical Journal*, December 26, 1914.

Louvain and its Library.

Probably no one of the many atrocities perpetrated by the Germans in this war has made such an impression on the minds of educated people throughout the world as the wanton destruction of Louvain. A short sketch of the history of the university is given by Dr. John G. Vance in the *British Review* for November, while a longer account, with special reference to the medical faculty by Dr. John Bethune Stein, of New York, appears in the *Medical Record* of November 14th. The university was founded by Pope Martin V in a Bull dated December 9th, 1425, establishing all the usual faculties with the exception of theology. In view of the large part given to theology in the university when it was born anew in the nineteenth century, this exception is remarkable. The early history of the medical faculty is obscure, and the documents concerning it probably perished in the flames kindled by the torches of German *Kultur*. It is known, however, that the first professor of the medical faculty was Jean van den Eele, a graduate of Cologne, who was also the first rector of the university. He held that office in 1427, 1431, and 1473.

Dr. Stein gives a list of forty-one members of the medical faculty, each of whom was rector of the university; it extends from 1427 to 1788. In the list appears the name of Jan Wesalia or Vesale, who taught medicine from 1429 till 1472, and was Rector in 1430, 1433, and 1438. He was an ancestor of the great reformer of anatomy, Andreas Vesalius. Less than twenty years after the foundation of the university Pope Eugenius IV, learning that the medical professors of Louvain were neglecting the sound doctrine of Hippocrates and Galen, and taking Avicenna and Rhazes as their masters, founded in 1443 two new chairs in the medical faculty to which priests were appointed.' They were canons of St. Pierre, an ancient church destroyed by the Germans. St. Pierre was interesting to doctors on account of its connexion with the early history of medicine in Belgium. Among its treasures was a famous triptych, painted by Dierick Bouts in 1468; this represented the martyrdom of St. Erasmus, whose speciality as a patron was intestinal disease. It might, perhaps, have been described as an early example of abdominal surgery, for it showed the Bishop with an incision in his abdomen, from which the intestines were being drawn out and wound upon a crank by two men. The first medical graduate was Jan Stockelpot, a priest who was a professor in the faculty of arts. The degree of doctor of medicine was conferred on him in 1433, and in 1445 he became a professor in ordinary. The university suffered severely during the forty-three years of war in Belgium in the sixteenth century, and in 1580 Pope Gregory XIII, hearing that there were no funds for the payment of the professors' salaries, sent a large sum to be divided among them. In the early part of the seventeenth century the degree of doctor of medicine had become so expensive a luxury that the students addressed a petition to the Archduke Albert and his consort Isabella asking for various reforms, and particularly to be relieved of the expenses entailed by the elaborate ceremonial and the banquets customary on the occasion. This led to an "act of investigation," the outcome of which was the establishment of four chairs in the medical faculty instead of two, the duties of each professor being clearly defined. By the treaty of Aix-la-Chapelle, October 18th, 1748, Belgium passed under the

sway of the Empress Maria Theresa of Austria. She tried to raise the standard of medical education, but foreign rule did not prove favourable to this aim. Joseph II reformed the university in so drastic a fashion that in 1788 it virtually died under the operation. The medical department was reinstated in 1790, but the university was suppressed by the French Revolutionary Government in 1797. It was revived by the Belgian bishops as a Catholic university in 1834. In that year the number of students was 86; it grew steadily till within the last year it was 3,000. With regard to the library, which was said to have been burnt by the Germans, it has recently been stated by M. Henri Bergson, the distinguished philosopher, in a communication to the Académie des Sciences Morales et Politiques, that he has good reasons to believe that it was pillaged before the building was burnt. Since then the *Temps* has published a letter from M. Ossip Lourié, a well-known journalist and man of letters, in which he tells a story which seems to lend confirmation to M. Bergson's statement: "In the month of August 1913," he writes, "I met among the mountains of Switzerland two Germans, one of them a professor of physiology, the other of linguistics. The latter constantly spoke to me of the new Royal Library of Berlin, which he said was 'capable of containing five million volumes.' On my remarking that it would take a long time to fill it, my interlocutor replied very seriously, 'That will be very easy after a war.'" The meaning of this utterance is now too clear. The Germans say they make war to spread their culture among those who live in darkness. It is remarkable that as a means to this end they should steal the books of the "uncultured."—*The British Medical Journal*, December 26, 1914.

Gleanings from Contemporary Literature.

THE AIM OF HOMŒOPATHY.

EXPLAINED FOR NON-SCIENTIFIC READERS.

By GERARD SMITH, M.R.C.S.

AFTER nearly forty years of medical practice, thirty of them as an avowed homœopathist, I find that scarcely two per cent. of the general public, even of those who habitually use Homœopathy in illness, and scarcely three per cent. of the medical profession, know what is the main principle and aim, the ideal of Homœopathy.

The majority regard Homœopathy as being desirable and superior to orthodox medication, because the remedies given in Homœopathy are tasteless or almost tasteless, and therefore more pleasant to take whilst children will take them without protest. Indeed, it is quite usual to hear the statement that Homœopathy, with its small doses, is good for children, implying that in the case of adults it is inefficient.

In almost all the prevalent notions concerning Homœopathy this insisting upon the *small dose* seems to be uppermost; without the minute or infinitesimal *dose*, in the minds of most people Homœopathy does not exist. So much indeed, is this the case, that the whole aim and scientific basis of the method or system is hidden from sight by this one less important and quite secondary rule of Homœopathy.

I suppose that there is a general idea prevalent that Homœopathy is method of selecting remedies for illness on the score of their producing in healthy people the same symptoms as those of the illness, this is, of course, quite a correct statement; and, so far as it goes, proves that those who hold it do know something about Homœopathy; it is, however, quite a minority of the general unscientific folk who know even this much, and they suppose that this is the whole of Homœopathy with the infinitesimal or small dose as a necessary condition.

This is Homœopathy, it is true, but it is only a bare statement of a mechanical rule; it is a long way from being the heart and aim and reason and scientific basis of Homœopathy; the thing goes far deeper than the mere rule of using remedies which produce the symptoms they are used to relieve, and it is this deeper and more essential basis of which I find both non-medical and medical people

are in ignorance, though more than one hundred years have passed since Homœopathy has been practised.

Selecting remedies on account of the specific likeness of their action to those of the illness scarcely makes a man or woman a homœopath, it is, as least, only a very partial and imperfect ground for so doing.

I suppose that not one person in a hundred (from my own experience I should say one in a thousand) realizes the absolutely different mental point of view which the homœopathist and the orthodox doctor respectively take towards the symptoms of illness, and of their duty in the presence of those symptoms. We hear a great deal of talk of the increasing approximation of homœopathic and orthodox medication, and it is probable that, merely on the grounds of empiricism that is, of giving remedies because they do good, without any knowledge of why or how this is so, such approximation may be coming about; but I do not think that in the central ideal and aim there is much, if any, mingling of thought between the two schools.

No doubt all medical men conceive their first duty to be the relief of sickness: that is, they exist for the purpose of assisting the sick to recover health, and their duty is to do all they can in this direction, and also to relieve suffering, pain, discomfort of all kinds, even if the means employed are not such as lead to recovery of health.

Homœopathic and orthodox practitioners are at one in this desire to relieve pain and discomfort by any and all means at their disposal and also they are at one in their aim of aiding recovery from the illness of which the pain is one symptom so frequently, but, if the homœopathist is true to his ideals, and the orthodox man is sincere in his opposition to, and not infrequently contempt of, the homœopathist, each must necessarily go to his work when it comes to the question of securing recovery from illness, with very different mental attitudes. No theory as to recovery would prevent either the one or the other from using doses of any amount, large or small, which experience has taught us will relieve pain, but relieving pain is not by any means securing the recovery of our patient.

And here comes the point at which homœopathist and orthodox practitioner diverge. The homœopathist regards the symptoms of disease from a totally different point of view to that held by the orthodox man, and it is this view of symptoms, of the meaning of the various pains, changes of tissue and structure, rashes, coughs,

out-goings of fluid, and all the protean phenomena called "symptoms" which the unscientific man does not comprehend.

The unscientific man usually speaks of the "cure" of an illness; of course the word "cure" means actually merely "care," it has no reference really to recovery from illness; but the wrong use of the word has now become so stereotyped and fixed, that it cannot be altered. Nevertheless, for reasons which will appear presently, I prefer the word "recovery," and the work of the doctor I prefer to describe not as that of "curing" the patient, but as that of "securing his or her recovery."

The unscientific, that is, the unthinking individual regards the science of medicine mostly as a list of named diseases, opposite to each of which, or under each of which, is the name of a medicine which will "cure" it, and the work of a doctor is to learn these names and give the fitting "cure"; if he succeeds, he has remembered the list, if he fails, that is, if the patient does not recover, he has "given the wrong medicine"; this is literally the insane idea which I have discovered existing in the minds of unscientific, *i.e.*, ignorant people.

This common idea is founded upon the belief that the "cure" of illness consists in the abolishing by some inherent power in drugs, of each symptom of illness; the symptoms (pain, rash, fever, cough, diarrhœa, etc.) being all looked upon simply as so many malevolent and unnatural failures in the working of the body; having no meaning but that of such failure and going wrong; each of them, therefore being something for which an antidote must be found, a drug or other form of medication, the action of which is contrary to the symptoms, a power which will stop them, will suppress and abolish them.

And yet it is curious that even the most stupid and unscientific person does not expect a doctor to find a medicine to "contradict" or do away with or stop one very important symptom of disease, I mean a rash; to "bring the rash out" is the aim in all diseases in which a rash is one of the symptoms, and the doctor who tried to suppress a rash would be crushed by public opinion. Not so, however, the doctor who tries to suppress any other evidence of the activities of the body in illness, such as cough, or diarrhœa (pain, when excessive, as I have said we all agree that it is our duty to modify as far as we can by any safe means, be the dose large or small); this action, suppressing anything but a rash, is regarded as the first duty of the doctor, and the days are not yet over when

the doctor looked upon opium as one of his greatest friends because it so dulled the edge of the nerves of various organs that coughs and diarrhœas and other such responses on the part of the cells ceased; and an apparent cure resulted, which sometimes lasted, in trivial cases of illness, until the patient had really recoverd by natural means and lapse of time, though far more often the stopping of the cough, etc., was merely so much delay in the recovery of the patient.

I have I think, now led my reader to the essential point at which the peculiar view of the homœopathist comes into sight; the mental attitude he takes towards the symptoms of illness is that of regarding them as indications of the activities of the defensive powers of the body, the pains, the fever, the rash, the cough, and the other symptoms of illness are to the homœopathist the result of recovery-producing powers and efforts; the activities of the cells whose duty it is to defend the body against disease; the working of the "vis medicatrix naturæ" which would so often bring about the return to health without the doctor's help, or, as I feel obliged to term it sometimes, his interference.

This is the first requisite for advance in medical science, to recognise and aid in every way in our power the defensive and protective forces inherent in the body, and it is this which is the aim and foundation of Homœopathy.

Possibly it is a regrettable fact that the "label" or designation "Homœopathy" was ever invented; and there are many other labels of which it might be said, perhaps that it would have been better if they had never been born; but the thing is with us now, and we cannot get away from it, and, after all, if men are sincere in their beliefs and ideals, some will always become so separated from the mass, and will hold such distinctive beliefs and aims, that designation becomes necessary and useful; so we will continue to call the heretic "Homœopathic" in contradistinction to the orthodox practitioner, who denies that any such law of selection of medicines exists, as is this one founded upon the similarity between the symptoms produced by drugs and those which are evidences of illness.

At first sight, the ideal of pulling in the same direction as Nature pushes, or regarding the symptoms of illness as proof of the direction in which recovery is coming about, appears to the unscientific person as a freak of insanity; they do not want a man

to try and work with the symptoms of their illness; to make their symptoms worse, and assist the enemy generally; and, until some further facts are known in matter, I think that their objections to the idea are excusable.

Some years ago, the late Sir Andrew Clarke was asked by a young doctor, who had recently settled in practice, "Can you tell me, Sir Andrew, of anything new for the treatment of a case of pneumonia?" and the young man received the somewhat perplexing reply: "I never treated a 'case of pneumonia' in my life, young man, and I hope I shall never do so!" Further explanation elicited the statement, "What I do treat is a man, or a woman, or a child: I note the general and special type of constitution, physical, mental, and take account of the environment, the special influences surrounding the life of the patient, and so on; then as to the symptoms of the illness; I find, perhaps, an outgoing exudation from the lung cells, accomplished by a cough; what does it mean? What is it attempting to do? Should I let it go on doing its work, or perhaps, should I be right if I stopped it? I note a high temperature; what does it mean? What is it which is burning up? Is it possibly something which is being destroyed which would otherwise bring fatal injury to the body?"

And so with each sign or symptom; *think before you act against them;* collect the symptoms into a total picture, which may or may not possess a name; may or may not present to your mind some well known and recognised illness with the terminal, "it is" which your medicines should be selected to attack; there may be an "it is" there, but it is the name given to a collection of indications of the way in which the inherent "recovery-producing" or defensive forces of the body are working towards recovery, if recovery be possible.

The non-medical public have got into a bad habit of regarding the human body as a machine constructed in a way which invites illness; which is more liable to go wrong than right; and which requires constant watchfulness to prevent it from going wrong.

It may be true that certain organs or tissues of the human body which have been for thousands of years less and less actively employed, do tend to weakness and degeneration, and are more and more liable to be attacked by disease; but a careful study of anatomy and physiology will convince the student that the human body is supplied in every direction with means of *defence* against disease, and not with means whereby disease is *invited*; and, at the risk of wearying my readers by repetition, I must insist that it is the activi-

ties of these *defensive* means which are brought to light in the symptoms of illness, *not* "*disease-producing*" means.

The central *Aim of Homœopathy*, then, is to ascertain what is the work which these defensive forces are doing when their activities produce various symptoms, and to strive to work in the same direction, to follow Nature's directions, and strive to aid them; and the method adopted is that of using as remedies various "drugs," as they are called, which possess the power of producing the same symptoms as those which, when grouped together, constitute the illness.

As soon as your brain *really grips this ideal*, the first thought which arises in your mind is that in Homœopathy we do all we can to *make our patient worse*, we try to set going a series of drug-produced symptoms which are pictures of the illness itself, and, at the very outset, many, perhaps most, of the people who are able to *think* (not a common accomplishment at all) for this reason reject Homœopathy without any further investigation of the theory and practice.

Pray do not do this without a deeper consideration of the question of the *dose*, the quantity and form of the illness-increasing (or apparently so) drugs used in Homœopathy, for it is in his matter of quantity and form of drug used that the essence of Homœopathy resides.

We are getting away from our old ideas as to the quantity of a poison which can produce symptoms of illness, the dose, for example, which can produce the train of symptoms which collectively are termed Typhoid Fever, is something so small that if it were given as a remedy for illness, I suppose all those who ridicule Homœopathy would call it absurd.

The point is more in the question of form than of dose; it is largely a question as to in what state of fineness or attenuation a drug is given, not so much what is the actual quantity taken.

Many substances, vegetable, animal and mineral, can be swallowed in the crude or massive state, and produce no symptoms but those due to irritation of the stomach and intestines in their efforts to get rid of the thing; yet these same things, if given in a finely divided or attentuated form, will produce all kinds of symptoms. Sulphur is a good example, pieces of sulphur from the block swallowed, produce nothing but the pain and discomfort which pieces of stone would produce, but if the sulphur be ground up into an exceedingly fine powder, only a few grains of this being then still more minutely powdered, with hundreds of grains of some inactive powder such as sugar of milk, all kinds of symptoms appear, joint pains like gout and rheumatism, pains in the limbs, soreness in tendons of the feet,

headache with nausea, giddiness and staggering, lassitude and faintness and a host of others.

Why should this be? Why should that which is as we usually regard the thing, a smaller dose, produce more varied and severe effects than does a large quantity.

The reason is, of course, plain to the scientific mind but I am writing for unscientific folk, and must therefore explain that the finely divided drug, be it sulphur or any other, acts more completely and exhibits its special affinities and powers amongst the structures in which the symptoms appear, *because its finely divided state enables it to enter the blood-stream*, which in the crude form of a lump or piece it could not do, in that form it could only remain in or pass through the stomach and intestines.

And the finely divided state, the small dose attenuated, can enter the blood-stream because it has been brought to a condition in which what is termed "osmosis" is possible, a condition in which its extremely minute particles can pass through the walls of extremely thin membrane, this being a necessary condition for osmosis.

The small dose, the finely attenuated form of drug "*can get in*"; whilst the lump or piece cannot do so; it is like taking the point of a fine needle to set right the wheels of a watch, instead of trying to do it with the kitchen poker.

This efficacy of the attenuated form of a medicine is well illustrated in cases in which the medical attendant has selected a drug the symptoms produced by which are a very exact parallel to those he is treating, and yet the medicine fails to relieve the disease symptoms. In such cases the patient very often thinks that the failure is due to the medicine being not "strong" enough, and he takes a larger dose of the attenuated drug, with the result that very often the symptoms increase in severity; this is a clear proof that the medicine selected is the proper one; the patient has added drug symptoms to the already existing illness, he has, as it were, forced the pace too much. If, instead of taking a *larger* dose, he had taken a *smaller* one, probably the illness symptoms would have begun to depart.

There is a phenomenon connected with the dose which is of importance: it has been asserted, and experimental demonstration has been made which seems to prove the truth of the assertion, that drugs which act vigorously, as poisons, on the healthy body, produce one set of symptoms in a large dose; and the opposite symptoms in a small dose; so far as some drugs, especially those acting upon the heart, are concerned, this seems to be a fact; a large dose of *Digitalis*

given in health will slow the heart's action, a dose of about one tenth of the smallest which slows the pulse, will quicken it, and so also with other drugs. This should certainly be taken into consideration when we are attempting to explain the "why" of Homœopathy. For we are accustomed, when speaking as Homœopathists, to term our remedy which possesses the power of producing symptoms parallel to those we use it to relieve, a "simillimum," and to regard its action as being *similar* to those of the illness; if, however, it be true that at a certain degree of attenuation the drug has *opposite* effects, we are using a *contrary*, this is a point which has not been at all thoroughly thought out.

But whatever may be the ultimate answer to such questions, the central aim of Homœopathy is unaffected, the aim of following the same path to recovery as Nature asserts and shows us.

How often we see an illustration of this in the urgent demands which a sick man makes for some particular kind of food or drink. Very often it is something which seems to be forbidden by every rule and experience, something dangerous or ridiculous, and yet it has been found as a fact of experience, that giving the patient that thing, whatever it may be, proved a valuable aid to recovery. A vast proportion of the "fancies" and "fads" of sick people are pointers to those who attend to their wants, if such fancies are considered carefully before rejecting them.

We are accustomed to tell the sick person, "You are too ill to know what is good for you," but not seldom they are wiser than we are in these "fancies."

A very great proportion of the recent advances in medical science has been due to the science of Bacteriology inaugurated by the great French chemist Pasteur; and homœopathists have drawn from Bacteriology, a great deal of encouragement for the phenomena of diseases which are now known to be the result of, or at least, to be accompanied by the entrance of bacteria into the blood, when studied, as they now can be, by bacteriology, support the Homœopathic ideals most strongly.

In a short sketch like this it is not possible to deal with more than a bare outline of bacterial action in the human blood and tissues; I can only mention, without detail, the facts which reflect upon Homœopathy.

When disease-producing bacteria enter the blood, they produce poisons, called toxin; the enemies of the bacteria, one line of defence in the blood, are certain of the white blood cells, which have more or

less power to destroy the disease bacteria; the poison of the bacteria acts upon the cells of the body, different cells in different diseases, and stimulate them to produce various chemical ante-bacterial poisons, "ante-toxin," as they are called; these act in various ways in arresting the action of toxins, in disabling the bacteria, and specially in rendering the bacteria easier victims to the "phagocytes" or white cells.

And it is in the course of these actions, this stimulating of cell to produce antitoxins, and the consequent death of the bacteria, that the symptoms we see in illness are produced; the fever, rash, pain, cough, diarrhœa, etc., are all so many signs of the suicidal policy of the bacteria, and if the cells are not exhausted and the body thereby too greatly weakened, the anti-toxin triumphs, and recovery takes place, the dead bacilli being got rid of from the body also in other ways than destruction by phagocytes. Under such conditions, it is evident that it would be a most dangerous proceeding to try and arrest the action of the bacteria; to stop the symptoms by drugs which act contrary to these actions; we may either, trusting the natural powers of recovery, give no drugs at all, placing the patient in every way in a favourable state and position to allow Nature free play; or we may, as we often do, supply antitoxins prepared outside the body, and so spare the exhaustion of the body; or we may go with the homœopath, and follow Nature's indication, give drugs in an attenuated state which act as do the antitoxins upon the white blood cells, (it has been proved by demonstration that the true "similar" does so act), thus aiding the natural recovery and sparing the exhaustion of cells and body.

The whole medical profession is now keen on "vaccine therapy," treating disease by injections of the dead bacilli, which are themselves the causes of symptoms, all the profession has become homœopathic; this ends the controversial period, the public hear less and less of the squabble, and many imagine that Homœopathy is therefore less alive; on the contrary, it has proved its worth and place, it has influenced all therapeutics, the raising of the opsonic index af the blood in disease, that is, the raising of the protective machinery against disease proves to be produced by the similarly acting drug as well as by vaccines and serums. Surely Homœopathy has won all along the line!—*The Homœopathic World*, January, 1915.

TWILIGHT SLEEP.

JOHN OSBORN POLAK, M.D.

Twilight Sleep, which has received so much attention from the lay press in the past few months, is neither a new nor startling discovery; it is simply the application of partial narcosis to the most painful ordeal in a woman's life, in such a way as eliminate the memory of subjective pain without interference with the uterine contractions.

Twilight Sleep, or "Dämmerschlaf," as it is called by the Freiburg school, was first recommended in labor by Von Steinbuchel some twelve years ago. In 1906, Gauss reported his first series of five hundred cases from the clinic at Freiburg. Following this report, the method was promptly taken up in this country by Green, Newell, Halpenny, Vrooman, Reis, myself and others, using scopolamine or hyoscine hydrobomate 1/200 grain combined with $\frac{1}{6}$ of a grain of morphia, which was repeated in larger or smaller doses every two hours; this dosage gave us sufficiently bad results to cause the method to be promptly discarded. The children were narcotized or asphyxiated, the labors were prolonged and forceps became a frequent necessity. Delirium was common and postpartum hemorrhage was no infrequent complication.

These results were not so much the fault of the method, as of the individual using it. The children and women were morphinized. This fact has been repeatedly brought home to me since my visits to Freiburg in 1909, 1912 and 1914. There, in a picturesque, quiet little town at the edge of the Black Forest, Kronig and Gauss have continued to use and study the method, modified it, and have at last developed a technique which is safe and efficient when intelligently carried out. They have recently published a report of 4,111 cases of labor in which narkophen and scopolamin have been used, with a lower fetal and maternal mortality than has been secured in any other clinic in Europe. These results have been attained, first, by individualizing the patient; second, by limiting the number of vaginal examinations, and giving each woman a full test of labor, without reducing her physical strength, by subjecting her to nerve racking pain; hence, all operative procedures were done in dilated passages and trauma and infection have been reduced to a minimum.

It is not my purpose in this brief paper to burden you with the chemistry and physiological action of scopolamin and narkophen,

but rather to give you a brief statement of some of the advantages of painless labor, its dangers, its indications, its limitations, a description of the technique employed, together with a frank report of our results from its employment at the Long Island College Hospital.

I must also take this occasion to acknowledge my indebtedness to my associate, Dr. Ralph M. Beach; my assistant, Dr. H. B. Matthews, and my resident and obstetric internes, Drs. Gillis and Bartley; who, by their close observation and untiring efforts have made this success possible.

Statistical studies show us that it is possible to produce analgesia and amnesia in 90 per cent. of the cases in which Twilight has been induced, hence we contend a woman is entitled to the relief of pain during labor, if she can get it, *without undue risk either to herself* or the unborn child. We no longer ask our patients to submit to surgical operations without ether or gas, many of us use ether or chloroform as a routine during the perineal stage in ordinary labour we likewise narcotize the woman for a forceps delivery or primary repair of the pelvic soft parts. Why not extend this comfort throughout labor by producing amnesia and analgesia with safe doses of scopolamin, which does not, if judiciously used affect uterine contractions when they are once established?

You say labor is a normal and physiological process; one wouldn't think so after twenty odd years of consultation obstetrics in Brooklyn and New York. Over 50 per cent. of all of our gynecology is the result of badly conducted physiological labor. Poor diagnosis in labor is more frequent than in any department of medicine and surgery, except perhaps in cancer. The practitioner has not made the progress in the art of obstetric diagnosis and procedure that he has in the other branches, or he is blinded by the dictum that it is all a normal process.

Many of us seem to forget that the cervix must be open before the child can pass through it; others delude themselves into the idea that they can artificially dilate the soft parts as perfectly as with nature's processes, and few of us give nature sufficient time to prepare the way. Dead and mutilated babies, torn and prolapsed organs, with resulting morbidity from infection, are some of the causes which have produced this public demand for adoption of the Freiburg method.

We educate the public how to present disease; they are going to educate us how to present many of the disasters of child-birth, by insisting on better antepartum and interpartum care. Do they not

even now insist on routine antepartum examination of the pelvic diameters, urine, blood pressure, etc.?

Painless labor by partial narcosis with scopolamin and narkophen is an assured fact and when used in properly selected cases, where the fetal and pelvic relations are normal or approximately normal, it permits nature to take time to perfectly prepare the cervix, vagina and vulvar orifice for the passage of the fetus without producing in the woman physical or muscular fatigue.

It is easier to dilate the sphincter ani under anesthesia than with the patient conscious; so it is easier to dilate the cervix when the pain of this dilation is not felt by the patient, than when the circular muscle is in spasm; particularly is this so when the dilatation is accomplished by those forces intended for this purpose.

The advantages, therefore, of painless labor are less nervous shock, less muscular effort and easier and more prompt cervical dilatation. Our observation proves that scopolamin and narkophen actually shorten the first stage of a primiparous labor by more promptly overcoming the soft part's obstruction. This is not so of the second stage which may be prolonged beyond safe limits if the attendant is not keeping close watch of his patient.

Scopolamin-narkophen anesthesia is not without danger; neither is the production of narcosis with ether free from accident or complication; yet, in proper hands these dangers can be and are minimized.

The mother may be particularly susceptible to scopolamine or morphine, the former causing delirium, the latter coma; or the respiration may become arhythmic, and reduced to five or six per minute. The kidney secretion may be diminished or anuria develop; labor may be prolonged, especially the second stage. Uterine atony is possible, and postpartum hemorrhage has been charged to the method by some American observers.

In our clinic we have found that all of the above-mentioned dangers are exaggerated and are due to too much morphine and can be anticipated and prevented by intelligent administration, by the use of the minimum dose to produce sleep, the individualization of the patient, and the very free exhibition of water throughout the narcosis. It may even be justifiable, in cases with kidney lesions to give saline by hypodermoclysis or colonic irrigation during the labor, and thus dilute the toxic effect of the drug on the kidneys.

It has been claimed by the critics of this method, that the child is apt to be asphyxiated and narcotized; this again is not the fault

of the method, but of the dosage. The child does participate to some extent in the Twilight Sleep. Many of the children suffer from oligopnea for several minutes and it is common for the child not to cry for two or three minutes after birth, though the fetal heart may show little or no disturbance in rate or rhythm; there is, however, no cyanosis unless the dosage of morphine has been too large or given at too frequent intervals, or the second stage has been allowed to continue too long.

The child after stretching itself, as if awaking from a restful and peaceful sleep, cries as lustily as the ordinary new-born infant. As the patient may be wholly unaware of the progress of labor, even during the perineal stage, is not uncommon for the fetus to be delivered unannounced, as the change in the character of the womans's pains may not be noted by the attendant, unless the vulva is exposed. It is possible, therefore, for the fetus to drown in the gush of amniotic fluid, should such an accident go unobserved.

From our observations both here and abroad, we are convinced that there is no reason why "Dämmerschlaf" should not be given to all women who show the physical signs of active labor, provided that the woman is under continuous and intelligent observation.

It is particularly indicated in nervous women, of the physically unfit type, in their first labor, for it is in this type of woman that labor has most often, in ordinary practice, to be terminated artificially, owing to the physical exhaustion so common at the end of the first stage, before cervical dilatation is complete, or in the second stage, when no more force can be brought upon the uterus by the abdominal muscles. The usual obstetrical interference by forceps in the presence of unprepared soft parts results in a permanent morbidity and is the largest contributor to our collection of chronic invalids.

It is just in this class, the physically unfit, that scopolamin will give the best results, for by its use we are able to attain full dilation of the cervix by the physiological factors, *i.e.*, the bag of waters and the force of the uterine contractions, before the patient begins to show signs of physical tire. In dry labors, the exquisite pain which is produced by the presure of the presenting part on the sensitive congested cervix is relieved and the cervical ring relaxed. The presenting part is therefore driven through the pelvis and well into the vagina, and low forceps in a dilated passage is the most serious intervention to which the woman is subjected. Operative traumatism is thus reduced to a minimum. Surely scopolamin would *be worthy*

of a place in midwifery, were it only to secure for us, as it does, full dilation of the cervix.

All of us of any obstetric experience have noted the effect of a full dose of morphine near the end of the first stage, in dry labor, and have seen the cervical ring actually melt away under its unfluence; this is accomplished by allaying restlessness, allowing the woman rest and sleep between the pains, diminishing the cervical sensitiveness and relaxing the cervical spasm. Scopolamin-narkophen analgesia does all this, and in addition permits the labor to proceed without the patient having further knowledge or memory of subjective pain.

There can be no doubt that dry labors, due to early rupture of the membranes, will afford an excellent field for Twilight Sleep. Borderline contractions will offer another indication for its trial, for all primiparæ with borderline contractions must be given a test of labor before instituting operative measures: This means that the cervix must be dilated, the membranes ruptured, and that the uterine contraction, aided by proper posture, be given a chance to drive the presenting part into the pelvis. This all takes time and effective labor pain. These patients are in need of rest, because having labor pain is work, and work exhausts. Under combined analgesia the woman may be carried for hours without showing any of the classical signs of exhaustion, in the character of the pulse or in the character of the labor pains, and if operative delivery is indicated in the interest of the mother or child, it may be accomplished with less general anesthesia.

In our private and public clinic at Long Island College Hospital we have been using scopolamin and narkophen in all labors, unless the patient has refused the treatment, and have found after carefully analysing our cases and results that our best results have been attained by observing the following suggestions:

First, The patient should be definitely in labor; that is having appreciable uterine contractions, recurring at regular intervals, preferably every four or five minutes before the first injection is given. In multiparæ the initial dose may be given at the very beginning of labor. The woman should be in bed, in a well-ventilated, darkened room, removed from all noise or excitement, as by observing this both ammesia and analgesia may be obtained with much smaller doses.

Second, Careful observation must be made and should be recorded of the pulse, respiration, condition of the pupils and the frequency and character of the uterine contraction. It is unnecessary to disturb the patient for memory tests, as observation will show how deeply she is under the influence of the drug; ordinarily, the woman will give

outward evidence of acute suffering during the pain, but will immediately lapse into a peaceful sleep at its cessation.

Third, She requires large quantities of water but no food throughout her labor. Water is best given just after the pains.

Fourth, The progress of labor must be constantly watched by repeated abdominal or rectal examinations. It is well known that frequent vaginal examination invites SEPSIS. Private cases seldom have any vaginal examinations during labor: Following the position of the shoulder as it rotates inward and descends is a good index of the progress of labor.

Fifth, The fetal heart must be listened to and recorded every half hour, both in the interval between and during the pains. Arythmia or slowing of the fetal pulse between pains is a bad prognostic sign and demands withholding the further use of the drugs and prompt delivery by the most suitable route and method.

Sixth, The solutions of the drugs must be absolutely pure. Hyoscine cannot be substituted for scopolamin, but narkophen is no better than morphine. The American preparations have produced delirium.

Seventh, The dosage differs in each individual case, and especially with the time of labor at which induction of the sleep is attempted. It is easier to induce sleep in a woman early in the first stage, than when she is near the end of her dilation stage.

Eighth, Intelligent employment of the method shortens the first stage; on the other hand it may prolong the second; *this should be guarded against*, and if the perineal stage lasts over an hour in multiparæ or two hours in primiparæ, delivery should be effected with the patient in the *Schmitt posture*, with extreme flexion of thighs on the abdomen, combined with expression of the fetus, or by low forceps. An extended use of pituitrin has convinced use of its dangers to the child after the head has passed out of the cervix and the uterus is moulded and firmly contracted down on the body of the fetus. Compression of, and separation of the placenta from the violent uterine contraction induced by pituitrin has caused asphyxia too many times to be simply coincidental. Pituitrin is oftentimes as dangerous as ergot, when used before the *uterus* is completely emptied.

Ninth, The third stage is not influenced by scopolamin or narkophen, and when properly used they do not predispose to postpartum hemorrhage. The placental stage should be managed so as to secure the separation and expulsion of the placenta, and retraction of the uterus by the normal process. We do this in our clinic by placing

a clamp on the cord, close to the vulva orifice and leaving the fundus absolutely alone. When separation occurs it is shown by a gush of blood from the vagina, expulsion of the cord and rising of the fundus; the hand is then placed on the fundus and the patient asked to bear down when delivery of the placenta is easily accomplished.

Tenth, Low forceps, perineotomy and primary suture of the pelvic floor injuries can all be done without further anesthesia, and the patient have no recollection of the procedure.

TIME AND METHOD OF EMPLOYMENT: Scopolamin and narkophen come in ampules containing 1 cc. *The solution*: Each ampule contains respectively, scopolamin ·0003 gram or 1/200 of a grain; narkophen, ·03 gram or ½ a grain. They are used as follows; if the labor pains are definitely established, one and a half ampules of each is given hypodermatically as the initial dose; forty-five minutes later, one ampule of scopolamin is administered alone; one hour later, half an ampule of each is given. This is followed every two hours or so by half an ampule of scopolamin alone. It is seldom necessary to repeat the narkophen, though it may be used every third time, at six hour intervals in a long labor; of late we have been able to omit the narkophen after the first dose. It is the narkophen which has the bad effect on the child. Smaller doses are required when the sleep is induced early in labor, larger doses when the first stage is well advanced before the sleep is induced. It is in the latter class that there is the most danger to the child, as the child gets the full effect of the drug.

In our cases at Long Island, fifty-one in all, there have been no failures. The patients have had no recollection of the labor. The children in all except two cases have shown no signs of asphyxia or cyanosis. One patient, a private case of my own, had a long second stage, and the child had inspired much mucous in its passage through the vagina and had to be resuscitated by aspiration and mouth to mouth insufflation. There has been no postpartum hemorrhage, there has been two low forceps, the placenta was delivered without difficulty in all; none of the women have shown signs of tire or exhaustion the next day. Multiparæ have had some after pains, which a full dose of ergot and assuming the sitting posture have quickly arrested. Many women were allowed up on the fifth or sixth day, unless they had sustained severe perineal injury, and this has been minimized by the slow perineal stage. All of the women have had much less nervous and muscular exhaustion than follows in the same class of patients in ordinary labor.

In conclusion, we are impressed with the wide field of usefulness that scopolamin analgesia will cover in modern hospital obstetrics. The time and care necessary for its successful administration will hardly warrant the busy practitioner using it as routine in general obstetric practice, unless the ordinary obstetric fee rises coincident with other advances in the high cost of living. The plumber and bricklayer are constantly being better paid for their time and it would seem to me only just that the obstetrician be paid proportionately for his.—*Long Island Medical Journal*, December, 1914.

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A SHORT PICTURE OF ARNICA MONTANA.

GLEN I. BIDWELL, M.D.,

The red strand running through this remedy is soreness. A general state of soreness throughout the whole body. The joints become sore, the periosteum is sore, the muscles are sore, and the soreness will continue until stiffness begins and then we find the sore stiff rheumatic pains of the arnica patient. The soreness is manifest in the skin, so there are black and blue marks. The soreness is so marked that pressure is painful and the parts lain on are sore, so sore that he wants to move, to change position frequently, for the longer he lies on a part the more sore and sensitive it becomes. He is stiff so the motion is painful; still the bed feels so hard, the parts so sore, that he must move. Therefore when we see our arnica patient we must expect to find this soreness; if not, arnica will not be the remedy.

There is a general relaxation of the blood vessels in our arnica patients and this is manifest in the hæmorrhages from various organs. In the subcutaneous tissues this is represented by extravasation of blood under the skin and which gives the black and blue spots. The arnica state which is associated with or precedes many acute diseases, is manifest by this weakened state of the blood vessels and the patient will wonder how she got so many

black and blue marks; even the slightest bruise or pressure will result in this discoloration. Little injuries produce bleeding. On mucous surfaces these result in hæmorrhages. Hæmorrhages of bright red blood which soon clots. The blood of the arnica state soon clots, as is manifest by the blood streaked or flecked sputa which will contain many tiny clots.

Arnica developed in its pfovers violent chills and fever; the fevers are a slow form that is associated with inflammations. From the results of the relaxed condition of the blood vessels all the organs of the body are prone to inflammation and hemorrhages: but with these hemorrhages we will have this general condition of soreness.

With these conditions we have pains, and the general characteristic pains that call for arnica are crawling, prickling, or paralytic pains, pains as if joints were dislocated. Unsettled pains which shift from one part to another; tingling and tearing pains. With all these pains are the bruised, sore sensations, and a deep profound disturbance of the economy which is manifest by weakness, great and profound prostration, fatigue and sleepiness. The countenance in these profound cases will be flushed and dark; there will be a besotted look as if he were intoxicated, and he speaks and thinks with difficulty. Many cases of cerebral hemorrhage and low forms of typhoid will present this typical arnica picture and unless these patients receive this remedy they will die. From this you will be led to look for arnica in your septic conditions and it has many symptoms which correspond to the septic processes such as are associated with typhoid and scarlet fever and other low forms of diseases. In septic diseases of every sort we find our patients running into arnica conditions. Surgical septicemia and blood changes due to surgical shock. Where arnica covers the symptoms of your patient it will do more to restore the antebacterial power of the blood than any number of vaccines. Arnica represents the surgical septic conditions more closely than that of the puerperal type. (This latter condition corresponds more closely to sulphur.) Wonderful is its action in preventing suppuration. A severe inflammation will be set up

by an injury, a severe bruise upon the muscles, there will follow the pain and soreness and induration with final suppuration. A dose of arnica in the beginning will prevent all this and quickly restore the part to normal.

BRUISES. This name at once makes you think of arnica, and for this condition it has been applied externally by all schools and by all people. The external application is better than nothing but the administration internally is best of all. It is not the bruise per se that we can expect to relieve, that has happened and cannot be undone; but it is the resulting effects of the bruise that we wish to prevent and remove, and this came from the center, from the internal structure, and can best be over-come from the center by the internal action of the remedy.

Injuries to the head, with the resulting nerve and brain symptoms, send the patient into an arnica state and they will need this remedy to bring about order no matter how long ago the injury took place. The resulting shock of surgical operations call for arnica and this remedy is given in routine practice by the surgeons of our school. The symptoms, following operations, which arnica will remove are those which are produced by handling and bruising of the soft tissues and no others. That is the reason the results are so often disappointing. Those sharp cutting pains the result of the needle or the knife will never be removed by arnica but are rapidly dispersed by staphisagria. Cuts and open wounds never call for arnica only as there is shock, bruises and contusions.

Thus we have outlined the general action of our remedy, and these general conditions are always present in a greater or less degree in every case that calls for arnica. Where there is no soreness never think of arnica.

The mental symptoms of arnica are striking and many of them are symptoms which you would expect to result from shock. Fear, excitement, emotion, and horror stand out prominently. The fear that something awful is going to happen, that he is going to die instantly. This is marked and the patient has a

horror of death and the unexpected. In many of the acute conditions we have an obstinate and irritable patient. He will want to fight with you and to drive you from the room. This excessive irritability will often be followed by a delirium. Indifference, anxiety and hopelessness run through the mental state. In the low states we find a stupor. He is hard to arouse and when you do wake him he will be confused and will not know where he is. Mental exertion, motion or physical exertion all aggravate his condition.

The pains in the head are pressive, cramp-like, darting, and tingling, and are made worse by walking, ascending, and mental exertion. There is nothing very distinctive about the particular symptoms of the head but any pains or conditions that arise from injuries will lead one to think of arnica.

There is a peculiar symptom under this remedy which is associated with the eyes. He must keep his eyes open. They come open spontaneously and he cannot hold them closed himself. As soon as the eyes are closed he gets dizzy, things go round and it makes him sick.

The pains of the nose are sore as if bruised; much nosebleed when first blowing the nose in the morning. The coryza of arnica comes in the evening when going to sleep, but with this will be the general bruised condition, the soreness that will differentiate it from nux or pulsatilla.

One of the keynotes of arnica is manifest in the face symptoms. Heat and redness of the face with coldness of the body. It seems as if the blood had left the body and gone to the head. The expression of the face is peculiar. We have a deep mahogany redness, with an intoxicated, besotted look: he looks as if his mental condition was benumbed: looks as if he was making an effort to find the right thing to say or do but cannot. He is stupid and looks it. In injuries about the face, especially about the eye and cheek bones where the periosteum seems to have been injured, we find that arnica will remove the first effects, the superficial soreness, the black and blue condition: but after this has been done away with there will remain a soreness that appears to be in the

bone itself. We could give arnica indefinitely and these symptoms would not disappear but hypericum will follow and remove them speedily.

The general condition of arnica is exhibited in the mouth by soreness of the teeth. Soreness at the roots of the teeth as if they were being pressed out. The gums bleed easily. Hemorrhage from the gums after extraction of the teeth. This is one of our leaders in bleeders after teeth extraction. Soreness of the gums after extraction. This remedy will do more to remove the soreness from gums after extraction than all the mouth washes you ever heard of. (Sepia is another remedy which is useful in this condition, especially in the nervous women who have been made sick by having a few teeth extracted.) The mouth tastes bitter and like rotten eggs. This is from the eructations, which are bitter and have the odor of spoiled eggs; this taste remains in the mouth and you can almost smell it on the breath; therefore the books give "putrid smell from the mouth;" this as well as the eructations are worse in the morning. These eructations burn as they come up and cause a burning from the stomach to the fauces.

With this large amount of gas in the stomach we have a loss of appetite. A loathing of food; even the sight of food is repulsive and nauseates. Meat, milk and broth are especially repugnant and even his tobacco nauseates. Aversion to tobacco, even to the smell of tobacco smoke, stands high in this remedy. (What does a peculiar symptom like this mean and what weight shall we place on it? We cannot expect to give all the ladies and others to whom tobacco may be offensive, a dose or two of arnica and make them lovers of the weed: but where a man has become a user of tobacco; where the habit has become fixed so that his tobacco is a necessity, and then have some disturbance of his economy so effect him that what he desired and craved he now dislikes and has such an aversion to it that the odor is even nauseating, we have what we are justified in calling a peculiar condition and when this arises we will give it a prominent place in our symptom picture.)

The generals are still with us when we study the effect of arnica on the stomach. The sore aching extending through to the back. The stomach is sore it feels as if it rubbed the spine and as if the spine was made sore by this pressure. Pressing pains in the stomach as if it was pressed by the hand. This pressure continues until it seems to rise to the neck; then he feels nauseated and bitter water comes into the mouth. The stomach is so sore that everything seems to press against it as if the xiphoid process was pressed inward; as if a weight was on the stomach; as if a stone laid in the stomach. Nausea; retching; ineffectual retching; they retch and retch and try to vomit and after straining for some time they vomit blood and bloody mucus. The blood will be dark and coagulated. After this the stomach will be more sore and burn.

Inflammations of the liver and spleen often take on arnica symptoms. Shooting and stitches in the spleen and pressure as if from a stone in the liver are found under this remedy: with this condition we have a distended tympanitic abdomen with passage of much foul flatus smelling like rotten eggs. The soreness and bruised sensation are strong in all the abdominal symptoms.

With a condition in the stomach and bowels which led to the above symptoms you would expect to have trouble with the stools; you would look for a diarrhoea, and under arnica we find slimy, mucous stools, brown, fermented like yeast, undigested, bloody, purulent, dark, bloody mucous; large, fetid, fecal. Yellow offensive and sour.

A peculiar stool symptom of arnica is the involuntary stool during sleep. The rumbling and colic in the abdomen are relieved after stool. Another of the peculiar symptoms of this remedy is that the diarrhoea is aggravated, as well as the accompanying bowel symptoms, by lying on the left side. During stool there is urging, tenesmus, sore bruised pain in the abdomen, cutting in intestines, and rumbling and pressure in abdomen. Tenesmus in rectum and bladder. After stool they are weak and prostrated and are obliged to lie down.

From the low state that the arnica patient represents we would look for its counterpart in typhoid, where its general soreness and weakness resemble baptisia, pyrogen and rhus tox, but where the general and characteristic symptoms of arnica are present it will be curative in cases where vaccines and other remedies will fail.

The peculiar urine of arnica is dark brown, with brick dust sediment; the urine full of urates and uric acid that we find associated with rheumatic cases. From the general relaxed condition of the blood vessels we get bloody urine, hemorrhages from the bladder. "Urination involuntary when running" is peculiar to arnica.

The symptoms of arnica referring to the female sexual organs are distinctive; here we find the character of the hemorrhage changed to a bright red flow mixed with clots. The flow feels hot as it passes the vulva. Menses are profuse especially after a blow, a fall or a shock to the system. The general soreness is marked and the pelvic organs are so sore it prevents her from walking erect. The uterus is sensitive, bleeds easily; discharges of blood between periods, with nausea. Bleeding after coition are all found under this remedy. Arnica is especially useful in nervous women who connot stand pain. Not only for the resulting shock and effects of the bruising resulting from labor is arnica useful but it has a field of usefulness in changing the character of the labor pains. These pains in your arnica patient will be too feeble and irregular, resulting from fatigue of the muscular tissue. They do nothing although so severe that they drive her to distraction: feels sore and must often change her position. Vagina sore and sensitive so she does not want to be examined. Great soreness of the back during labor. Arnica in the higher attenuations will often prevent great pains. It will contract the blood vessels and prevent post-partum hemorrhage. Used in routine practice it does much to relieve the distressing after symptoms, both mental and physical, of labor.

The cough of arnica is dry and is caused from tickling in larynx and trachea: the cough is worse evening and until midnight, from motion, warm room and after drinking. The expect-

oration is scanty, difficult of glairy mucous mixed with tiny clots of dark blood. The general soreness of the remedy is marked in the chest and is shown in whooping cough where the child will cry before the paroxysm. The coughing causes blood shot eyes, nose bleed and expectoration of foaming blood. With the cough is a burning rawness of the chest, stitches in left chest which are worse from motion and pressure. From the general soreness and bruised sensations in the muscles you would be led to think of your arnica patient as a rheumatic patient and such is the case. "Arnica" is full of bruised, paralytic, sore and stiff rheumatic pains. The joints ache and feel as if they were bruised. The soreness is so marked that the arnica patient is full of fear; afraid he will be touched, afraid of jars, does not want you to come near him for fear you will touch and hurt the sore joint or muscle. In the back we have violent pains in the spine, sore pains, spine feels as if it could not hold the weight of the body. Small of the back feels as if it had been beaten. Pressive pains between the scapulæ.

The rheumatic pains in the extremities are associated with heaviness. The legs are so heavy that it seems as if they could not lift them: this heaviness is due to the paralytic pains in the joints and is constant both when at rest and in motion. Limbs are sensitive to concussions, as the jar of carriage or of walking. In the arms we have violent twitchings going from the shoulder to joints of middle finger. Crackings in wrist joints, worse in right, as if dislocated; drawing pains in wrist relieved by letting hand hang down. Pressing, tearing pains in fingers. Cramps in fingers of left hand. These tearing and drawing pains as if sprained are also found in the lower extremities. The hips feel as if sprained, with a pressive drawing in the left hip which is worse from extending the thigh when sitting down. The tearing pain on right external malleolus and on dorsum of foot with drawing in outer half of foot is peculiar to arnica. Gout in joint of great toe with redness; pain worse towards evening and from pressure. These pains as if bruised and sprained with discoloration are a picture of sprains and here the remedy administered

internally will take the soreness and discoloration from the sprained ankle and remove the first effects of the sprain: these symptoms which remain after arnica are emenable to ruta or rhus tox.

The most severe action of the remedy on the nerves is the paralysis, the prostration, the general weakness and sinking of strength, so weak he can scarcely move a limb. The prostration and gradual sinking of strength corresponds to the low state found in typhoid and zymotic fevers.

The arnica patient has many symptoms during sleep, those symptoms which resemble the stupor of apoplexy and the sleep symptoms of meningitis, find their counterpart in arnica. One of the peculiar sleep symptoms is that the patient will be sleepy all day but cannot sleep at night.

Your arnica patient is full of chills, chilly, with heat and redness of one cheek; head hot, body cold: internal chill with external heat: thirst during chill (resembling eupatorium), they will drink and drink becoming more chilly all the time and will have the characteristic stomach symptoms and finally vomit bitter, sour fluid. Chilly on only one side of body and that of the side laid upon. Many of the intermittent symptoms closely resemble eupatorium, but the general and stomach symptoms will allow you to differeniate in this disease.

Remember the generals of this remedy and you will find its greatest usefulness after mechanical injuries no matter what disease name you may give to the condition arising from this source. Arnica will help not only to remove the disease condition but if given early will prevent many of the resulting symptoms of shock from appearing. Most of the particular symptoms of this remedy can be figured out by applying the general state of the remedy to all organs or parts of the body. Keep these in mind and you will see how often many symptoms or disease conditions can be removed by this remedy alone, given internally and without resource to any adjuvants. If it has the generals of arnica it is an arnica case and does not require baptisia, bellis, bryonia, rhus or anything else to be curative.—*The North American Journal of Homœopathy*, January. 1915.

EDITOR'S NOTES.

Two Cases of Poisoning by Castor Beans.

DR. ANNA D. VARNER, M. D., publishes the following in the New England Medical Gazette, January 1915.

The castor oil plant is a native of India and North Africa. It is cultivated largely in the West Indies and the United States. It attains the character of a tree in its native land, but in this country only grows to be five or six feet high.

The fruit is a roundish glaucous capsule with three projecting sides covered with rough spines and divided into three cells, each containing one seed which is expelled by bursting the capsule. The flowers appear in July, and the seeds ripen successively in August and September. A decoction or poultice of the leaves is sometimes used as a local galactagogue, and an infusion has been given internally for the same purpose.

The seeds are about as large as a small bean, oval, compressed, obtuse at the extremities, very smooth and shining, and of a grayish-white color, marbled with reddish-brown spots and veins. The seeds easily become rancid and are then unfit for the extraction of the oil, which is acrid and irritating. Taken internally the seeds are powerfully cathartic and often emetic, three having been known to produce fatal gastro-enteritis in an adult. The active principle, which pervades the whole kernel, is volatile, and is an enzyme called ricin. It is neutral in reaction, and a violent poison.

Castor oil is obtained by expression. The capsule is removed, the seeds cleansed from dust, submitted to a gentle heat, then introduced into a powerful hydraulic press. The whitish, oily liquid obtained is boiled in a considerable quantity of water and the impurities skimmed off. As they rise, a clear oil is left on top of the water. This oil is removed and again boiled with a small quantity of water until aqueous vapor ceases to rise. This last process clarifies the oil and renders it non-poisonous by driving off the acrid volatile matter.

This information we have derived from the American Pharmacopœa.

In "Clarke's Materia Medica" we find an account of the drug ricinus, the tincture of which is made from the fresh castor oil plant, while the trituration is made from the fresh seeds. The symptoms he records are as follows:—

Vertigo, brain exhaustion, severe, sudden occipital pain extending around to the back of the ears, eyes and forehead, with rush of blood to head. Conjunctivæ injected, copious lacrymation, eyes convulsed and turned up, pupils moderately contracted. Buzzing and humming in the ears.

Face is pale, features contracted, drawn with twitchings of the mouth. The tongue is coated white and is dry, and there is burning pain in the throat. Anorexia with great thirst, burning in the stomach, pyrosis, nausea and persistent, painless, profuse vomiting of a watery liquid slightly colored by bile, and containing a few mucous threads in suspension. Pit of stomach sensitive, with burning in stomach, and pains radiating from the center to umbilicus, and hypochondria. Sensation of the weight of a bar across the stomach.

Rumbling in the abdomen, with contraction of the rectimuscles. Colic, with a feeling as though the intestines were violently drawn together. Incessant diarrhœa, with purging. Stools are of serous liquid mixed with mucus or blood. Rice-water stools with cramps and chilliness.

Complete anuria, or urine scanty, dark, thick, highly albuminous.

In women the menses are early and excessive and they suffer from leucorrhœa. The mammary glands are thick, with swelling in the axillæ, and pains running down arms. Thin discharge from breasts which becomes milky; brings milk into breast of virgins and women who have not nursed their children for years.

The pulse is very rapid, small and scarcely perceptible, or weak and not increased in frequency.

Pains in back like afterpains.

The patient is pale and listless, with anæmia, profound adynamia, collapse, convulsions, muscular contractions, and very painful cramps in trunk and limbs.

There is pronounced jaundice of the skin, with prurigo on wrists and bends of knees.

Great drowsiness, chilliness, free perspiration, limbs cool and moist, forehead covered with cold sweat.

The castor oil plant is used as an ornamental plant in this State, yet very few people even among physicians and druggists are aware of the poisonous qualities of the seeds.

Within two years I have had three cases of poisoning, one of which proved almost fatal, and it was while searching desperately for an antidote, of which there are none given, that I obtained knowledge in regard to ricinus.

Two children, aged 5 and 3, ate several seeds each at 10 a.m. The family felt no alarm until four hours later they began to vomit, continuing to do so almost incessantly for six hours. The substance vomited was thin, watery, foamy, slightly discolored yellow, with the odor of green willow, and contained some thin ghiry mucus. The children were lying on the same bed with a large washbowl between them, and when one was not using it the other was. There seemed to be no retching or nausea. The attacks were sudden, violent, over quickly only to begin again. During the intervals, which were of only a few minutes duration, the patients lay listless, clear mentally, but too exhausted to give attention to anything. Their faces were pale and bathed in cold perspiration. Pulse in each case was thin and thready. They complained of thirst and some pain or distress in epigastrium. After vomiting for about four hours they began to have frequent watery, painless evacuations from the bowels, purging and vomiting at the same time. The vomiting ceased at 8 p.m., and the diarrhœa after midnight.

The following day the older child brightened up, took a little food and from then on rapidly recovered. However, during the following three months she had occasional attacks when she vomited a yellowish watery substance with the characteristic odour of green willow.

The other child lay limp and lifeless for three days, refusing all food after which he began to improve and made a slow recovery.

After consulting in vain books, druggists and physicians, for an antidote I prescribed arsenicum. In the meanwhile we called in the oldest allopathic physician in town, thinking he might have had some experience in the matter. He wrote a prescription the substance of which was bismuth. We gave two doses, which were promptly ejected from the stomach, then we went back to the arsenicum 200th potency, giving it in drop doses on the tongue until we began to get results. Veratrum might also be thought of as an antidote.

Last winter I was called early one morning to see a young woman who was vomiting violently and frequently. A thorough examination and questioning as to diet revealed no cause for the trouble. She seemed puzzled herself as she had never vomited in her life and had retired the night before in perfect health. While waiting for a glass of water in which to prepare the medicine, I noticed a small box on the table containing moss, cotton pods, and other things which she had received from Florida the day before. She remarked that there were some nuts in the bottom, and she had eaten one the night before. Now *what* she ate was one castor oil bean. That was at 12 p.m. At 3 a.m., she was awakened with a sudden desire to vomit. She had no pain, no headache, no nausea. She first ejected the contents of the stomach and later a yellowish, watery, bitter, slimy fluid, repeating the act every fifteen minutes, and feeling no discomfort in the meantime. Gradually languor and weakness overcame her, her face was pallid, her body covered with cold sweat. At 6 a.m., she began purging and vomiting simultaneously. Her stools were frequent, painless and like rice-water. The urine was dark and scanty, her pulse was weak and thready, and she craved water, which she could not take. I prescribed arsenicum which relieved her symptoms in a short time, though she suffered from exhaustion for a day or so afterwards. The first food which she retained on her stomach was very small quantities of hot milk well salted. She craved salt especially.

Physiologically, therefore, ricinus has a profound action on the gastro-intestinal tract, causing an inflammatory condition, and pouring out a profuse serous exudate. Consequently in potentized form it should be as valuable a remedy as either veratrum alb. or arsenicum in cholera infantum or gastro-enteritis.—

Disturbance of Growth and Deformity.

A boy aged fifteen years presented himself with a deformity of the left hand. The deformity consisted of manus valgus, the hand forming an angle with the lower end of the radius, and the left forearm measuring 1.5 cm. shorter than the right. The history given was that of falling on the hand ten years previously. Swelling and pain were present for a few days at the time but the patient received no medical attention. X ray picture showed that the lateral (the radial) half of the epiphyseal zone of the radius had ossified prematurely. The other half continued to grow and gave the appearance of a bony spur. The epiphysis grew normally as it was of the same size and shape as that of the right side. There was a deficient production of bone in the diaphyseal end, more marked in the radial half. The median half of the radius which enters into the formation of the spur was on a level with the epiphysis of the ulna, while, normally, it should be somewhat lower. At the time of the accident through hemorrhage and pressure a row of cartilage cells was destroyed. These were probably in the middle of the epiphyseal line or somewhat proximal, as the distal side did not share in the disturbance, the epiphyseal line being normal and the changes being most marked in the median half of the diaphyseal end.—*The New York Medical Journal*, January 30, 1915.

Insomnia and Suicide.

By C. Ernest Pronger.

One of the commonest causes of suicide is the suffering of obstinate insomnia. Although little or no mention is ever made of the relation of refractive errors to the production of insomnia, this has been found by the author to be one of the most frequent causes of the condition, if not indeed, the most common of all. It is not the gross errors which so often lead to insomnia, but rather the slight ones, such as do not lead to such visual defect as to demand the wearing of glasses for their correction. The causative relation is made; the refractive error leads to continual effort in the use of the eyes which produces a cumulative nervous strain, and the latter is reflected in sleeplessness. The proper correction of the refractive error promptly restores the nervous equilibrium and the insomnia is

cured. That this is actually the fact is abundantly shown by the cases reported by the author. It has been sought to discover certain hereditary relationships as underlying causes of insomnia, and in the opinion of Pronger these are both common and simple, consisting of the well known inheritance of visual defects—chiefly slight degrees of astigmatism—and of the nervous temperament. The correction of the visual defect prevents the manifestations of the nervous temperament. It is the duty of the practitioner to have any patient with obstinate insomnia submitted to a careful ophthalmic examination.—*The New York Medical Journal,* January 2, 1915.

Treatment of Leprosy by the Hypodermic Use of Chaulmoogra Oil Mixture.

By Victor G. Heiser.

A detailed description of the treatment of nine cases of leprosy, with the results obtained, is given. In all these cases the treatment had been begun in February, 1912. One patient apparently recovered, with complete disappearance of lepra bacilli; in four, clinical evidence of the disease practically disappeared; in three, there was marked improvement, and in one, but slight improvement. The mixture used consists of chaulmoogra oil and camphorated oil, of each sixty c. c. and resorcinol, four grams, the latter constituent being dissolved in the mixed oils with the aid of heat on a water bath and the mixture then filtered. Injections of the mixture were made at weekly intervals, the dose ascending from one c. c. to the point of tolerance, which was found to vary considerably in different cases, some showing marked reactions in the leprous lesions, with fever and cardiac distress, from doses of only a few c. c., while in others ten c. c. doses could readily be given. Sometimes it was found preferable to give relatively small doses and inject at shorter intervals than that mentioned. Injection of the mixture into large leprous deposits or division of the dose by injecting it into several small infiltrations seemed to hasten the beneficial effects of the treatment. No strychnine was given,

but saline purgatives were freely employed, and half hour tub baths in hot two per cent. sodium bicarbonate solution every other day were ordered, apparently with advantage where the baths were regularly taken. The treatment seemed equally efficacious in the hypertrophic, anesthetic, and mixed forms of leprosy. The author was struck by the large percentage of cases in which scabies preceded the onset of leprosy.—*The New York Medical Journal*, January 2, 1915.

Diagnosis of Leprosy.

By D. Rivas and Allen J. Smith.

Three methods of proving the presence of the disease by detection of the causative micro-organism were found of service. In examining suspected nodules the frozen section method gave the best results, the section being fixed to a slide with thin celloidin, treated with four per cent. formaldehydle solution, washed, and stained with carbol fuchsin and methylene blue. The second method used consisted in collecting secretions from the nasal mucosa with a swab, fixing them to a slide, and staining as in the previous method. In case of doubt as to whether organisms detected are those of leprosy or tuberculosis, injection of some of the material into a guineapig is advised, when, if tuberculosis exists, characteristic lesions will usually appear after a month, while a negative result is the rule in leprosy. The third procedure, to which the authors pay most attention, is the direct examination of the blood for Bacillus lepræ. In their patients blood was collected from a finger as well as from a vein of the forearm, 0. 1 to one c. c. of it mixed with one to ten c. c. of two per cent. acetic acid previously passed several times through a porcelain filter, the mixture shaken and centrifugated for ten to fifteen minutes, and smears made from the sediment. In each instance the lepra bacillus was found in the smears, singly, in pairs, or in masses or bundles, free or enclosed in white blood cells. The results showed that Bacillus lepræ is available for diagnostic detection in blood collected from tissues apparently normal and from which the organisms are usually absent on section.—*The New York Medical Journal*, January 2, 1915.

The Late Dr. John W. Hayward, M.D., M.R.C.S., L.S.A.

By the death of Dr. Hayward senior of Liverpool, which took place on October 3, 1914, at his residence, Strathdene, Birkenhead, homœopathy has lost one of its foremost adherents. Dr. Hayward's writings had made his name known wherever the system of therapeutics he had done so much to promulgate was practised; and his visit to America several years ago (1876), whither he was accompanied by the late Dr. Arthur Clifson, Dr. Richard Hughes and Dr. Skinner had made him personally known to very many transatlantic colleagues. He often spoke with admiration of Dr. Carrol Dunham, and in this connection it may be stated that few medical visitors of the new school from America to this country failed to make early inquiries after Dr. Hayward. He was born at Stockport on October 13, 1828; he was apprenticed to a general medical practitioner and later acted as an unqualified assistant at stockport, Liverpool, and at Abingdon, Berkshire. He then proceeded to Glasgow and attended classes at the Andersonian University. Whilst a student in Glasgow Dr. Hayward had a Parish appointment during the cholera epidemic of 1852. It is to be inferred from his M.S. notes that early in his career he heard much to prejudice him against the homœopathic system, for he remarks that "finding here that the ordinary astringents and opiates were ineffective, as I had seen to be the case in Liverpool in 1849, and remembering that Dr. Archibald Billing, in his "Principles," states that though poisoning by tartar emetic very closely resembles Asiatic cholera, yet this drug had been recommended in the treatment of the disease, I tried it in very minute doses, repeated every five minutes in desperate cases. This treatment being attended with surprisingly successful results my prejudice against homœapathy was weakened."

Dr. Hayward obtained the Membership of the Royal College of Surgeons as well as the M.D. of St. Andrews in 1854, and thereafter commenced practice in Liverpool. He held a parish appointment during the cholera epidemic of the year mentioned, and not only administered tartar emetic but also camphor, and

finding this drug very effective he obtained an introduction to Dr. Drysdale, who induced him to study homœopathy. Thus commenced a lifelong friendship which bore much fruit. The "Materia Medica, Physiological and applied," "The British or Cypher Repertory"—articles, "Abdomen and Ear," and "Health and Comfort in House-building," all bear witness to their industrious collaboration. The revised ear chapter in the repertory was the work of Dr. Hayward alone. His little books on "Trepriew" and "Taking Cold" were in great request.

Dr. Hayward married Miss Elizabeth J. Davey at Truro, on May 1, 1856, and Dr. Blackley, in his tribute at a recent meeting of the British Homœopathic Society, bore eloquent testimony to the happiness and hospitality of their home life. Reference has already been made to the "Materia Medica, Physiological and Applied." On p. 360 the details of the treatment of scarlet fever in its malignant form by means of crotalus may be found, the patients illustrating it being Dr. Hayward's son and daughter. The effects of crotalus led the doctor to obtain several living rattlesnakes from the Mississippi region. Drs. Drysdale and Proctor and Mr. Isaac Thompson assisted him in obtaining from them whilst alive some pure venom. Subsequently (in 1884) the article on "Crotalus" was issued by the Hahnemann Publishing Society, surely one of the best medical monographs extant. In 1848 Dr. Hayward studied Sir Isaac Pitman's shorthand and the anomalies of English spelling, and he became a shorthand writer and spelling reformer, and in 1848 he also became acquainted with phrenology.

In 1905 he studied the writings of Zamenhof, and thus came to appreciate Esperanto, with which system he became conversant. Although then 77 years of age he studied and acquired considerable proficiency in this new language, and attended the Esperanto Congress at Cambridge. In 1860 Dr. Hayward joined the volunteers as Surgeon, and continued to act for eight years.

In 1857 he, together with Drs. Drysdale, Stokes, and Roche, inaugurated "The Homœopathic Medico-Chirurgical Society of Liverpool."

It is well known that the generosity of the late Sir Henry Tate in building the Liverpool Homœopathic Hospital was in great measure due to that gentleman's confidence in Dr. Hayward. After the opening of the hospital Dr. Hayward remained on the active staff for some three or four years, the age limit having been extended, so that his skill might be available. For more than twenty years he has acted as consulting physician to the Institution to its great advantage.

Dr. Hayward has left, to revere the memory of a benign parent, three sons, John Davey Hayward, M.D. Lond., Consulting Surgeon to the Hahnemann Hospital; Charles W. Hayward, M.D., Edin., Barrister-at-law, Surgeon to the same Hospital; Lieutenant-Colonel Wm. Davey Hayward, I.M.S., Madras, and a daughter whose devotion to her father's welfare during the years of his almost imperceptible decline merits the thanks of all who admired him—and their number is still legion.

[Through the courtesy of Dr. Charles W. Hayward we subjoin what may described as an expression of the late Dr. Hayward's medical faith, taken from notes on "My Biography" and copied in his own works.—Eds.]

"Having been apprenticed to a medical practitioner of the prevalent school, I was educated in the ordinary antipathic and allopathic modes of treatment with drugs that when given for the cure of disease must be given for the purpose of inducing their ordinary physiological effects, and in doses sufficient for that purpose. Experience, however, convinced me that when drugs are so used curative effects did not always follow, and that when beneficial effects did follow they were generally only temporary; and often were disastrous, but that when exhibited on homœopathic indications and in infinitesimal doses curative effects were often rapid and generally permanent, and never disastrous. These facts were forcibly impressed upon me during the epidemics of Asiatic cholera with which I had practical experience in 1849-52 and 1854, in which the treatment by allopathic practitioners with astringents, opiates, stimulants, and antispasmodics was so disastrously ineffective, whereas the treatment by homœo-

pathic practitioners with infinitesimal doses of homœopathic medicines was so markedly successful. I therefore adopted homœopathic treatment in my general practice for the permanent cure of disease, whilst at the same time admitting the desirablity of taking advantage of the anti- and allopathic action of drugs for temporary purposes, and I claimed, and still claim, the right to do so."—*The North American Journal of Homœopathy*, January, 1915.

[The Founder Editor of this Journal was intimately known to the late Dr. Hayward and interchange of letters took place almost by every mail. We hope to publish them when the life of our late Editor will be compiled. Ed. C. J. M.]

Chloroform Anesthesia.

When chloroform is properly given, it is the most convenient, most manageable, most universally applicable, and safest of anesthetics. There is a right and a wrong way to give chloroform. The rule "Plenty of air and plenty of chloroform" should be followed. The anesthetist must not be nervous, he must have the courage to give the chloroform freely, not too slowly, and to attend strictly to the respiration. Timidity is as dangerous as recklessness, for danger lies in giving too little. He cites as an example the reputation of the drug in London and in Edinburgh. In London it was administered by a professional anesthetist, with an ingenious apparatus, studying the heart and pulse with great care, and was notoriously dangerous. In Edinburgh it was given by a student whose sole apparatus was a towel and a pound bottle of chloroform, who never troubled about the patient's heart, did not feel the pulse, and approached his task with cheerful and unhesitating confidence, without a death in nineteen years. Statistics of deaths from chloroform and ether give no information as to the way in which they were administered, and are therefore not reliable.—*The New York Medical Journal*, January 30, 1915.

Another Fad Gone Glimmering.

What in thunder is opsonic?
Is it human or demonic?
Is it earnest? Or ironic?
Is it serious or sardonic?
Is it prosy or laconic?
Is it jangled or harmonic?
Is it spastic or atonic?
Is it breezy or cyclonic?
Is it lustful or platonic?
Is it nitric or carbonic?
Is it laxative or tonic?
Is it circular or conic?
Is it gastric or pulmonic?
Is it tactic or techtonic?
Is it Doric or Ionic?
Is it Copic or Sclavonic?
Is it Celtic or Teutonic?
Is it some new verse Miltonic?
Alexandrene or Byronic?
Or some drama histrionic?
Is it some new scheme mnemonic?
For all ills acute or chronic?
In the Atom embryonic?

What in thunder is opsonic?
It's the very latest wrinkle
In our scientific tinkle.
Just a bit of lurid lingo
Heard from Rome to Tishomingo,
Which ere long will take a tumble
And be mighty meek and humble.

HENRY W. ROBY, M. D.

The Homœopathic Recorder, January 15, 1915.

Gleanings from Contemporary Literature.

THE HISTORY OF MEDICAL ETHICS.

By George Wythe Cook, M. D., LL. D.

However the rules governing our moral conduct are arived at, whether it be by innate consciousness or by a process of evolution, it is essential that they should be based upon reasonable and just principles. In the beginning—when our first parents were placed in the garden of Eden—they were untrammeled by restrictions except the one prohibition—not to eat of the tree of the knowledge of good and evil. They were glad in the delights of Paradise, enjoying the bright sunshine, the rippling streams, and the cool sequestered places, unconscious that they were devoid of habiliments until curiosity got the better of them and they ate the forbidden fruit. Having disregarded the mandate of their Creator, they immediately discovered their nakedness and were ashamed, and straightway made for themselves aprons of fig leaves, endeavoring thus to hide from the owner of the garden. Cain becoming jealous of his brother, slew him, and when interrogated as to the whereabouts of Abel, sought to conceal his guilt by exclaiming, "Am I my brother's keeper?" Were these acts of primitive man, instigated by the unworthy motives of curiosity and jealousy, governed by reasonable and just principles? These citations of the consciousness of transgression on the part of our progenitors are suggestive that ethics is coeval with man. In searching for the beginning of the healing art, one finds that its origin is lost in a remote antiquity where it was largely governed by incantations and magical ceremonies. But in all ages physicians have belonged to a learned class and were in high favor with, and the associates and councillors of kings and emperors, the wealthy and the cultured.

The physician is mentioned at a very early date in Babylon, as early as 2700 B. C., and "a treatise on medicine of which fragments exist in the British Museum, was compiled long before the days of Abraham." Anterior to the seventeenth century of the Christian era, medical ethics, medical legislation and forensic medicine were practically one subject. The "oldest code of laws in the world," promulgated by Hammurabi (1), a king of the First Dynasty of Babylon (about 2250 B. C.), one of the essential features of which is based on personal responsibility and the *jus talionis*; it contains the following sections relating to the medical profession, which are taken from the translation by Rev. C. H. W. Johns:

215. If a doctor has treated a gentleman for a severe wound with a bronze lancet, and has cured the man, or has opened an abscess of the eye for a gentleman with the bronze lancet, and has cured the eye of the gentleman, he shall take ten shekels of silver.

216. If he (the patient) be the son of a poor man, he shall take five shekels of silver.

217. If he be a gentleman's servant the master of the servant shall give two shekels of silver to the doctor.

218. If the doctor has treated a gentleman for a severe wound with a lancet of bronze, and has caused the gentleman to die, or has opened an abscess of the eye for a gentleman with the bronze lancet, and has caused the loss of the gentleman's eye, one shall cut off his hands.

219. If a doctor has treated the severe wound of a slave of a poor man with a bronze lancet, and has caused his death, he shall render slave for slave.

220. If he has opened his abscess with a bronze lancet, and has made him lose his eye, he shall pay money, half his price.

221. If a doctor has cured the shattered limb of a gentleman, or has cured the diseased bowel, the patient shall give five shekels of silver to the doctor.

222. If it is the son of a poor man, he shall give three shekels of silver.

223. If a gentleman's servant, the master of the slave shall give two shekels of silver to the doctor.

It is interesting to observe that the remuneration of the physician seems to have been ample, a shekel of silver being equal to about sixty cents of our money, and its buying power perhaps twenty or more times as great, so that if a doctor cured a severe wound with a bronze lancet, he received ten shekels of silver, equal at the present time to something over a hundred dollars. But if the patient die; one shall cut off the doctor's hands. A terrible instrument is this "bronze lancet"—cutting both ways.

In a very learned and interesting lecture upon Medicine Among the Assyrians and Egyptians in 1500 B. C., Dr. John D. Comrie, of Edinburgh, advances the very plausible suggestion that the "abscess of the eye" here referred to was probably the condition produced by couching the cataractous lens; which operation was common among primitive peoples, and was performed by travelling

charlatans who would depress the lens and restore some degree of vission, collect their fees, and move on to the next place before the "abscess of the eye" developed. He says, "It is likely that the penalties of Hammurabi are directed against unscrupulous practice of this sort." He also says that "it is unlikely that any abscess of the eyeball would be treated by a practitioner with a lancet, or that the destruction of the eye would be punished, under a reasonable code of laws, in so severe a manner; for an abscess in the eyeball destroys the sight and appearance of the eye before any treatment is called for."

At the head of the profession stood the court physician, the Rab-mugi, or Rab-mag as he was called in Babylonia. In Assyria there was more than one doctor attached to the royal person and they were at time permitted to attend private patients, more especially in consultation.

The following translation of a letter from Aradnana, a consulting physician to Esar-haddon, about a friend of the prince who had suffered from violent bleeding of the nose, is interesting from the point of view of medical etiquette:

As regards the patient who had bled through the nose, the Rab-mag reports: "Yesterday, toward evening, there was a good deal of hemorrhage; the dressing have not been properly applied. They have been placed outside the nostrils, oppressing the breathing and coming off when there is hemorrhage. Let them be put inside the nostrils, and then the air will be excluded and the hemorrhage stopped. If it is agreeble to my lord, the King, I will come tomorrow and give instructions; (meanwhile) let me know how the patient is."

We are told that Cyrus the Great, 530 B. C. "collected round him the very best physicians, and whatever instruments, medicines, meats, or drinks any one of them told him would be of use, there was not one of them he did not provide for himself and treasure up. And when any of those of whom it was proper for him to take care, fell ill, he went to see them and furnished them with whatever they wanted, and was thankful to the physicians whenever they wrought a cure on any one, and took the things with which they effected it from his store."

We cannot lay claim that specialization is a product of modern times, for specialists were very numerous in the olden days, there being one for almost each disease, and under such conditions there were swarms of medical practitioners in the communities.

The lofty and noble conception of the duties and responsibilities of the Greek physician as contained in the oath of Hippocrates, the oldest and most celebrated oath connected with the profession of medicine, is worthy of the highest admiration, and the rules of propriety which are inculcated therein may well be observed. Indeed it is a fact that today many medical schools still administer to their graduates a modified form of this oath. The following translation is by Francis Adams, of Banchary, the Deeside scholar."

THE HIPPOCRATIC OATH (2).

I swear by Apollo the physician, and Æsculapius, and Health, and All-heal, and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this stipulation—to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring in the same footing as my own brothers, and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the art to my own sons, and those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practise my art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and further, from the seduction of females or males, of freemen and slaves. Whatever, in connection with my professional practice or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times! But should I trespass and violate this oath, may the reverse be my lot!

I have been unable to find any sufficient reason why the operation of lithotomy is forbidden.

The Vedic and Unani medical oaths are very similar to the Hippocratic and are no doubt based upon it. It will be sufficient to reproduce here the Vedic oath.

VEDIC MEDICAL OATH (3).

Thus said the illustrious son of Atri: If an intelligent man, impelled by proper reasons, desires to become a physician, the following should be the qualifications of him that should be selected as preceptor. He should be:

One whose doubts have been all cleared in respect of medical Scriptures—possessed of experience—clever in the practice of his profession—compassionate toward those who approach him—clean in person and clothing—have a practised hand in surgery—possessed of all the implements of his profession with his organs of sense perfect—conversant with nature—his knowledge of medical science supplemented with a knowledge of other branches of study—without malice—of a peaceful disposition—capable of bearing privations and pain—well and affected toward disciples and disposed to teach them—capable of communicating his ideas.

Approaching such a preceptor, the pupil should attend on him with heedfulness like one revering one's sacrificial fire, or one's deity, or one's king, or one's father, or one's patron.

The preceptor should examine his pupil who should be of a mild disposition—noble by nature not mean in acts—with eyes, mouth and nasal line straight—tongue thin red and not slimy—teeth and lips without deformity—voice of good tone—possessed of intelligence—free from pride—endowed with a large understanding—with a power of judgment and memory—having a liberal mind—belonging to a medical family—devoted to truth—without defect in his limbs having all his senses perfect—disposed to solitude—free from haughtiness—of a thoughtful disposition—free from the faults of Vyasana—not prone to wrath—endowed with purity of behavior and compassion for all—devotedly attached to the study of medicine free from cupidity—without sloth—seeking the good of all creatures—prepared to obey all his preceptor's commands and attached to him.

Unto one adorned with such qualification the preceptor should say: Thou shouldst always regard me as the foremost of persons—holding thyself in subjection to me—bearing thyself in a way that is agreeable and beneficial to me—behaving as a son, as a slave, as a suppliant, toward me while being taught by me.

Thou shouldst be free from impatience and always attentive, doing everything with a mind concentrated upon thy work—behaving with humility and acting after reflection—never murmuring or finding fault with thy instructors but willingly carrying out my orders.

Thou shouldst with thy whole heart, strive to bring about the cure of those that are ill—not even for thy life's sake extorting their substance. Thou shouldst not even in imagination, know another man's wife, and similarly thou shouldst not appropriate the possession of others.

Thou shouldst never administer medicines unto those that have incurred the displeasure of the king or those that are ill disposed toward him or those that have incurred the displeasure of the great or those bearing ill will toward them. So also thou shouldst not administer medicines to those who are of exceedingly perverse or wicked disposition, or those who are exceedingly poor, or those who never vindicate their character when it is aspersed, or those who are on the point of death or those who have not their masters near them, or those women who have not their husbands or other guardians near them.

Thou shouldst never gossip of the practices of a patient's house. Even if possessed of sufficient knowledge, thou shouldst not boast of that knowledge.

There is no end in the science of medicine. Hence heedfully and carefully thou should devote thyself to it, conducting thyself as I direct and without feeling of humiliation acquiring practice in the art.

Unto men, possessed of intelligence, the entire world acts as a preceptor. Unto men, destitute of intelligence, the entire world occupies the position of an enemy.

The preceptor saying these words the pupil should answer, "Yes." If the pupil does as he is commanded, then should he be taught. If he behaves otherwise he should be rejected as unworthy.

The great Hippocrates, whom we are accustomed to call the Father of Medicine—in that section of his writings which he calls *The Law*—describes in a graphic and masterly way the ideal physician, and details with much precision the requisites necessary to acquire eminence in the art of medicine. And I do not know that any of our moderns have improved upon his portrayal. A translation is here transcribed:

THE HIPPOCRATIC LAW.

1. Medicine is of all the arts the most noble; but, owing to ignorance of those who practise it, and of those who, inconsiderately, form a judgment of them, it is at present far behind all the other arts. Their mistake appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine (and with it alone) except disgrace, and that does not hurt those who are familiar with it. Such persons are like the figures which are introduced in tragedies, for as they have shape, and dress, and personal appearance of an actor, but are not actors, so also physicians are many in title but very few in reality.

2. Whoever is to acquire a competent knowledge of medicine, ought to be possessed of the following advantages; A natural disposition; instruction; a favorable position for the study; early tuition; love of labor; leisure. First of all, a natural talent is required; for, when nature opposes, everything else is in vain; but when Nature leads the way to what is most excellent, instruction in the art takes place, which the student must try to appropriate to himself by reflection, becoming an early pupil in a place well adapted for instruction. He must also bring to the task a love of labor and perseverance, so that the instruction taking root may bring forth proper and abundant fruits.

3. Instruction in medicine is like the culture of the productions of the earth. For our natural disposition is, as it were, the soil; the tenets of our teacher are, as it were, the seed; instruction in youth is like the planting of the seed in the ground at the proper season; the place where the instruction is communicated is like the food imparted to vegetables by the atmosphere; diligent study is like the cultivation of the fields; and it is time which imparts strength to all things and brings them to maturity.

4. Having brought all these requisites to the study of medicine, and having acquired a true knowledge of it, we shall thus, in traveling through the cities, be esteemed physicians not only in name but in reality. But inexperience is a bad teacher, and a bad fund to those who possess it, whether in opinion or reality, being devoid of self reliance and contentedness, and the nurse both of timidity and audacity. For timidity betrays a want of powers, and audacity a want of skill. There are, indeed, two things, knowledge and opinion, of which the one makes its possessor really to know, the other to be ignorant.

5. Those things which are sacred are to be imparted only to sacred

persons; and it is not lawful to impart them to the profane until they have been initiated in the mysteries of the science.

In a learned and instructive address by Sir John Tweedy, before the Medico-Legal Society of London on The Deterrent Influence of Social and Legal Restrictions on the Medical Thought and Practice (4), he very clearly sets forth how such restrictions, as also the liabilities to which medical practitioners were exposed in case of ill success or failure, did much to check the progress of medical thought and practice. Thus physicians in ancient Egypt were bound by the rules laid down in the Sacred Books of Thoth or Hermes Trismegistus, according to which a physician was liable to capital punishment if his patient died after being treated in any other way than that prescribed by authority, though physicians were sometimes allowed to depart from such rules after the fourth day. Retaliatory methods were not confined to the time of Hammurabi in ancient Babylon; even three thousand years later, during the plague which visited Europe near the end of the sixth century, a duchess of Burgundy, who was one of its victims, accused her physicians, during her illness, of administering potions intended to kill her, and exacted a promise of the king to avenge the crime. Accordingly, after her death, the king, in conformity with his oath and the old Teutonic law, had the doctors slain. Considering the social and legal penalties to which physicians were subjected in the Middle Ages, it is not surprising that little progress was made in the healing art, but it is amazing that anyone had the temerity to engage in the practice of medicine at all.

The considerations influencing Hippocrates, as set forth in his treatise, and those governing Guy of Chauliac, of the first half of the fourteenth century, and said to be the greatest European surgeon from the time of Hippocrates to our own day, are in marked contrast. Both advise against undertaking desperate cases, the latter because of dread of personal risk, the former not from fear of consequences, but in recognition of the limitations of the medical art which "seek to deliver sick persons from their sufferings and the diminishing of the violence of disease, and not the undertaking of treatment of those who are overcome by sickness, because the medical art here is of no avail." "A consideration of the differences in attitude between the Hippocratist and the surgeon of the Middle Ages suggests the inference that wherever and whenever the medical profession and medical practice have been most highly organized, the penalties for failure and ill success have been most humane; and wherever they have been less organized, the penalties have been harsher, more vindictive,

and often inhuman. In the more highly organized state of medicine practitioners have been better educated, and more skillful, bolder, surer, yet more cautious amid dangers as Guy puts it, more circumspect, and therefore more trusted. When the organization has been imperfect, the number of educated physicians and surgeons has been fewer, while quacks and charlatans have been more numerous and more unconscionable. Bruno of Lombardy, writing in the middle of the thirteenth century, states that the majority of those who practiced surgery in his time were uneducated persons, boors and imbeciles.

Among the Visigoths (650 A. D.) the lay physician, because he was not of the monastic schools, was not included in the learned class, medicine being deemed an "illiberal art." His vocation was not considered disreputable, however, and he had a seat at the festal board, though it may have been a low one. As will be seen from the perusal of the following ordinances (5), the Visigoths held the physician to strict accountability, and while the penalties imposed were very drastic in character, the ordinances contain some protective clauses.

1. No physician may undertake to bleed a woman in the absence of her relatives; if he has done so, he shall pay ten solidi to the relatives or to the husband, since it is not impossible that occasionally some sport may be associated with such an opportunity. Whoever touched the hand, arm, or breast of a maiden was fined 15, 30, 35 solidi. The servant who became too intimate with the maid of another, if she died of the natural results, was castrated.

2. No physician shall visit any person confined in prison without the presence of the jailer, lest the prisoner, through fear of punishment, may seek the means of death at his hands.

3. When any one has called a physician to see a sick person, or heal a wound, the physician, when he has seen the wound or recognized the pains, shall at once take charge of the patient under definite security.

4. When a physician has assumed charge of a patient under security, he must cure him. If death ensues, he shall not demand the stipulated fee, nor shall a suit be instituted for it by either party.

5. If a physician has removed a cataract from the eye and restored the patient to his former health, he shall receive a fee of five solidi.

6. If a physician injures a nobleman in bleeding him, he shall pay 150 solidi. If, however, the patient dies, the physician (how equitable) shall be delivered up at once to his relatives, to be dealt

with as they may see fit. When, however, the physician has killed or injured a slave, he must return a slave of the same kind.

7. When a physician has accepted a student, he shall receive a fee of twelve solidi. (A solidus had a value of about $2.25 and a purchasing power of from thirty to sixty times as great as of today.)

8. No one shall cast a physician into prison without a hearing, except in a case of murder.

Similar in intention were the laws of the Franks and Allemanni, the Salic law, the Capitularies of Charlemagne, a mixture of Germanic, Roman, and Merovingian codes, and the assizes of the Crusaders. In these, ordeals by fire, torture, ocular verification of impotence, and "cruentation" or the supposed bleeding of a corpse in the presence of the murderer, were regarded as legal tests (6).

No medical man guarantees a cure, but he obliges himself to bring to his cases a fair and reasonable degree of skill and to exercise such careful supervision as will tend to the restoration of the patient. Even in our own enlightened age, a physician may be said to be qualified to practise medicine if he measures up to the requirements of the following:

MEDIEVAL LAW FOR THE REGULATION OF THE PRACTICE OF MEDICINE, PROMULGATED BY EMPEROR FREDERICK II, IN 1240.

While we are bent upon making regulations for the common weal of our subjects, we keep ever under our observation the health of the individual. In consideration of the serious damage and the irreparable suffering which may occur as a consequence of the inexperience of physicians, we decree that in future no one who claims the title of physician, shall exercise the art of healing or dare to treat the ailing, except such as have beforehand, in our University of Salerno, passed a public examination under a regular teacher of medicine, and been given a certificate not only by the professor of medicine, but also by one of our civil officials, which declares his trustworthiness and sufficient knowledge. This document must be presented to us, or, in our absence from the kingdom, to the person who remains behind in our stead, and must be followed by the obtaining of a license to practise medicine either from us or from our representative aforesaid. Violation of this law is to be punished by confiscation of goods and a year in prison for all those who in future dare to practise medicine without such permission from our authority.

Since students cannot be expected to learn medical science unless they have previously been grounded in logic, we further decree that

no one be permitted to take up the study of medical science without beforehand having devoted at least three full years to the study of logic.

After three years devoted to these studies, he (the student) may, if he will, proceed to the study of medicine, provided always that during the prescribed time he devotes himself also to surgery, which is a part of medicine. After this, and not before, will he be given the license to practise, provided he has passed an examination in legal form as well as obtained a certificate from his teacher as to his studies in the preceding time. After having spent five years in study, he shall not practise medicine until he has during a full year devoted himself to medical practice with the advice and under the direction of an experienced physician. In the medical schools the professors shall during these five years devote themselves to the recognised books, both those of Hippocrates as well as those of Galen, and shall teach not only theoretic, but also practical medicine.

We also decree, as a measure for the furtherance of Public Health, that no surgeon shall be allowed to practise, unless he has a written certificate, which he must present to the professor in the medical faculty stating that he has spent at least a year at that part of medicine which is necessary as a guide to the practice of surgery, and that, above all, he has learned the anatomy of the human body at the medical school, and is fully equipped in this department of medicine, without which neither operations of any kind can be undertaken with success nor fractures be properly treated.

In every province of our kingdom which is under our legal authority, we decree that two prudent and trust-worthy men, whose names must be sent to our court, shall be appointed and bound by a formal oath, under whose inspection, electuaries and syrups and other medicines shall be prepared according to law and sold only after such inspection. In Salerno, in particular, we decree that this inspectorship shall be limited to those who have taken their degrees as Masters in Physics.

We also decree by the law, that no one in the kingdom, except in Salerno or in Naples (in which were the two universities of the kingdom), shall undertake to give lectures on medicine or surgery, or presume to assume the name of teacher, unless he shall have been very thoroughly examined in the presence of a Government official and of a professor in the art of medicine.

Every physician given a license to practise must take an oath that he shall fulfill all the requirements of the law, and in addition,

whenever it comes to his knowledge that any apothecary has for sale drugs that are of less than normal strength, he shall report him to the court, and besides he shall give his advice to the poor without asking any compensation. A physician shall visit his patient at least twice a day, and at the wish of his patient once also at night, and shall charge him, in case the visit does not require him to go outside the village or beyond the walls of the city, not more than one half tarrene in gold for each day's service. . . . From a patient whom he visits outside the village or the wall of the town, the physician has the right to demand for a day's service not more than three tarrenes, to which may be added, however, his expenses, provided that he does not demand more than four tarrenes altogether.

He (the regularly licensed physician) must not enter into any business relations with the apothecary, nor must he take any of them under his protection nor incur any money obligations in their regard. . . . Nor must any licensed physician keep an apothecary's shop himself. Apothecaries must conduct their business with a certificate from a physician, according to the regulations and upon their own credit and responsibility, and they shall not be permitted to sell their products without having taken an oath that all their drugs have been prepared in the prescribed form, without any fraud. The apothecary may derive the following profits from his sales: Such extracts and simples as he need not keep in stock for more than a year before they may be employed may be charged for at the rate of three tarrenes an ounce. . . . Other medicines, however, which in consequence of the special conditions required for their preparation or for any other reason the apothecary has to have in stock for more than a year, he may charge for at the rate of six tarrenes an ounce. Stations for the preparation of medicine may not be situated anywhere, but only in certain communities in the kingdom as we prescribe below.

We desire also that the growers of plants meant for medical purpose shall be bound by a solemn oath that they shall prepare medicines conscientiously, according to the rules of their art, and as far as it is humanly possible that they shall prepare them in the presence of the inspectors. Violations of this law shall be punished by the confiscation of their movable goods. If the inspectors, however, to whose fidelity to duty the keeping of these regulations is committed, should allow any fraud in the matters that are entrusted to them, they shall be condemned to punishment by death.

From this it would appear that the requirements for the practice of the healing art in the Middle Ages, at least in southern Italy, were of a high grade and creditable character. Under the law of Frederick II, the remuneration of the physician was good. According to Dr. James J. Walsh, whose translation I have used, "a tarrene in gold was equal to about thirty cents of our money. Money had at least twenty times the purchasing power at that time than it has now."

Lanfranc, who flourished in 1295 A. D. and is really regarded as the founder of French surgery, thus delineates the requisites necessary in a surgeon:

Needful is it that a surgeon be of complexion well proportioned. . . . He must have hands well shaped, long small fingers, and his body not quaking. Also he must be of subtle wit, for all things that (he) longeth to surgery may not with letters be written. . . . Be he no glutton, nor not envious nor a niggard; be he true, humble, and pleasingly bear himself to his patients; speak he no ribaldry in the sick man's house; give he no counsel but if he be asked; nor speak he with no woman in folly in the man's house; nor chide he not with the sick man nor none of his household, but corteously speak to the sickman, and in all manner of sickness promise him health although you despare of him, but nevertheless tell his friends the truth. Love no hard cures and undertake no desperate cases. Help poor men as far as possible and ask good reward of the rich. Praise he not himself with his own mouth, nor blame he over sharply other leeches. Love he all leeches and clerics, and, as far as possible, make he no leech his enemy. So clothe he himself with virtue that he may obtain a good name and a fair reputation. This is the ethical teaching.

Henri de Mondeville, who was contemporary with Lanfranc, gives similar rules though more in detail.

A surgeon ought to be fairly bold. He ought not to quarrel before the laity, and although he should operate wisely and prudently, he should never undertake any dangerous operation unless he is sure it is the only way to avoid a greater danger. His limbs, and especially his hands, should be well shaped with long, delicate, and supple fingers which must not be tremulous. He ought to promise a cure to every patient, but he should tell the parents or the friends if there is any danger. He should refuse as far as possible all difficult cases, and he should never mix himself up with desperate ones. He may give advice to the poor for the love of God only, but the wealthy

should be made to pay well. He should neither praise himself nor blame others, and he should not hate any of his colleagues. He ought to sympathize with his patients in their distress and fall in with their lawful requests so long as they do not interfere with the treatment. Patients, on the other hand, should obey their surgeons implicitly in everything appertaining to their cure. The surgeon's assistants must be loyal to surgeon and friendly to his patients. They should not tell the patient what the surgeon said unless the news is pleasant, and they should always appear cheerful. They must agree among themselves as well as with the patients, and they must not be always grumbling, because this inspires fear and doubt in the patients.

De Mondeville then shows how an honest surgeon may be replaced and damaged by one who is less conscientious, for he says:

A rich man has the beginning of an inflammation. He calls in an upright surgeon, who says after examining him, "Seigneur, there is no need for any operation here, because nature will relieve herself, etc.; but if the inflammation gets worse, send for me." It then happens that the patient calls in another man who is a quack, and he is told, "Seigneur, you have a great deal of inflammation, I can feel it inside, and if you are not treated at once you will certainly regret it." This surgeon then sets to work and makes an inflammation, which he afterwards cures, so that the whole proceeding redounds to his credit and profit, for he discovered an inflammation which did not exist, whilst the first surgeon is damaged both in his reputation and his pocket because he did not find out what was not there.

Then again, one of these second rate surgeons will come to a sick man who is wealthy, and will say to him, with the voice of an archangel, taking care that no witnesses are present, "Seigneur, you must remember that you are the one who is ill and in pain. It is not your son or your nephew. It is you who are kept awake by the pain while your friends and servants sleep. Others won't take care of you if you don't take care of yourself. You are rich enough to get advice and to buy health and whatever else you want if you choose to do so. Riches are not more than health, nor is poverty worse than sickness. Have you not made the greater part of your money yourself and for yourself, so if you are not a miser you can apply it to relieve your wants? Would to God that those who look after you so badly had your complaint. But all this is between ourselves, and what I tell you is only out of pity for you and for your

good." Then, in the absence of the patient, he speaks to the relatives and says, "Seigneurs, this man has the greatest confidence in you, and, truly, if you lose him, you will lose an excellent friend. It is not to your credit either to let him go without advice, for if he died without advice you would be blamed everlastingly, even if it made him as poor as Job. He is really in great danger, and it is a serious case, but Nature sometimes does better than we have any right to expect. He is sure to die if no one treats him, but if he is properly treated it is just possible that he will escape and not die. If he dies it won't be the result of the treatment, because he is nearly dead already, his only chance is to have a consultation, etc. I am speaking to you as a friend and not as a doctor."

But it is quite another matter when this same surgeon has to treat a poor man, for he says, "I am really sorry for you, and I would gladly help you for the love of God only. But I am very busy just now with a lot of difficult cases, and, besides, the season is not a very favorable one for an operation. You can't afford to buy what is necessary for your case, such as drugs and dressings, so I would put it off until the summer. You will then be able to get the herbs and whatever else is wanted and so save expense. The summer, too, is the best time for the poor." When the same pauper comes back in the summer the surgeon says to him, "I put you off in the winter and told you to wait until the summer, because the winter is really the best time. Summer is too hot and there is a fear of stirring up the disease. I should advise you to wait until the hot weather is over." And this goes on everlastingly, for this kind of a surgeon never finds time to operate upon a pauper.

The surgeon, too, must beware of those who will make infamous proposals to him, because from time immemorial it has been an article of faith with the common people that every surgeon is a thief, a murderer, or a swindler.

According to de Mondeville, the same difficulties as to the collection of fees obtained in the fourteenth century as exist today. He classifies his patients according to their ability to pay as good, bad, and indifferent. He says that "sometime, indeed often, it happens that the rich come to the leech dressed like paupers. If the surgeon suspects this he should say to his patient, Seigneur, I have examined your case but I must think it over, and I should like to see you again when I have done so, because he who judges in haste repents at leisure,' and in the interval the surgeon should make inquires." De Mondeville seems to have been equal to the

emergency. It was the custom to "double the fee on account of the horse when the master made his visits on horseback."

Not long since, when automobiles were not so common as they are today, the writer heard a man who was complaining of the charges of his physician say that he could get an automobile doctor for no greater fee than had been charged him. The fee was influenced by the manner in which the physician went to his patients then as it seems to be now.

John Arderne, a distinguished surgeon of England, born in 1307, especially celebrated for his treatise on fistula in ano, was a Master Surgeon, or surgeon of the long robe, so classed to distinguish him from the Barber Surgeon, or surgeon of the short robe. He was of good education, wide experience, and sound judgment. According to Arderne, the qualities required in a good surgeon are piety, charity, modesty, wariness, gravity, careful of the company he keeps; studious, sober, not gluttonous, nor cynical; courteous and not jealous of other leeches; continent, friendly to servants, chaste; easy of address, neither too rough nor too familiar, not too ready to undertake a case, and always to see it before giving advice; to have a clear understanding about the fee before operating. The leech should be dressed soberly, be clean in his person, should cultivate silence, and not be foul mouthed or lying. He should have a store of comfortable sayings. Because of the effect of the mind on the body, the leech should have a good stock of merry tales. He should most strictly keep his own counsel about the patient (8).

This last injunction is contained in all codes of medical ethics and is regarded as a most salutary requirement, not to be departed from except under exceptional circumstances, and is recognized in many legal enactments. Some have thought that in view of the *lex non scripta*, which has obtained from time immemorial, a written code was not necessary for the guidance of medical gentlemen; but as "a silk purse cannot be made from a sow's ear" a written code provides more certainly for the information and guidance of all the profession.

"Through centuries," says Jacobi, "statutes of associations, faculties—for instance, those of the chirurgeons of Paris, 1370—the barbers of Alsace, the medical faculties of Leipsic (1309), Cologne (1392), Vienna (1494), contain all sorts of rebukes, reprimands, fines, and even incarcerations on account of unethical behavior."

In 1518—the tenth year of King Henry VIII—Thomas Linacre founded the College of Physicians of London, in order that its members by constant association might be improved in learning, in the

practice of medicine, and in the morals of their profession. The statutes of the college ordained for the Government of its members are explicit and emphatic. They not only declare what shall be the demeanor of its members, but they prescribe that they shall "be clothed with gown and other decent apparel" when in attandance upon "all great meetings Feasts of the Collegue, Funerals, and Anatomical administrations" under penalty of a fine if delinquent.

Because by honest meetings mutual love is maintained, and the minds of studious men recreated. We will that all who have been admitted into the Society of the College entertain the President and all the Fellows in Town, at a frugal, honest, and sufficient Feast, and that at a time first appointed by the President.

But if at any time it shall happen, that he whose duty it is to provide a Feast, can not conveniently perform it, and therefore for some just and honest cause to be approved by the President and greater part of the Society, he shall desire of the Society to be kindly released from this Law, and freed from that charge; we leave the whole matter to be moderated at the discretion of the President and Society.

Yet whatever Collegue shall obtain this favour, that he be released from providing a Feast, he shall pay to the use of the College Ten or Twenty Pounds, according as it shall seem reasonable to the President and greater part of the Fellows.

Let none reveal or divulge anything of any moment that is said in the College, under the penalty of Ten shillings.

No Collegue shall by name accuse another either of ignorance or ill practice, or any villany, or ignominious crime, or publicly reproach any of the College (under a penalty of four pounds). The second the mulct shall be doubled, but if any shall offend the third time he shall be expelled from the College.

The Fellows of the College are enjoined to use the greatest circumspection in consultations and under all circumstances jealously to guard the reputation of a collegue.

Historians generally consider the promulgation in 1532 A. D. of the Criminal Constitution of Charles V, otherwise termed the Caroline Constitution, as the earliest test of forensic medicine in Europe. Article 35 of this Code is as follows:

If a girl is suspected of having been delivered of a child in secret and to have killed this child, one should in the first place ascertain if she had been seen in a very apparent condition of pregnancy, and if this pregnancy having diminished, whether or not she became pale

and weak. If these kinds of signs and indications are met with and the woman is such that she may be suspected it is proper to proceed still further and have her secretly examined in private by reliable and experienced matrons. If this examination confirms the suspicion, and she, nevertheless, will not declare the crime, she may be put to torture.

If all these conditions, and in *addition the body of a dead fetus were present* it would not be proof that the girl had killed the child, for it might have been stillborn.

In 1667 a new fact, a most important medicolegal finding in cases of suspected infanticide, the hydrostatic test of fetal lungs, wherein it was demonstrated that after respiration had once taken place the lungs would float in water, was discovered by Swammerdam. Had this fact been known at the time of the proclamation of the Caroline Constitution, it might have saved some from being "put to the torture."

The first practical application of this fact, however, did not occur until a century and a half after its discovery. In 1681, in the case of a peasant maid of about fifteen years of age who was accused of infanticide, Joh. Schreyer, a physician of Zeitz, demonstrated that the child had not breathed because the lungs sank, thus acquitting the girl of the charge.

Cangiamila, of Milan, in 1751 wrote interestingly on sacred embryology. The Hippocratic oath and all codes of ethics are pronounced against criminal abortion and the religiomedical controversy over craniotomy on the living fetus has waxed warm from time immemorial; the accoucheur holding that it were better to sacrifice one than lose both. But with the fine advances in the obstetric art today, there can no longer be any doubt as to the correct procedure.

The physician was and is necessarily relied upon by the governmental authorities in medicolegal cases and the *great* medical men in all ages in the nobleness of their characters have appreciated and respected the responsibility placed upon them. Thus Ambroise Pare, writing in the sixteenth century, says: "The foremost and principal quality for the surgeon is that he shall have a pure soul, fearing God, and never representing a small wound as a large one nor vice versa, because the jurisconsult will be guided in their decision by the report."

It is to be regretted that the medical expert of today is not held in very high esteem, for it is alleged that his testimony is warped in the direction whence cometh the fee.

From what has preceded it will be observed that medical ethics and forensic medicine were still classed together and in the nature of things were governed by legal enactment, but after the seventeenth century, as medical organizations became more numerous and medical periodicals were more disseminated and the healing art was developing more into a science, the exigencies of the times made differentiation necessary and there arose a need for local codes of medical ethics.

There are some interesting old volumes in the surgeon general's library which deal with the duties and difficulties of the medical man. Notably the *Medicus-politicus*, by R. à Castro (1662), another volume with the same title by Friedrich Hoffmann (1738), and one entitled *Medicus-peccans* by Ahasuerus Fritschius (1684).

About the end of the eighteenth century, according to Jacobi, "Johannes Peter Frank was so disgusted with the behavior of doctors when they met in consultations as to advise the calling in of the police on all such occasion." In 1799, according to Cordell, the Medical and Chirurgical Faculty of Maryland authorized its president to fine any member guilty of disorderly conduct at its meetings, to the extent of ten dollars, and to eject him, if his conduct was offensive enough to warrant such an extremity.

It is a well settled principle of modern medical ethics that a physician should hold inviolate the confidences of his patient that were neccessary in order to give a proper understanding of the case, and further that he should not, by reason of superior special knowledge, give countenance to suggestions of a scandalous nature, especially about women.

The sad and cruel consequences of a failure to observe this last rule are exemplified in the celebrated case of Lady Flora Hastings (9)—a lady in waiting at Queen Victoria's court at the beginning of that sovereing's reign. In 1839 Lady Flora was on duty at court performing the functions of lady in waiting upon the Sovereign, when *appearance* suggested to some of her associates that she might be in "the family way." One of them reported her suspicions to Sir James Clark, the court physician, who at once fell in with the insinuation and immediately catechized her and intimated that she "must be privately married, or at least ought to be so". This Lady Flora indignantly denied, and, to vindicate her character, demanded a consultation. Lord Melbourne reluctantly permitted a medical examination to be made, which at once established her chastity. Sir James Clark and Sir Charles Clarke, the consultant,

certified that "there are no grounds for believing that pregnancy does exist, or ever has existed." She survived this humiliating ordeal only a few months. Sir James Clark, the court physician, should have been more alert and circumspect; and by the observance of that prudence and delicacy which should ever characterize the physician in dealing with such conditions, he could have saved the lady and her friends much anguish and distress.

The verdict in the noted case of Kitson versus Playfair and wife tried in London in 1893 (10), being a suit for libel and slander because the doctor told his wife that Mrs. Kitson had had a recent miscarriage though she had been away from her husband considerably more than a year, strengthens and fortifies the great doctrine of the confidence of patients.

Mrs. Kitson was the wife of Mrs. Playfairs's brother. Mr. Kitson was not prosperous, so his brother gave him an annual allowance of £500. But upon Doctor Playfair's unfortunate and damaging statement to his wife allowance was discontinued. At the trial the weight of expert testimony was that a placenta might be retained in utero for more than a year after a miscarriage. The damage was laid at £5,000, but the jury awarded the unprecedented amount of £12,000. Upon application for a new trial, this amount was reduced by agreement to £9,200. In any case, the defendant was cast in far heavier damages than the plaintiffs had tried to obtain in the first instance. The reason for this is probably to be sought in the strong Anglo-Saxon prejudice against tattling about womankind. The Mordaunt case, in 1870, made the Prince of Wales less unpopular, because it was held that the evidence he gave in the witness box was the only evidence which a man of the world could give under the circumstances. The slanders which drove Lady Flora Hastings and the wife of Sir Travers Twiss from Queen Victoria's court, even the statements made against the actress, Adelaide Neilson, which also came to a legal test, were not regarded with particular favor by the English people. Women may gossip among themselves and malign other women, but, outside the continent of Europe, a spy or he-gossip is usually regarded as a cad and no gentleman. A physician, at all events, should be neither spy nor he-gossip.

So far as I have been able to discover, the American Medical Association, organized in 1847, was the first large medical body to adopt a formal written code of ethics, traditional usage having formerly prevailed.

It is true that many treatises had been written upon the subject, and that of Percival, an English physician, was largely drawn upon in formulating that document. Its preamble is here transcribed.

Inasmuch as an institution so conducted as to give frequent, united, and emphatic expression to the views and aims of the medical profession in this country, must, at all times, have a beneficial influence, and supply more efficient means than have hitherto been available here for cultivating and advancing medical knowledge; for elevating the standard of medical education; for promoting the usefulness, honor, and interests of the medical profession; for enlightening and directing public opinion in regard to the duties, responsibilities, and requirements of medical men; for exciting and encouraging emulation and concert of action in the profession, and for facilitating and fostering friendly intercourse between those who are engaged in it: therefore, Be it resolved, etc.

That code is a splendid confession of faith, and its lofty tone is such as to command the respect and confidence of all. It may be remarked here that the charter of the Medical Society of the District of Columbia, granted in 1817, prohibited the adoption of any code of ethics or tariff of fees. The reason for this, however, was because the society was charged with the duty of licensing practitioners of medicine.

The fee-table has always been, and necessarily so, an important consideration among medical men; and much criticism and vituperation have been launched against the tariff of fees adopted by medical organizations for the guidance of their members. It must not be imagined that the office of the physician can ever be supported as an exclusively beneficent one, yet gratuitious service of an eleemosynary character may and should be freely extended, nevertheless, altruism has its limitations and rejecting all thought of *exorbitant charges and fee splitting* those who are able should be required to pay according to the responsibility assumed and the service rendered. It is the universal judgment of all experience that it is best to collect the fee while gratitude is warm and ardent. By so doing one may keep his friends as well as get his remuneration.

I have cited the utterances of eminent medical men of the different countries of the olden time, and their views on medical character harmonize to a remarkable degree. They were not indifferent to the emoluments that were justly theirs, but it is a matter for congratulation their humane and benevolent dispositions stand out in such clear and striking fashion. The following incident,

though occurring more recently, is illustrative of the generosity that I believe is almost universal in the medical profession.

"Mr. ——— received, in his consulting room, a gentleman of military and prepossessing exterior, who, after detailing the history of his sufferings, implored the professional man he addressed to perform for him a certain difficult and important operation. The surgeon consented, and on being asked what remuneration he would require, said that his fee was a hundred guineas. 'Sir,' replied the visitor, with some embarrassment, 'I am very sorry to hear you say so. I feel sure my case without you will terminate fatally; but I am a poor half pay officer, in pecuniary difficulties, and I could not, even if it were to save my soul, raise half the sum you mention.' 'My dear sir,' responded the surgeon frankly, and with the generosity which is more frequently found among medical practitioners than any other class of men, 'don't then disturb yourself. I cannot take a less fee than I have stated, for my character demands that I should not have two charges, but I am at liberty to remit my fee altogether. Allow me, then, the very great pleasure of attending a retired officer of the British Army gratuitously.' The kindly offer was accepted. Mr. ——— not only performed the operation, but visited his patient daily for more than three weeks without ever accepting a guinea—and three months after he had restored the sick man to health, discovered that, instead of being in necessitous circumstances, he was a magistrate and deputy lieutenant for his county, and owner of a fine landed estate. 'And, by———!' exclaimed the fine hearted surgeon when he narrated this disgraceful affair, 'I'll act exactly in the same way to the next poor man who gives me his *word of honor* that he is not rich enough to pay me!'"

With the progress of scientific medicine and its more independent status, many complex questions arose and they have continued to agitate the medical world. Not the least of these is the matter of consultations. The profession at times has been almost torn asunder by this vexed question, and it has been accused of prejudice and intolerance, and denounced as a "vile trades union" by the advocates of certain so called "systems of treatment." But as consultation is supposed to be *solely in the interest of the patient*, it is no intolerance to decline consultation with one who is so narrow as to adhere to an exclusive dogma. Medicine in its broadest sense includes primarily a knowledge of the structure and functions of the body, skill to recognize pathological changes, and an ability to apply such remedial measures for the amelioration of the condition as

reasonable theory and ripe experience justify. On such a basis as this, consultation should be free and untrammled

There are numerous questions of an ethical character that have been more or less acrimoniously discussed by the profession from time to time that might be of interest to consider, did space permit. Suffice it to say that the doctor, despite the jibes and satires aimed at him and notwithstanding his sometime moral delinquencies and many lapses, is an all round good fellow, benevolent and generous, and self sacrificing on occasions; who in time of plague and pestilence ignores the first law of nature, self preservation, and stands unflinchingly with his face to the dreaded foe and yields his own life if need be for suffering humanity.

Medical ethics has always been based on broad and philanthropic ideals, and many treatises have been written upon the subject, differing in form and manner of expression, however, but the essence and spirit of the whole matter is contained in the Hippocratic oath, and all others are merely amplifications of that noble document.

The conclusion of the whole matter is, that whatsoever ye would that men should do to you, do ye even so to them.

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PARALYSIS AGITANS: WITH SPECIAL REFERENCE TO THE INCURABILITY OF THE PATIENT AND THE MEANS WHICH MAY BE TAKEN FOR HIS AMELIORATION.

By GILES F. GOLDSBROUGH, M.D., Aberd.

It will be within the recollection of the members of the Society who were present at the November meeting that a discussion took place based upon a paper by Dr. John Weir on "Homœopathic Philosophy and its Value in the Treatment of Chronic Diseases." The general trend of the discussion issued in an establishment with a more or less certainty of conclusion in the minds of the members of the theme, that in so far as the principles of the homœopathic philosophy were applied in practice, *with a proviso that the patient was curable,* so would a greater success attend the efforts of the medical man to cure him. The able paper which formed the basis of the discussion consisted of an enunciation of the conclusions of Hahnemann as to the best means of applying the homœopathic principle in the treatment of this difficult class of case. The paper was especially an exemplification of those conclusions as they have been worked out by a section of the followers of Hahnemann, notably recently by

Dr. Kent, of Chicago, and his pupils, among whom on this side we have Dr. Weir, Dr. Tyler, and several others. In the discussion a variety of conditions and factors concerned in a working out of the theme of the philosophy were touched upon, and the most important conclusion arrived at was that a full proof of the value of the theme would consist in an accumulated mass of evidence in the nature of cured cases. Every member of the Society will agree that a sufficient evidence to prove the cogency and value of the argument will of necessity take a great deal of time, almost more than can reasonably be compassed in the professional life of anyone of us, and therefore the work that has been done so far is pioneer work and tentative or preliminary to an accumulation of the evidence which will prove conclusively the value of the theme at a later date. In other words for the time being the homœopathic philosophy as set forth by this development of Hahnemann's original method and efforts becomes a working hypothesis, which is offered to any medical man to take up and apply to cases in which he desires better results for his treatment than have hitherto been attainable. If this view can be accepted of what we may describe as the present status of the homœopathic philosophy as set forth by Dr. Weir in his paper, and until the accumulated mass of evidence has had time to form, it appears to me such a view is the only acceptable one, it may be assumed that a free discussion of the different bearings and implications of the judgments or conclusions contained in the philosophy will be advantageous. As during our discussion I ventured to remark, it may be easy to criticize, but the work of construction and elaboration and waiting for and collecting evidence is laborious in the extreme. I agree most thoroughly with Dr. Wheeler that what is needed is experiment, and experiment which requires to be repeated, but what I should like to contend for would be not simply experiment merely in accordance with preconceived theory, even though that theory has been handed down to us by such a genius as Hahnemann, but controlled experiment. And controlled experiment would imply, I want to insist, not merely negative control, that is a leaving of similar cases without medicine while others were being treated with it, but a directed con

trol governed, if I may use such a term, by a thorough and radical criticism of the previously formed generalizations on chronic disease. If I remember rightly, Dr. Weir assumes that some chronic diseases must be regarded as incurable. Now, no one will wish to take up an extreme or ultimate generalization and criticize that, because doubtless all of us wish the term incurability to possess as little finality of meaning as possible, but on looking over again Hahnemann's introduction to the *Chronic Diseases* I can find no suggestion that any chronic diseases in the estimation of that work are incurable. The whole work of Hahnemann on that subject appears to be based on the ideal, that, if properly treated homœopathically the most severe or unlikely cases can recover But then this ideal is based on one very large and sweeping generalization as to the cause of chronic disease, and that is, that the majority of cases owe their origin to some form of infection, and assuming this to be true, if a remedy can be found to act deeply and long enough which also had produced symptoms similar to the earlier and initial manifestations of the disorder, the patient's vital energy would respond to the medicine in the direction of recovery which would be permanent as far as that particular malady was concerned.

Now there appears not a shadow of a doubt that knowledge of chronic disease acquired since Hahnemann's time lends strong support to his view that infection has played a most important part in its production, especially in the early life, both child life and earlier mature life, of the patient. Without doubt also it was a magnificent generalization of Hahnemann that substances, which we now call constitutional remedies, could and did possess such a profound relation to the tissues of the body, probably we may believe now a chemical relationship, that diseases depending on infection could disappear under the influence of infinitesimal doses of those substances. These two great generalizations we have inherited from Hahnemann and the latter we are endeavouring to put into practice to the best of our ability. But now this is the criticism I want to make, not against the generalizations, which are of supreme value, and universal as far as they are applicable, but against the assumption that they do apply univer-

sally without regard to other considerations. And my purpose in obtruding these remarks on the notice of the Society so soon after the discussion I have referred to is to endeavour to point out, what I believe even the advocates of the philosophy according to Kent will be obliged to admit, that these *other considerations* are important in our conception of the requirements of treatment. For in their endeavour to explain failures in certain cases of chronic disease have not the advocates of this philosophy taken refuge in what they call "pathological ultimates"? I can find no reference to pathological ultimates in Hahnemann's generalizations on chronic disease. While life continued, I do not believe there were any pathological ultimates—for him. Both a dropsy or paralysis were the result of syphilis, sycosis, or psora in his estimation, and therefore, assuming the truth of the principle of similars, diseases brought about by these infections were amenable to anti-syphilitic, anti-sycotic or anti-psoric remedies. Morbid anatomy was not Hahnemann's strong point, nor indeed is it ours from the point of view of therapeutics, and from the latter standpoint we can usually most usefully ignore it. But it cannot be ignored in our diagnosis of the case, as the prophets of homœopathic philosophy abundantly testify. It seems to me that greater care is needed in distinguishing our therapeutic resources, and the knowledge on which *they* are based, and the knowledge we have of the course and nature and issue of chronic disease when left to Nature, and frequently even when not left to Nature, if we can assume that our puny efforts can in any way influence or direct the course of Nature.

But further I should not have attempted to obtrude these remarks on the notice of the Society to-night had not some of our colleagues gone to France, and our honorary secretary was left without a contribution for this evening to the Section of General Medicine and Pathology. The great promise of the homœopathic philosophy is always referring my own mind to my chronic, incurable cases of nervous disease, and I never *hear of it* without wondering whether I have failed, and failed egregiously to overtake the requirements of these cases from the standpoint of the homœopathic philosophy and its value in the treatment of chronic

disease. The only satisfaction I have in reference to my difficulties in this direction is that sometimes colleagues who have been to Chicago and learned from Kent ask me to see a chronic case of theirs, say of paralysis agitans, to know if I agree with their diagnosis, and if I can do anything for the patient. Unfortunately, I can usually do nothing to cure, but usually also I have some suggestions to offer for the treatment of the case, and when our esteemed honorary secretary asked me if I could contribute a paper for to-night, after thinking about it for some days I decided to venture one on the disease I have just mentioned. But why paralysis agitans may be asked? Well, for the reasons mentioned that so far as knowledge and ability to cure is attained, it has been proved incurable, but the nature of the ailment brings out into relief the considerations requiring attention in the causation of chronic disease, beyond the theory that infection is its chief and most potent cause, and that certain cases of the malady demand for relief all the therapeutic effort which can be brought to bear on them notwithstanding that cure may from the outset be believed to be impossible.

I am aware that there are many points still obscure as to the nature and pathology of paralysis agitans, and to subtract from the time at my disposal to discuss these would defeat my purpose in bringing the subject before the Society, but this much I must remark, that so far as is at present known there is no "pathological ultimate" at the basis of the disorder. I may say here, also, that there is no reason to think that infection plays an important part in its production, although some irregularity or deficiency in internal secretion may have a *rôle* in that direction. Therefore one would think, that if the generalizations of the homœopathic philosophy are to extend beyond chronic disease owing its origin to infection, in the absence of a pathological ultimate in paralysis agitans, patients suffering from that malady would be amenable to recovery by homœopathic means. So far, however, my own experience leads me to a negative conclusion in that respect, and my reason for bringing the subject forward is that with the help of the Society I may discuss the bearings of our therapeutic methods in relation to such a disease. Before

proceeding to give the record of my experience, I wish to make a short reply to Dr. Wheeler's remarks on mine at our last meeting in this way, that I did not wish by way of criticism to hinder experiments being made along homœopathic lines in any forms of chronic disease, but I did want to insist that there were other factors at work in the evolution of a case than had been suggested by Dr. Weir, and that these factors should always be taken account of in an estimation of results. Moreover, although I did not reach this point, in consideration of there being other factors at work, the necessity for criticism would also point to the range over which experiments would require to be conducted if they were to lead to results from which accurate inferences could subsequently be drawn. To-night I wish to use the disease pa a-lysis agitans as an illustration of some of the considerations arising in connection with the anticipation of such therapeutic experiment.

In making experiments we shall be obliged to use the forms of disease as a guide to the selection of cases in which to give certain medicines, which we select not according to the form of the disease but according to the symptoms and generalities of the patients. This is an important distinction which has not been sufficiently dwelt upon, I think. Although we may wish and believe that our therapeutic rule is applicable to all patients who are not displaying pathological ultimates, in order to say that it is so, we cannot base our inference on patients singly or indiscriminately, but only on a certain class of patients selected according to certain groups of symptoms, whether owing their origin to a known cause or not, and for an accurate result of experiment to be forthcoming all cases coming under that particular class or group of symptoms must be included in the investigation.

Numbers.

I therefore proceed to give my experience with paralysis agitans as expressing a group of symptoms from this point of view, that is from all cases who have presented themselves since the department of nervous diseases was commenced in our hospital, in conjunction with my private practice, that is, a period now of seventeen years. I have forty-seven cases to record, of whom

thirty-three are hospital patients and fourteen private. It is interesting to note that the hospital cases form just over 1 per cent. of all the nervous cases presenting themselves for treatment. I have made a rough estimation and find that the thirty-three cases occur in a total of just about 2,900 cases in all. I am not aware that an estimate of the relative occurrence of paralysis agitans to other nervous disorders has been made before. Only three of the cases were admitted as in-patients.

SYMPTOMATOLOGY.

I do not propose to inflict upon you in detail the records of all these forty-seven cases. In view of the incurability of the patient this would be wearisome in the extreme, but I want to refer to the symptomatology in some detail, more especially pointing to its significance as suggesting aspects for treatment other than the homœopathic, and as suggestions also of factors in the production of chronic disease other than infection.

I may summarize the symptoms of the malady in the words of Parkinson, who first described paralysis agitans as a clinical entity in 1817. "A shaking of the limbs when they are not moved by the will; a loss of strength which can be exerted by the will; a kind of stiffness which though not great tends to fix the frame in a certain posture which can be changed less speedily than in health." This description applies with greater or less severity to the whole body, although in by far the majority of cases the ailment begins with tremor in one hand, and on account of its more noticeable mobility the rigidity at first is more marked in the face. As the tremor increases so the hand assumes a fixed position. Habitual slight flexion ensues not merely in the hands, but the forearms or the arms, and sometimes of the head or the neck. The weakness is a *felt* weakness, out of proportion to actual loss of power, and there is a slowness of movement induced accordingly. The gait assumes a forward stoop, and walking is accomplished with a shortened step. The rigidity consists of an increased tonicity of muscles probably due to sluggishness of volitional impulse. The constant tremor in the waking state is a source of fatigue with the sluggish volitional impulse, there follows a sense of restlessness from the tremor and rigidity with

often consequent insomnia, and frequently a sense of heat, although occasionally coldness is felt. There follows usually also mental restlessness and disappointment, and mental failure may occur. The condition may last from two to twenty years, and it is rather astonishing to find that other functions seldom suffer until quite near the end. Indeed, as has happened with a patient of my own, the patient may pass through serious illness, such as weakness of heart, or thrombosis of the legs, and emerge with his chronic nervous ailment in the same state as before.

Causation.

Certain features in the causation are important in the light of the exceedingly chronic nature of the malady. Probably the age of the patient at which the malady usually begins is most important in this connection. It is a disease of the early decline of life. Of the forty-five cases in which the age is recorded among my patients, one only was in the third decade of life when first seen, and had been ill three years; two more in the fourth, who had been ill for six years and nine months respectively. One was in the fifth, with the duration not noted; eighteen were in the sixth; nineteen were in the seventh; and four in the eighth—although in the latter case a woman of 78 had been ill four years, and a man of 72 for eleven years. The duration of the ailment in relation to the age is important when it can be ascertained—although patients' statements are seldom quite reliable in this connection. Prolonged mental emotion associated with fear is usually in intimate relation with the onset of the malady, and as such suggests a connection between the occurrence of such emotion and the energy of the cortical motor centres. The best judgment which can be formed concerning the origin of the disturbance attributes it to disorder at the functional level of the cortical motor centres. But, as a set off against this, and introducing a difficult discussion on localization, is the fact that "tremor has more than once been known to begin in an injured part" (Gowers in "Allbutt's System"). As introducing an important point in diagnosis, as well as discussion on localization, one may add that tremor at rest, as distinguished from tremor on voluntary or other movement, is characteristic of

this disease; although the tremor is almost always excited by emotion, but it is thus distinguished from disseminated sclerosis and mercurial or alcoholic tremors. As regards speculation on a deeper causation than that of actual disturbance or premature senility of the nervous system, I am not aware of any facts leading to the opinion that infection plays a part in its production or any disorder of internal secretion, but, without doubt, I think we must believe that heredity does play a part, and that from not merely the point of view of an inheritance of a neuropathic disposition, but probably from a broader evolutionary standpoint. From this latter standpoint we might find explained why, apart from other contributory causes, some persons rather than others are more susceptible to pathological change apparently arising from emotional disturbance, and some more likely to take on senile change in their nervous system sooner than others.

Treatment in the Light of Prognosis.

Why should we attach the terms senile change and incurability to cases of disease which may happen in the third or fourth decades of life, simply because hitherto patients have not recovered from the condition, and the early changes are very similar to those which appear at the usual senile stage of life? Clearly for the sake of patients who are any age up to 70 or 75, I think we ought not to attach these terms and I make this statement even though out of the forty-seven cases of paralysis agitans I have had, there is not one I can publish as a cure. On the other hand, if asked the question as to curability we are not entitled to promise cure, so far even to the younger persons who may be suffering from this disorder. And here I should like to state the reasons why I think Hahnemann's generalizations on Chronic Disease do not apply, even though we may agree that apparently there is no "pathological ultimate" to bar the possibility of recovery. These reasons are as follows:—

(1) The disorder is probably not caused by infection.

(2) Extreme emotional susceptibility is probably an exciting cause.

(3) Heredity in the stricter senses of the term in which one can use it probably applies to paralysis agitans.

(4) The law of tissue habit operates more especially with regard to the nervous system, and this in conjunction with heredity and emotional susceptibility, also perhaps inherited, may probably be sufficient causes of paralysis agitans.

But now if this is so, what can be done for patients suffering from this disease? Are we simply to accept their incurability ourselves as knowledge and leave them alone, or are there any measures which can give relief even if they cannot cure? I propose to discuss this subject first from psychical points of view, and then from various physical aspects including that of drugs. And here I shall have an opportunity of stating the results of my experience, and of detailing a few cases which are of somewhat exceptional interest.

Psychical Aspects of Treatment.

The majority of both my hospital and private patients I have only seen a very few times, and a number of the latter have been sent by colleagues for an opinion and advice, so that out of the forty-seven cases there are comparatively few I have been able to follow through any great length of period of their malady. This state of affairs arises very naturally on account of the incurability of the condition, and the very unsatisfactory result of treatment by medicines alone. On the other hand, there are many cases which can be judged to be amenable to influences other than drugs, yet there are a few, and these are not merely those who present themselves in the earlier decades of life. But I believe the psychical aspect is worthy of consideration for all patients if they are not far beyond 70 years of age when they are seen, and are of sufficient intelligence to appreciate what may be said to them by way of instructions regarding their feeling and movement. There are certain features characteristic of the symptoms of the cases upon which a psychical treatment is based, and I am of opinion that if these are thought of freely in the light of the physiology of their functional levels, a better result from psychical means may be attainable. There is of course one essential preliminary to any form of treatment, and that is that the patient should be freed from anxiety which is likely to be attended with fear or apprehension of any sort. With this proviso, if the

strength permits, it is well that he should follow his usual occupation as long as it is possible to do so. But if strength does not permit, or the patient has no occupation to follow, then a social environment of mental tranquillity, coupled with engagement in light intellectual pursuits and physical exercises, is essential. The mental exercises we wish the patient to appreciate and to follow are both general and special. If we are persuaded he may improve, then the very slightest suggestion of incurability must be avoided, and we must insist on an opinion that improvement is possible, and must acquire the confidence of the patient sufficiently to lead him to follow implicitly what is said to him and to put it into practice day by day and every day at stated intervals as regards special exercises. But the psychical detail we have to give attention to is not merely of this vague character. The exercises which are called for are based on the intimate connection between the patient's will as a determining process of his actions, his emotions on the conscious side of his will, and a gradation of functional level of motor effect on the other or physical side. A connection of this kind between the mental and physical cannot be wholly imagined through the body subjectively, but our directions to the patient cannot be given without assuming the connection and his conduct proceeding through it. With regard to the will, the weakness of resolution which is manifest as a symptom consists more in tardiness than actual weakness, because when once the patient has appreciated the kind of movement required and resolved on it, he does not show weakness except in the nature of fatigue in overcoming the rigidity or tremor. But when he finds himself slow in resolving that he *will* perform a certain movement, the apprehension and timid side of his feeling is increased, which, unless it has been previously successfully combated by the medical attendant or gymnast who may be engaged, adds to the tardiness in coming to a decision. Having acquired the confidence of the patient, a repeated general reminder of his total physical self-respect is needed here on the part of the medical attendant. Nearly all patients can be induced to stand erect and walk normally for a time, and in each case according to the severity of the disorder the question arises how far

this kind of encouragement can be enforced without risk of undue fatigue.

Now, as regards rest and individual exercises, the prescription of these will depend on the predominance of tremor or rigidity, or weakness, on the one hand, and the parts of the body most affected on the other. Attention will be needed to the tremor, to the use of the limbs individually, as more or less rigid and weak, the speech and locomotion generally. The tremor is decidedly a peculiar symptom, and we must conclude it to be of cortical origin. It is certainly not fibrillary tremor, nor tremor of individual muscles, but of functional groups of muscle, the finger and thumb being the most common group affected. It may, however, affect the whole body, or the head and neck only when in the sitting position. The nature of the tremor we can think of as a more or less rapid oscillation of the balance between the synergic and antergic group force of the muscles, and it is quite probable the rigidity complained of in different parts is of a similar nature, except that the overbalance of flexion is usually a tonic and stable overbalance, rather than a clonic vibratory oscillation. The natural pose of the body uninfluenced by the will is slight flexure of all groups of muscles except the face, and we can believe that this function is subserved by the cortical motor areas, and by a subordinate grouping of the cells and fibres of those areas to those which subserve finely adjusted voluntary movements. The normal balance of synergic and antergic muscle force is to be regarded as relatively automatic compared with finely adjusted movement, but in reference to the resolution to perform certain movements the former is usually under the control of volition, and it is so more or less and for a greater or less period of time with regard to the tremor and rigidity of paralysis agitans. Now, I have, perhaps, dwelt a long time on this detail, but I wish to urge that the tremor and rigidity should be treated in opposite ways from the point of view of the patient's volition and any exercises which may be prescribed. It is of little use urging the patient by repeated trials to control the tremor. Such effort on his part can but issue in fatigue and disappointment. When we remember that the cause of the malady consists in disturbed

emotion which has weakened resolution, if the view I have given of the tremor is a correct one, what is needed to control it is detachment of the mind from it, and yet to avoid identification of attention to anything else that is interesting except interest which may be a pure æsthetic pleasure not demanding any effort of volition. If this detachment can be secured, then the patient will have rest from the tremor, and he should practise this for regular periods every day. If, however, the head and neck and trunk are affected by tremor he will have to lie down to secure his detachment. But it is the opposite case with rigidity. In order to overcome the latter, its nature must be explained to the patient, and he must be told that by the requisite exercise of the non-rigid muscles it will be overcome, and these exercises should be practised regularly every day. But if the case is far advanced, the patient will not be able to do this for himself or herself. His will being weakened through sudden or continuous emotional anxiety, and his mental resolution slow, these must be substituted by a nurse, or a skilled masseur or gymnast. I have a lady patient, aged 78, who sits all day in her armchair with her forearms flexed on the arms, and the fingers flexed on the hands just as if she might be going to take something to the mouth with both hands. Occasionally she will put the limbs on her lap, but only for a few seconds, and occasionally also she will get up out of the chair and walk with firm and normal steps across the room. Nothing, however, gives her greater ease than for the nurse or myself to forcibly overcome the abnormal flexion. She is habitually extremely irritable and cantankerous, and she is guilty of the grossest exaggerations in regard to her surroundings and the treatment she receives, but an invitation to do these extension movements for her puts her in a good temper immediately.

The foregoing is an advanced case grossly and imperfectly illustrating the psychical aspects I am detailing, but, besides this patient, I have three others under treatment at the present time in whom the psychical treatment I have been endeavouring to outline has been productive of good results.

Case 1.—Mr. W. T. H., a civil engineer, was 51 years of age when he came to me in June, 1913. He had been ailing slightly

for five or six years. He had to discontinue singing owing to failure of his voice, and he complains of not being able to write with any ease, and walking tired him very much. He had been able to continue his business, however, but had had much worry in connection with it. He has played tennis occasionally. He exhibited all the classical signs of paralysis agitans, but none of the symptoms were in a very pronounced form. He hesitated and stammered in his speech. Facial rigidity was noticeable the moment he came into the room, as also was the flexured pose of the hands and the slow and measured gait. He walks about a mile from his house to the station in the country every day. I gave him picric acid 30, a dose every three days, but did not then enter upon the psychical aspects of the case. A holiday rest in Cornwall, in August, did him much good, except there was a good deal of muscular pain when walking, for which he received arnica. In September I entered more fully with him into the nature of his malady, and explained that it would be well for him to avoid fatigue always, but otherwise he should recognize his ability to perform all his bodily movements normally, and he was to have some dumb-bell exercise daily to work against the rigidity of his limbs of which he complained, and I encouraged him to walk regularly for the same purpose. The tremor was a negligible quantity. He was very responsive and gave me his complete confidence, and I found him improve markedly through the rest of the year. He sometimes had picric acid as a medicine, and sometimes phosphoric acid. In January of this year he had rather a severe attack of influenza, which reduced his strength somewhat, but he soon recovered. I have seen him about once a month since, the last time on November 30. His report was that he had improved in every way, had been regular in his business and been doing more work than ever he had done. He complains somewhat of his hands and arms feeling so slow in accomplishing his movements. His speech also is not good, there is a good deal of stammering. He is also rather nervous and apprehensive. For this man's continued progress he will require regular and systematic attention to his varying symptoms from time to time.

Case 2.—Mrs. A. was aged 55 when she called on me in April of this year, stating that she was experiencing some difficulty in walking, was unable to use her hands freely and that they trembled a good deal. She also felt an internal tremor all through her. The condition had been coming on for about three months. I had known this lady since she was a girl; she comes from a neurotic family. A sister had been neurasthenic for about twenty years, but had now recovered under Christian Science. Another sister was rather hysterical as a girl, but is now healthy, aged about 50; another has spinal deformity; another, a married woman, about 60, has had two attacks of retinal hæmorrhage with optic atrophy following, and has recently partially recovered from the effects of cerebral hæmorrhage. There was only one son in the family, who died some years ago, I do not remember from what, but I did not attend him. The father of them all suffered from diabetes with albuminuria and died suddenly from heart failure, but the mother is still living, aged 88, and healthy. My present patient was not married until late in the thirties; she has two children, the elder 16 the younger 10. She has always been of an anxious temperament, easily given to tears, but usually buoyant and bright. She is nerveus now and apprehensive about her state. She has slight facial rigidity, is slow in beginning a movement, but when once walking very little alteration in gait is noticeable. Complains of being easily fatigued and has some pain across the lumbar region. The tremor is exceedingly fine and scarcely noticeable to an observer. I could not tell this patient she was suffering from an incurable disease, but went so far as to say there was no reason she should get any worse, and that regular medical attention was necessary. I have found ignatia help her more than anything else, and explanations as to the attitude she should bear towards her symptoms individually enable her to forget that she has them very often, and to pursue her household duties always. I saw her on November 24 and again yesterday. She complained of more tremor on the former day in the right hand, with the inner feeling all over her. Her people also notice her hand trembling when she is sitting. It is < on the slightest interest, but if she relaxes interest it sub-

sides. I gave her instruction in exercises and the management of the tremor, and I find that she can distinctly detach her mental experience from it.

Case 3.—Mr. H. E., retired from business, is 72 years of age at the time of writing, and has been ill nearly eleven years. He has not been able to do any business for more than seven years. His failure began with slowness and extreme deliberation in his mental operations. This was accompanied with slowness of pulse and feebleness of the heart's action, so that the attention of his medical advisers at first was directed to a probable arterio-sclerosis as the cause of this mental state, and he was encouraged to take less responsibility in business, and more outdoor exercise than had been his wont. The heart and circulation improved under this regimen, also with the help of aurum as a medicine; but not so the mental aspect of the case, and he began to think he could not get up out of a seat, or start walking when once in the erect posture. A tremor also developed in the left hand. Anxiety in business was rather serious at the same time, and the mental hesitation in coming to decisions was very marked, but when once the decisions were arrived at they were in perfect order and form, and the man's appreciation of the position of the business in detail left nothing to be desired. He continued his golf and other outdoor exercise for a time, and was quite keen in his intellectual pursuits, such as his religious connection and politics, but his gait gradually became stooping, and shuffling, and the slowness of his volitional action was remarkable. The heart's action continued fairly good, although the pulse was never more than 70, and was inclined to slow down and intermit occasionally. The other functions were normal. There was never any albumin or sugar in the urine. The amount of exercise taken gradually diminished, but the appetite did not, so that the patient became stouter, and we had to contend with certain disorders resulting from overfeeding, such as constipation. On three separate occasions accompanied by slight fever and general systemic disturbance he developed thrombosis in the legs, twice in the right and once in the left. Fortunately for his nervous system, I think through the kind offices of Dr. Moir, before I had taken charge

of the regular treatment of the case, a skilled masseur was introduced, who was the greatest help in teaching the patient that he could move if he only made up his mind to and in giving him regular exercises to perform for himself. These apparently stayed the progress of the weakness in the limbs, but when thrombosis ensued, and this was the time I took regular charge of the case, the voluntary exercises had to be discontinued, and unfortunately meanwhile the mental state was not improving. Still there were the same characteristics, and are now, tardiness and hesitation in speech and thought, but correctness when the thought was once uttered. Latterly the orderliness of thought has given way somewhat, but my reason for giving the details of the case is that the characteristics of paralysis agitans are so very marked from the mental side, and the improvement from time to time by the psychical and voluntary exercise treatment has been very noticeable. Just to give one simple illustration which has happened lately. This man has always been very anxious to do everything correctly, and his disability has been a source of much trouble to him at times, and he becomes very depressed and nervous about himself. I was asked a few weeks ago if there was not something else to be done to relieve this as it was disturbing his rest. I suggested that while he was feeling the hesitation and slowness in deciding what he could say, he should allow the first words to be uttered which arose in his mind, and this would liberate the emotional stress. He did so with manifest relief, but I was informed that the words were not such as the patient would wish to utter always in polite society. As, however, their actual utterance only caused laughter, no harm was done even then. Well, the conclusion so far of this case is that the man is living a tranquil vegetative life among his friends and suffers very little in consequence of his ailment. As regards medicines, I have found picric acid, aurum, and digitalis of most service in the case. For the thrombosis, the swelling from which on both sides has entirely disappeared, he was put on a careful diet freed from all stimulating animal food, and moderate in quantity, which has since been maintained, and merc. sol. and heper sulphur were given as medicines.

Medicines

Now, as to medicines generally in paralysis agitans. The one I have used most often is picric acid. This has been given in

twenty-one out of the forty-seven cases I have mentioned. But I cannot say that this or any other medicine has had any marked effect in staying the progress of the disease. Most of the patients who have received it say that they feel better when they are taking it, which has not been the case with some others that are indicated from the symptomatology, such as tarantula, cuprum, or opium. Phosphoric acid, ignatia, and aurum have also been of service in a similar way to picric acid. On an examination of the provings of picric acid we are bound to come to the conclusion that it is capable of producing a profound weakness of the nervous system, the manifestations of which resemble in important particulars the symptoms of paralysis agitans. The weakness produced is systemic and general and accompanied by pain, certainly often of a neuralgic character, but also aching in the muscles. On the other hand, we have none of the irritative symptoms, for example, of the kidneys, and the phenomena of picritisation produced by picric acid in paralysis agitans. This may recount for the use of it being only of partial or temporary value. I have not used the organic extracts in any of my cases, I can scarcely see the relationship of parathyroid, or even pituitary extracts to these cases. If we were fully aware of the function of the pineal gland, I should think an extract from that would more likely be of service. The use of hypnotics and sedatives should be deferred as long as possible, sleep will be better procured by careful attention to exercises and soothing massage before going to bed. In the last case I have detailed we have found insomnia troublesome at times, but it has been overcome by belladonna, hyoscyamus, and on one or two occasions in other cases I have used hyoscyamine 3x with benefit, but all these measures and others for inducing sleep are of course at the discretion of the physician.

In conclusion, I hope I may be forgiven for bringing forward this subject in the manner I have done. Had there not been a vacancy for a paper this evening I should never have thought of it. But the discussion of our last meeting prompted me to think of all the things which militated against our success in chronic disease with homœopathic remedies, and it appeared to my mind

that these should be clearly stated and recognized, as preliminary to extended experiments being made.

REFERENCES.

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"A System of Medicine," Osler and McCrae, vol. vii, article by D. J. McCarthy, M.D.

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Discussion.

Dr. Robertson Day referred to the treatment of paralysis agitans at the Quinton Polyclinic and cited the following case as an instance of benefit received from the isotonic sea-waters:—

Mrs. R., aged 71, suffered from paralysis agitans of head chiefly, also of the hands, and especially when she uses them, as in holding a cup of tea. She had suffered from flatulent dyspepsia for forty years. She came first on April 27, 1914. On July 13, all her friends remarked that her hand did not shake so much. On September 14 the note was, shaking much less. On October 5, sleeping better, unsteadiness of hand much less; and on November 23, generally better.

Dr. Vincent Green said he had recently lost a patient, who for many years had been afflicted with paralysis agitans, and for whom the only remedy that gave relief was mercurius vivus (in 6th dil.). Dr. Green narrated a case of tremor of the paralysis agitans type caused by the exhibition of hydrobromic acid in large doses for violent heart's action. The cardiac symptoms were relieved by the drug, but a marked tremor ensued which persisted for a month after the drug was stopped.

Dr. A. G. Sandberg regretted he could not corroborate Dr. Roberson Day's remarks as to the value of sea-water in paralysis agitans. He had had a case, a man, aged 70, who had received no benefit from it as regards the tremor, although his general health greatly improved. Another case was much benefited by hydrobromic acid 6 in single doses, administered about once in ten or fourteen days.

Dr. Goldsbrough, in reply, thanked the society for the reception of his paper, also for the hint as to hydrobromic acid.—*The British Homœopathic Journal*, February, 1915.

EDITOR'S NOTES.

Illegible Prescriptions.

We learn from the *Chemist and Druggist* that at a recent meeting of the Western Pharmacists' Association some difference of opinion was expressed as to a statement made by Mr. F. W. Gamble that no prescription should be really illegible to a trained pharmacist. Perhaps not; but Mr. Gamble will surely not deny that some prescriptions are illegible to pharmacists, just as some addresses are illegible to the trained officials at the post office, and as many signatures baffle all endeavours to decipher them. This would seem to be especially the case in France, where *signature illisible* is a familiar appendix to copies of official documents reproduced in the papers. A "trained pharmacist" has this advantage over ordinary people, that his professional knowledge will often enable him to guess at the meaning of hieroglyphs which convey nothing to other people. Moreover, he is often familiar with the scrawls in which doctors whose prescriptions he is in the habit of dispensing indicate the remedies they wish to administer. In other cases the scientific use of the imagination of the pharmacist may perhaps lead to a correct solution of a problem which at first sight looks hopeless; and it is at any rate conceivable that sometimes he may be driven to interpret the mysterious script in the light of what he thinks the doctor ought to mean. Our contemporary gives an example of a prescription by a panel doctor which might pass for an order of the great Napoleon written on the battlefield in his later days. It is described as a "futurist prescription"; to us it looks like a magic formula in a strange Oriental tongue. The pharmacist—perhaps correctly, at any rate prudently—dispensed a mixture containing a moderate dose of magnesium sulphate. The interpretation was at any rate appropriate to season. But we would respectfully suggest to doctors, whether on the panel or not, that they should take the trouble to write, if not beautifully, at least legibly enough not to put too great a tax on the ingenuity of those who have to give material form to their therapeutic devices. The popular theory that illegible handwriting is a mark of genius is

dangerous if applied in medical practice, and it is a fact that serious and even fatal accidents have been caused by the careless writing of symbols or the misreading of the preparation of an active drug.—The *British Medical Journal*, January 9, 1915.

Floods and Pollution.

The remarkable figures given by Lord Desborough at a meeting of the Thames Conservancy Board in regard to the extent of rainfall over the Thames basin for nine weeks ended on January 5th last must mean an increased strain on the purifying machinery of the Metropolitan Water Board. In another column we publish a communication dealing generally with the increased demand upon the capacity of our sewerage system and its relation to public health. In the Thames basin the fall of rain was equal, we are told, to 3015 million tons, or 682,507 million gallons of water over the 3,812 square miles of the area. It may be presumed that part, at any rate, of this flood water would be impounded in the storage reservoirs in order to keep up the domestic supply, and that in spite of the mass of impurities which it must sweep from agricultural land a good amount of this water must reach the reservoirs. The well-known purifying process of sedimentation by storage would obviously occupy a much longer time for completion in order to bring the water to a sufficiently pure state for drinking purposes. It is to be hoped, however, that the increased vigilance which would seem imperative at a time when a great flow of storm water occurs, with its heavy charge of impurities drawn from the land, will be exercised by our authorities. It will be interesting in any case to watch the future official reports upon the purity of the supply based upon the examination of samples synchronising with the flooding period. The precautions, alluded to, apply equally, of course, to other parts of the country which derive their water-supplies from rivers, for the excessive rainfall was general.—The *Lancet*, January 16, 1915.

Poisoning by Tetrachloride of Ethane.

In our issue of December 26th 1914, we reported at some length the proceedings at an inquest upon a man who died at Hedon from the poisonous effects of the vapour of tetrachlorethane contained in a "dope" for varnishing aeroplanes. Since then two further deaths from the same cause have formed the subjects of coroners' inquiries. The first case was that of a young woman employed at an aeroplane factory at Rochester, who died from toxic jaundice with uræmic symptoms; the inquest was held on Jan. 5th. The second case was that of a girl, aged 19, an employee at Vicker's works at Crayford, and at the inquest on Jan. 8th the medical evidence showed that death occurred with symptoms of intense jaundice, the result of toxic degeneration of the liver. In each case the jury brought in a verdict of death from poisoning by tetrachlorethane vapour used in the aeroplane "dope." We understand that the Home Office are taking energetic measures to prevent the occurrence of any further accidents from this cause; but in view of the fact that tetrachlorethane and similar substances are being used in various parts of the country, not only at aircraft works but in other industries—such as the manufacture of various preparations of cellulose—we think it advisable to draw public attention to the dangers involved in the employment of this very toxic chemical.—The *Lancet*, January 16, 1915.

Biology and Culture.

Bismarck probably troubled himself little with biological or any other kind of theory; he had the contempt of the man of action for "professors." But he acted on the principle that might makes right and that whatever stood in the way of the realization of his plans could justly be "hacked through" with the sword or turned aside by garbling of documents or any other unscrupulous device of "diplomacy." His practice has been justified by Treitschke, Bernhardi, and others on a professedly biological theory that small nations have no rights. Professor Grasset of Montpellier, has lately shown the unsoundness of the

doctrine that might makes right. If we, he argues, were to give in human biology to the word "force" the sense which is given to it for other living beings and for the whole universe, man would be the weakest of all, and as in the universe taken as a whole it is the strongest who rules and dominates, the mastery which man has established scientifically over the whole world could not be understood. But this very mastery proves that the strength of man is made of something else than the brutal and unintelligent violence of the cyclone or the earthquake. "The bull, the elephant, or the lion, just as the microbe, can inflict on man passing and individual defeats, but man has always in relation to them the strength which masters them, and in the end directs them for the progress of humanity. The strength of man lies wholly in his intelligence, and this intellectual superiority is made up of all that is in human nature, notably the power of progress and the law of morality and right. It may be said that, if in general biology might makes right, in human biology, on the contrary, it is right that makes might." Professor Grasset's conclusion is that, without going beyond human biology, it may be said that "in the history of man final and definite success will always be with him who has true might, that is to say, moral right—that which puts science to the service of right." Dr. Fridtjof Nansen, the well-known explorer, recently delivered at the University of Christiania, in the presence of King Haakon and the Queen of Norway, an address on the rights of small nations. It had often, he said, been contended that on the basis of biology only the strong have rights. This he emphatically denies, for it is quality only, not quantity, that matters. The great facility of communications in modern times, of course, tends to form larger and larger aggregations. This may have advantages, but it is accompanied by the danger that it may cause a tendency for the special qualities of different races to disappear. What certainty of truth, he asks, will the citizen of the world with one only culture, one only kind of development, have when there will be no exchange of different ideas? Autofecundation is contrary to Nature, and leads to sterility. Where would be the admirable German work in zoology and biology without the

fecundation of Darwin, Spencer, Wallace? What would German bacteriology be without Pasteur? Or chemistry without Lavoisier? Or physics without Newton? Where, we might add, would medicine be without Jenner, or surgery without Lister? Had not, Nansen went on, Kant built on English thought? What do not Goethe and Schiller owe to Shakespeare? In small countries, more than in great, it is easier to make ideas pass into the domain of practice. The multiplicity of small States allows of the multiplication of endeavours to arrive at useful results. Using the Italian Republics of the Middle Ages, the free towns of Germany, the Swiss Cantons, and the Holland in our own day, as examples, he says, that small States are a kind of political laboratory in which such schemes as, for instance, the referendum, universal suffrage, and so forth, can be tested. The England of Shakespeare was no bigger than Sweden of to-day; London was about as large as the Christiania of Ibsen. Germany was not the great Germany when it produced Bach, Goethe, Schiller, Kant. From all this Nansen drew the conclusion that small nations have the right to exist by the side of large ones. It is not only a right but a duty. Any reasoning which tends to the conclusion that one should not defend oneself is bad, not only because it is the reasoning of the slave, but because it leads men to renounce their most sacred right.—*The British Medical Journal*, January 16, 1915.

Direct Action of Nicotine and Tobacco on the Motility and Tone of the Intestine, by E. Tedeschi.

The direct action is in proportion to the dose. Spasm is marked and prolonged when large doses are given. The amplitude of the excursion of the intestinal movement is diminished, rhythm and uniformity of movement are disturbed. The action of infusions of tobacco differs from that of the alkaloid nicotine; in effect the intestinal spasm is more intense and more prolonged by large doses; while with small doses there is stimulation to uniform, frequent rhythmic contraction. This leads to the supposition that other components of tobacco beside nicotine have an influence on the intestine.—*New York Medical Journal*, January 9, 1915.

Hysteria, by A. Salmon.

The connection of hysteria with organic disease is noted. For instance, hypersensibility of the nervous system may change a mild laryngitis into a stubborn hysterical aphonia. The author describes a new phenomenon first brought out by him at the neurological congress in Florence during the present year. After a prolonged voluntary muscular contraction, the same movement is, on slight suggestion, repeated several times automatically and involuntarily. This occurs even in perfectly normal subjects, and shows the importance of kinesthetic images on the mechanism of automatic acts. Many hysterical phenomena are to be laid to the vasomotor mechanism, as hemiplegic contractions, which are often relieved by the inhalation of amyl nitrite, after resisting all treatment, psychic or otherwise.—*New York Medical Journal*, January 9, 1915.

Delayed Chloroform Poisoning, by H. P. Fairlie.

A young woman aged twenty-four years underwent a laparotomy, for which she was anæsthetized with chloroform. Primary anæsthesia was induced with three drams of chloroform on a Schimmelbusch inhaler, the time consumed being nine

minutes. Thereafter anesthesia was maintained with a two per cent. vapor of chloroform, the total period of anesthesia lasting only thirty-eight minutes. Sixty-five hours after the operation symptoms began with vomiting of coffee ground matter. This continued at frequent intervals, and had been preceded by restlessness and the vomiting of watery gastric contents. Acidosis and coma soon developed, and death ensued sixteen hours after the first vomiting of coffee ground matter. It is usually stated that the symptoms of delayed chloroform poisoning begin in from ten to forty-eight hours after anesthesia, and it is rare for death to ensue in so short a period as sixteen hours after their onset.—*New York Medical Journal,* January 9, 1915.

Perforation of the Gallbladder Simulating Duodenal Ulcer. By C. Perrier.

Report is made of the case of a woman aged thirty-three years who had been suffering for five months from attacks of gastric pain beginning regularly three hours after meals, unaccompanied by vomiting, and relieved by ingestion of food—suggesting duodenal ulcer. There was pronounced loss of weight, with anorexia and constipation. The condition grew slightly better under treatment, but one evening symptoms of perforation suddenly appeared. Celiotomy revealed bile free in the peritoneal cavity, and the gallbladder thickened, red, and slightly adherent to the pylorus and duodenum, which, though thickened and harder than normal, showed no perforation. On the surface of the gallbladder facing the duodenum was found an opening three to four mm. in diameter. The gallbladder was incised and emptied of calculi, surrounded with gauze packing, and drained. Gradual recovery followed. *The New York Medical Journal,* January 16, 1915.

The abuse of Tea.

Dr. A. E. Carver, M.D., writes the following to the Editor "the Lancet" January 9, 1915.

While conducting investigations into the dietary of the labouring classes I have been most forcibly impressed by the injurious effects of excessive tea-drinking amongst them. Tea is the invariable accompaniment of every meal, and as though this were not sufficient it is frequently drunk between meals. The effects of this over indulgence, though noticeable on all sides, are particularly pronounced in the case of nursing and expectant mothers, the general disturbance of nutrition, in addition to local digestive troubles, being accentuated in them. I feel sure that the abuse of tea is one of the most potent causes of the ability of the women to suckle their babies, and is thus an indirect cause of a high infantile mortality. In Birmingham during the hot weather 30 times more bottle-fed babies die than those breast-fed, and among the survivors the bottle-fed are at a great disadvantage as compared with the naturlly fed babies. In my work at Birmingham I have therefore sought to find a substitute for tea. It is of no use to counsel moderation and advance the virtue of plain water; the poor refuse to consider such a change. Cocoa, however, has proved in practice an acceptable alternative to them, and I am satisfied as to the good results which accrue to the mother and the children when cocoa is substituted for tea as the family beverage. It seems to me that the present is a favourable time for urging a general reform in this direction—first, because the price of tea has increased beyond that of cocoa; and secondly, because the people are now more open to receive and follow advice with regard to their food. I should be much obliged if you could give publicity to this matter, which, though it may appear trivial, is, I am convinced, of national importance.

Gleanings from Contemporary Literature.

LEPER HOUSES AND MEDIÆVAL HOSPITALS.

By Charles A. Mercier, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng.,

A hospital is not necessarily for the reception of the sick. Even now we have the examples of Christ's Hospital, Greenwich Hospital, Chelsea Hospital, the Foundling Hospital, and others to remind us that a hospital, or as our ancestors called it, an hospital, is a place of entertainment, a place where hospitality is dispensed. The word is sometimes used in old documents as equivalent to an inn, and indeed the word hotel is but a modified form of hospital, and the hostler or ostler is an hospitaller. This introduction is necessary because in treating of early and mediæval hospitals it is impossible to restrict our inquiries exclusively to hospitals for the sick, for in early times there were few or none that were devoted exclusively to this purpose.

There is no record of any hospital in pagan Rome, but no doubt some existed, for with the establishment of Christianity by Constantine many were founded, both at Constantinople and at Rome, and were on so great a scale that it is certain they were not the first. Heraclitus said that all things flow. If he had said that all things grow, he would have uttered a more fundamental truth. Nothing springs suddenly into existence, but all great things have small beginnings.

The first hospital of which we have any record was founded for lepers in the reign of Constantine, himself a leper, by one Zodicus, a wealthy noble of his court, and the example was soon followed by others—Eubolus, Statius, Polybius, Eugenius, and Olympia, all in the fourth century. The Hospital or Xenon of Zodicus had a varied history. In the reign of Constantius there was a famine in Constantinople, and the populace accused Zodicus of bringing the wrath of heaven upon the city by preserving so many people whom God had accursed by afflicting them with leprosy. Zodicus was thrown into prison, and the Emperor, hearing that he had a magnificent collection of jewels, ordered him to produce them. Zodicus agreed, and took the Imperial bandit to his leper house, where all the lepers, headed by the daughter of Constantius himself, appeared before him, each bearing a lighted candle. "Behold!" cried Zodicus, "my precious

jewels!" Constantius was not impressed. On the contrary, he was so furious at the trick that he ordered Zodicus to be torn to pieces by wild mules, and the lepers, including his own daughter, to be thrown into the Bosphorus. However, he seems to have repented soon after, for in the following year he founded another leper house on the same spot. This was burnt in the riot provoked by the persecution of St. John Chrysostom by the Empress Eudoxia in 404. Rebuilt by Theodosius the Younger in 415, it was again burnt in the riot of Nica in 532. Justinian I. rebuilt it on a much larger scale in 540, his successor enlarged it in 577, and in 1116 the Emperor Alexius Comnenus increased it so that it would accommodate, it was said, 10,000 beds. His daughter, Anna Comnena, the celebrated blue stocking, gives a long description of it in the fifteenth book of her "Alexiad." "It is," she said, "a veritable city, where the unfortunate are nursed and cared for—wine flows in rivers; the blind are led by those who see, the old by the young, the legless by those who have legs, and those without arms by those who possess them; orphan children are suckled by mothers not their own; the sick are served by those who are well."

To return to the fourth century, it is said that under Theodosius the Great the number of hospitals was so great that one was attached to almost every church, and towards the end of this century St. Basil devoted his life and his fortune to the maintenance of a great leper hospital at his native town of Cæsarea. It was primarily a leper house, but included numerous annexes for travellers, monks, workmen, and the sick. St. Basil himself nursed the lepers and instructed the nurses in dressing their sores. When he died, St. Gregory Nazianzen preached a memorable funeral sermon exalting the work of Basil above the seven wonders of the world, and pleading with great eloquence the cause of the leper. It is notable that Newman in his life of Basil does not mention the leper house, and in his life of St. Gregory Nazianzen does not give the funeral oration. All that interested Newman was the mental struggles of the saints, and the squabble between them.

Justinian established xenodochia or nosocomia (hospitals), ptochia (poor-houses), orphanotropia (orphanages), brephotropia (foundling hospitals), and gerontocomia (almshouses), so that in his time charity was profuse and organised. His wife, the infamous Empress Theodora, founded a penitentiary for fallen women, and in her journey to the baths of Pythea she distributed liberal alms to the churches, monasteries, and hospitals of Bythynia.

In Moorish Spain and in Syria general hospitals for the sick were maintained by the Caliphs, and great schools of medicine grew up around them, giving to the world physicians whose names are imperishable—Mesué the elder and the younger, Rhazes, Avicenna, Haly-Abbas, Avenzoar, Averroes, Abdulcasis, and Maimonides, a succession of physicians who cannot be paralleled in Christendom from the ninth to the twelfth century.

In this country only two hospitals are known to have been founded before the Conquest, neither of them for lepers. The first leper house in France was founded at St. Ouen in 460 and the first in England by Lanfranc in 1087. Many leper houses were founded in this country in the thirteenth century, but very few after that time, and in France none were founded after the fourteenth century, though further east Solyman the Magnificent founded a great leper house at Scutari in 1540, at a time when the European leper houses were being closed for lack of patients.

Leper houses were hospitals in the modern sense in so far that they were institutions for the reception of the sick, and in some leper houses there were nurses, but the leper houses of Christendom were rather combinations of the prison, the monastery, and the almshouse than hospitals in the modern sense. The chief object of the leper house was to serve as a prison, or if we prefer the term, a compulsory isolation hospital, for the seclusion of the lepers from the general population. This seems to have been the rule from very early times. Herodotus says that in his time in Persia if anyone is afflicted with leprosy he is driven from the town and forbidden to associate with other Persians; and Pausanias in 479 B.C. mentions a town of Elida named Leproon because of the lepers accumulated there, but neither Aretæus, who gave a minute and accurate description of leprosy in the first century A.D., nor Galen, who gave a detailed description in the second century, nor Oribasius, in the fourth century, say that the disease is contagious or speak of the segregation of lepers. The first mention of the compulsory isolation of lepers in Christendom is by Ætius in the sixth century, and Paulus Ægineta in the seventh speaks of it as an established practice in his time.

It is doubtful whether the seclusion of lepers from the general population was at first due to any apprehension of the contagiousness of the disease. It seems more likely that in early times the leper was separated because he was looked upon as accursed. The disease was regarded as a mark of the wrath of God, and the leper was driven from among men lest they also should share in the Divine displeasure.

However this may be, it is certain that at a very early time the conviction of the contagiousness of the disease was firmly fixed in the general mind. A regulation of the great leper house of St. Julian at St. Albans provides that "no Brother is to go into the Bakehouse or Brewhouse but he that has charge of them, and he not to touch anything, because Persons under such a Distemper are not to handle what is for the common use of men." The danger of contagion is explicitly stated in a writ of Edward IV., which opens with these words: "Whereas we have heard that Johanna Nightingale is a leper and is commonly holding intercourse with the people of the aforesaid county, and mingles with them both in public and private places, and refuses to retire to a solitary place, to the grievous injury, and on account of the contagion of the aforesaid disease, the manifest peril of the aforesaid inhabitants," &c.

At Arles, Metz, Marseilles, Berwick-on-Tweed, London, and other places inspections were made from time to time for the discovery of lepers, and regulations were made to prevent them from entering the towns. In Scotland all men were forbidden to harbour lepers, and lepers were forbidden to enter any town except on Sundays, Wednesdays, and Fridays, from 10 to 2, and not then if there was a market on those days; and in 1349 the Dauphin, subsequently Louis XI., issued a commission to the whole of France to discover lepers and forbid them to mingle with others. If lepers refused to go into retreat they were very summarily dealt with. At Metz and some other places in France they were burnt alive.

No doubt many people suffering from chronic skin diseases of various kinds were sent to leper houses, and both Bernardus de Gordonio and John of Gaddesden complain that lepers are very injudiciously adjudged, but still the recorded regulations show that in many places extreme care was exercised that no one should be considered leprous who was not indeed a leper. In Lorraine, in a doubtful case, a suspect was subjected to 22 successive investigations, and if still doubtful was sent to a leper house, but was there visited by physicians, and not until he was declared leprous by them was he *cum multis verbis bonis et consolatoriis sequestrandum a populo.* In other places the suspect was kept under observation for a year. All the ancient and mediæval authors give a very clear description of leprosy, distinguishing the four different kinds—elephantine, alopecic, ophidian, and leontine—and give an immense number of diagnostic signs, up to 75 in some authors. Bartholemy Glanville's description is as picturesque as any. As translated out of Latin by John Trevisa he describes lepers as having "redde Whelkes and Pymples in the face (*cf.* Bardolph's nose, covered with Knobs and Whelks and

Flames of Fire) out of whome oftenne runne Blood and Matter; in such the nose swellen and ben grete, the vertue of Smellynge fayleth and the Brethe stynkyth ryght fowle," &c.

In Rymer's "Fœdera" appears a *Medicorum Regis supra morbo leprœ certificatio* which is addressed "To the most excellent and serene Prince and Lord in Christ, Edward, by the Grace of God King of England and France and Lord of Ireland." It is dated 1468, and refers therefore to Edward IV., and sets forth that in obedience to a writ addressed to the Sheriff of Essex, "We, William Hattecliffe, Roger Marshall and Dominus de Serego, your physicians, and sworn to watch over the health of your person, send due Reverence with Humility and Worship." The three physicians then recite the writ, and declare how they have examined the suspect for the 25 signs of general leprosy and for upwards of 50 of the distinctive signs of the four varieties, and find that she is utterly free and untainted. It appears that in this instance, at any rate, more care was exercised in the reign of Edward IV. in the examination of a leper than is now required in the examination of a lunatic.

When the verdict was finally given that the suspect was indeed leprous he was subjected to a gruesome ceremony adapted from that of taking the veil. He was carried to the church on a bier and covered with a pall, the mass for the dead was said over him, he was then taken to the church-yard and placed besides an open grave, where the priest scattered dust three times upon his head, saying, "Die to the world: be born again to God." Then after many admonitions and further prayers he was conducted to his solitary cabin, or to the leper house, and became civilly dead. His will was administered, his wife was free to marry again, he was incapable of holding property, he could not even be a guardian in socage, whatever that may be, and thenceforth he lived an outcast, subsisting on the alms of the charitable. If however, he was fortunate enough to gain entrance to one of the wealthy leper houses his lot was a fairly comfortable one as far as material comforts go, but he had to pay for this better treatment by a very severe course of religious exercises.

It is evident that in respect of secluding him from the healthy population, it would avail little to send a leper to a leper house unless measures were taken to keep him there, and we find accordingly that punishment of greater or less severity awaited the leper who made his escape. At St. Julian's Hospital, where lepers lived at considerable luxury, it was considered sufficient punishment to expel them from the house if they lay out all night. The same

offence was visited at St. Magdalen's Hospital, Exeter, by the stocks and bread and water for one day. At Greenside in Scotland the same offence was a hanging matter, and lest any inmate of the leper house should forget the penalty and err by inadvertence, the authorities thoughtfully erected a gibbet before the gate to remind him. At other places the offence was regarded still more seriously. At Schenalle in 1321 two lepers who escaped from the leper house were first flogged and then burnt alive.

Leprosy must have been extremely prevalent in the Middle Ages. Mezeray says that in the twelfth century there was neither town nor burgh in France that was not obliged to provide a hospital for lepers. Muratori says that in Italy there was scarcely a city that had not a place set apart for lepers. Our Anglo-Saxon ancestors called it *seo mycle ail*—the great disease. In 1226 it was reckoned that there were 2000 leper houses in France, and this is probably correct, for there ware 43 in Paris alone, 219 in Normandy, and 59 in Lorraine. In England it seems to have been less prevalent, for in the twelfth century there were but six in London, five at Lyme Regis, and 20 in all Norfolk, and we do not know of more than about 220 in England and Scotland. Other signs of its prevalence are found in the number of distinguished persons, reigning sovereigns and others, who are known to have suffered from it, and in the provision of separate leper houses for separate classes. Thus in Dauphigne there was one leper house for the nobles, another for the commons, and a third for the ladies of the court. The hospital at Walsyngham was for lepers who were sick and of good family, and that of St. Laurence of Canterbury was for the clergy.

Few leper houses were founded in England after the thirteenth century, and in the fourteenth century the English leper houses were being closed for lack of patients, and their funds diverted to other uses. A few isolated cases are recorded in the sixteenth century, in which the disease altogether disappeared in this country. In France it was reported in 1696 that leprosy had altogether disappeared, and though it lingered in the Hebrides till the last century and is still known in Norway and Constantinople, yet in the great area of Europe it has entirely disappeared.

Why leprosy should thus have disappeared from Europe is a curious matter for speculation. It is certain that it was not exterminated by the isolation of lepers, for in the first place it is doubtful whether leprosy is contagious at all, and in the second it is certain that the measures of isolation taken by our forefathers would not

have suppressed it if it were contagious. The disease is of very slow progress, and the leper was never isolated until his leprosy was well advanced. There must always have been, therefore, many lepers in the early stages of the disease going about among the general population, and if leprosy is contagious at all it is not to be supposed that it is not contagious in the early stage, in which the contagion of most contagious diseases is virulent. Moreover, if it was the isolation that eventually put a stop to the disease it is difficult to see why it should take 1200 years to do so. Sir Jonathan Hutchinson was of opinion that leprosy is due to eating fish that is decomposing or insufficiently cured, and that it declined with the abolition of fast days and of the practice of eating salt fish that occurred at the Reformation. In fact, however, leprosy was already practically extinct in this country before the Reformation, and it has disappeared as completely from Catholic as from Protestant countries. It is sometimes asserted that leprosy disappeared in consequence of the amelioration of manners and the adoption of greater cleanliness and better sanitation, but I know of no evidence that the customs of our ancestors in respect of cleanliness and sanitation were any better in the fifteenth and sixteenth centuries than in the seventh or the twelfth, nor that any improvement in this respect was earlier in this country than in France. In view of the difficulty of communicating the disease, even by inoculation, the surmise has crossed my mind that the bacillus may have been injected by some biting insect that is now become extinct, and may perhaps have undergone in the body of the insect some developmental change which enabled it to invade the human tissues with greater ease. It may be so, but there is no evidence that it is so, and the surmise remains a mere surmise. There is, however, another hypothesis which has a good deal of corroboration, indirect, it is true, but still of some weight.

The clinical descriptions of disease that we find in ancient and mediæval writers on medicine were so clear and so faithful that we have no difficulty in recognising in them the diseases that are known to us now. The most prevalent, the most widely diffused, and, in its later stages, the most easily recognised and most deadly disease that now afflicts European peoples, is undoubtedly pulmonary consumption; and it is remarkable that although there are in the old writers descriptions of disease that we may with some hesitation identify with phthisis, yet there is nothing in the writings of ancient and mediæval physicians to make us believe that phthisis was in their time at all comparable in prevalence with its prevalence now. I venture to put

forward the conjecture that the bacillus of leprosy is changed into the bacillus of tubercle, and that tuberculosis has thus superseded leprosy as the chief scourge of mankind in modern Europe. In support of this conjecture I adduce the following facts. First, leprosy, from being the chief scourge of the European population, has spontaneously disappeared. Second, it seems probable that since the disappearance of leprosy tuberculosis has greatly increased. It is certainly as common now as leprosy used to be. Third, the bacillus of leprosy is very closely allied to the bacillus of tuberculosis, so that unless we are to repudiate the doctrine of evolution we must believe either that they are both descended from a common parent or that one of these is the parent of the other. Of the first alternative we have no evidence. There is no known disease that in the least resembles the pair, tuberculosis and leprosy; and these two are closely alike. Both are very chronic diseases; both are longer in duration than any other bacillary disease. Both are favoured by hereditary predisposition. Both have been held to be hereditary, and they are the only bacillary diseases in which heredity has been alleged to have any influence. Lupus is a bacillary disease of the skin of the face produced by a bacillus that is closely allied to tubercle—that is if you like, a variation of the tubercular bacillus—a disease that closely resembles leprosy, that attacks the same part in much the same way, and produces with equal chronicity a similar disfigurement. In lupus we have, as I take it, the halfway house between leprosy and tubercle. We see the transformation actually in progress. That bacilli do change in virulence and in other qualities is beyond question. It is a commonplace. The whole practice of vaccination is founded upon it.

On this accumulation of evidence I found the conjecture that leprosy has after all not disappeared from Europe or, if it has it was only to reappear in the form of tuberculosis. In mediæval times there was no city, no burgh, without its leper house. At this day it is a pious aspiration that every city and every burgh should have its sanatorium for consumption. It would be curious if it were established that, unknown to ourselves, the great scourge from which we suffer is the lineal descendant of that from which they suffered, and we, their lineal descendants, treat it in the same way, but up to the present less thoroughly.

In the last lecture I said that the leper house partook of the nature of the prison, the monastery, and the almshouse. With the prison aspect I have dealt, but at least equally important in the

minds of the founders, not only of leper hospitals but of hospitals for whatever object, was that the hospital should be carried on as a monastic institution.

The Monastic Constitution of the Mediæval Hospitals.

Many hospitals had churchmen at their head; many were on the same foundation as a college for priests, or for canons, regular or secular, and all without exception had a monastic or semi-monastic constitution. The obvious explanation is that in times when there was no guarantee society to ensure the faithfulness of the almoner of charitable funds there was a manifest safeguard in entrusting the administration of such funds to those who had taken a vow of poverty, and had bound themselves to live what is now known as the simple life. This is the obvious explanation, but I believe that, like most obvious explanations, it is incorrect, or at least insufficient. It is scarcely possible for us in these days to realise how large a part in the lives of our forefathers was occupied by the Church. It might have been said of the Church, as was said of another matter, that—

> 'Tws alloted to man with his earliest breath,
> Attends at his birth; and awaits him at death,
> Presides o'er his happiness, honour, and health,
> Is the prop of his house, and the end of his wealth—

and in the interval it regulated a very large share of his life. The chief field of industry was the tilling of the soil, and not only was one-third of all the land of this country in the hands of the Church but at every gathering of the produce of the land the husbandman must set apart one-tenth as tribute for the Church. The very calendar was reckoned, not by the days of the month, but by the saints' days and the feasts of the Church. A date was recorded, not as the 16th of June or the 11th of August, but as the eve of St. Alban or the day after the feast of St. Lawrence. The priest combined in himself all the learned professions, and no undertaking of importance could be effected without him. At any rate in rural districts, he was not only the priest but the only available physician and lawyer. When the layman was sick the priest heard his confession and exhorted him to benefit the Church by his will. Then, that there might be no backsliding, the priest assumed his legal function, and as a lawyer drew his client's last will and testament. In his character of physician he then put his patient to death; and finally, resuming his legal functions, he proved the will in the ecclesiastical

court. The reason why every hospital had a semi-monastic foundation was, as I take it, that it never occurred to the pious founder that it could have any other. It was as natural, as proper, as inevitable to him to provide a monastic framework for his charity as it is to us to provide physicians and nurses. No additional motive was needed; but if one had been needed, it would have been found in the provision, so often made, for a perpetual succession of prayers for the soul of the founder. In fact, in some hospitals, notably in that founded by the celebrated Richard Whittington, thrice Lord Mayor of London, this was frankly the main object of the foundation. By his will, Whittington founded first a college of priests and clergymen, and in the same foundation a hospital for 13 poor people; and he strictly enjoined them all, priests, clergy, and poor alike, to pray daily at all the canonical hours for his soul and that of Alice his wife; and at other times, when they were not at church, they were to say daily thrice 50 angelical salutations, with the Lord's prayer 15 times, and were all to meet daily at the tomb of the founder to say the psalm De Profundis and to invoke the mercy of God on the souls of him and his wife Alice. It seems, therefore, that Whittington took every precaution that was humanly possible to secure for himself and his wife a prosperous hereafter, and it looks as if the charity that he exercised towards the 13 poor began, in a special sense, at home.

In many hospitals the same regulations as to attendance at divine service at all the canonical hours are enjoined on the inmates, and in addition they are exhorted to their private devotions, which were by no means to be perfunctory or neglected, and punishment, which would now be looked on as severe, was inflicted for negligence. The hospital was, in fact, a fourth order of religious house, ranking after the college, as the college ranked after the priory, and this after the abbey, and any of these might be superior in wealth and influence to some neighbouring foundation of superior dignity. The hospital usually, though not invariably, had some charitable function tacked on to its monastic purpose. Most hospitals, especially after the cessation of leprosy, were almshouses for the support of the poor and the infirm; many were for the relief of travellers, and others for the care of the sick.

Hospital Founded in the Middle Ages.

The first hospital founded in England was established early in the tenth century at Flixton in Yorkshire by one Acehorne. Its government was entrusted to an alderman and 14 brothers and sis-

ters, and its purpose was the preservation of travellers, that they might not be devoured by wolves and other wild beasts abounding there. Curiously enough, the second English hospital, which was founded shortly afterwards in the reign of the same king, Athelstan, was also connected with wolves, for it was endowed by the King with Peter corn—that is to say, one sheaf of corn from every plough throughout the bishopric of York. These sheaves came into the King's hand by gift from the diocese on condition that he should destroy the wolves, which were so numerous in those parts that they devoured the cattle, and they were accordingly quite extirpated by King Athelstan. Of this hospital, which was first dedicated to St. Peter, and afterwards, on its refoundation by King Stephen, to St. Leonard, the ambulatorium still exists at York. It was, at the visitation in the time of Henry VIII., the wealthiest hospital in England, its revenues exceeding those even of St. Bartholomew's in Smithfield. St. Leonard's still remains a charitable foundation, and still supports 21 poor persons in place of the 224 that it maintained at the height of its prosperity.

These appear to be the only hospitals founded in this country before the Conquest, but ten years after that event the Pilgrims' House was founded in connexion with Battle Abbey, and two others, St. Nicholas at Lewes and St. Wulstan at Worcester, were founded in the reign of the Conqueror. A third, St. Nicholas at Nantwich, was founded in the year of his death, but what the objects of these hospitals may have been cannot now be known, for no record remains. It was Lanfranc, however, the great Archbishop of William, who founded in succeeding reign the first hospitals for the sick ever established in this country. These were the Leper House of St. Nicholas at Harbledown, near Canterbury, and the Hospital of St. John the Baptist without the North Gate of Canterbury for poor men and women "suffering from several diseases"—that is to say, from diseases other than leprosy. Both these foundations are actively dispensing charity at the present day, though they are no longer devoted to their original purpose of receiving the sick. These six hospitals were all that we know of that were founded in this country in the eleventh century, and all of them were founded in the last 34 years of that century.

In the next 50 years there were founded 46 hospitals, of which 24 were leper houses; and the whole of the twelfth century saw the foundation of 168 hospitals, including 80 leper houses. In the wonderful thirteenth century the foundation of leper houses had

begun to slacken, in spite of the increase of the population, the number being only 75, but 167 hospitals for other purposes were founded in that century, the combined number being 242. In the middle of fourteenth century occurred the Black Death, which swept off from a half to two-thirds of the population, and accordingly we find that while 111 hospitals (42 of them leper houses) were founded between 1300 and 1350, only 67 (including 20 leper houses) were founded in the remainder of the century. The falling-off of leper houses was due in great part, no doubt, to the diminution of leprosy, for in the next half-century no leper house at all was founded, and in the rest of our history the number was not more than ten. However, for some reason the rate of foundation of hospitals was not maintained, only 96, including five leper houses, being founded in the fifteenth century, at the conclusion of which the Middle Ages may be considered to have come to an end. The total number of hospitals founded in this country in the Middle Ages was, as far as is known, at least 691, of which 224 were leper houses. This provision for the poor and sick was, of course, in addition to the very large amount that was provided by the monasteries and friaries, and in proportion to the population was certainly generous.

The Objects of the Foundations.

The objects of these foundations were various, and some of them strike us as whimsical. They were sometimes purely monastic, but usually there was some charitable purpose tacked on to the monastic constitution of lay brothers and lay sisters, and most of them were wholly or in part almshouses. In many cases the recipients of the charity were the poor and infirm; in one case poor, sick, and lame; in one case poor distressed people, blind, and other poor persons; in one for the poor, the sick, and for entertaining travellers. Some hospitals were merely for the dispensation of doles, either of money or of food. At Billeswicke, near Bristol, the foundation provided that a hundred poor men were to be fed daily for ever, and each of the poor was to have a loaf of the weight of 45 shillings and made of equal parts of bean flour and barley. He was to have also a sufficient quantity of pottage made with oatmeal. This was in 1229. Or the dole was of money. Queen Eleanor, the dowager of Henry II., directed that at St. Catherine's by the Tower (after the usual religious services had been satisfied) every day in the year till the 16th of November there should be given to 24 poor one halfpenny each, equivalent at the present day to about fifteen-pence; and on the 16th of November, being the day on which King Henry died, one half-

penny each to a thousand poor. In many cases the hospitals provided lodging for poor persons, sometimes alone, sometimes with board and clothing, sometimes with a pecuniary allowance instead of board or of clothing, or in addition to both. Thus, William Elsing, the founder of Elsing Spittle (1329), provided that "in regard that many poor people got their bread by the alms of good Christians, yet had no lodging to entertain them," there should always be beds and rooms for one hundred blind and other poor wretched persons." This was the first hospital founded in this country specifically for the blind. At Newstede, near Stamford in Lincolnshire (twelfth century), a hospital was founded for seven infirm poor persons, who were to reside there and to have necessary food and clothing. At St. Bartholomew's at Oxford, there were to be six infirm brothers and two sound to take care of its business, and each brother was to have ninepence (about 20*s.* now) per week, and the master, who was to be a priest, six marks per annum.

Lepers' Allowances of Food and Clothing.

In several hospitals the amount and quality of the food and clothing allowed to the inmates was minutely specified, and in some was extremely liberal. Thus at the Leper House of St. Mary Magdalen at Ripon (early twelfth century) every leper was allowed a garment called rak and two pairs of shoes yearly, and every day a loaf fit for a man's sustenance, and half a pitcher of beer, a portion of flesh on flesh days, and three herrings on fish days. In process of time, no lepers coming to the hospital, the charity was changed to a dole at the feast of St. Mary Magdalen to every poor person coming, of one loaf worth a halfpenny, the quarter of corn being worth 5*s.*, and one herring. The loaf would now be a tenpenny one. At the great Leper House of St. Julians (1146) at St. Albans the allowances were extremely generous. Each leper had every week seven loaves, five white and two brown, and every seventh week 14 gallons of beer, and on each of the great feasts of the Church one loaf, one jar of beer, or a penny for the same. At Christmas each leper received 40 gallons of good beer, or 40 pence for the same, and his share of two quarters of pure and clean corn. At the feast of St. Martin each leper was to have a pig, on the feast of St. Valentine a quarter of oats, on the feast of St. John the Baptist two bushels of salt, on each Wednesday in Lent bolted corn of the weight of one of their loaves; and in addition the following sums of money: On each of the great feasts of the Church one obolus; at the feast of St. Julian and at the feast of St. Alban one penny; at Easter one penny, which is called

flavonespani; on Ascension Day one obolus for buying potherbs; on the feast of St. John the Baptist 4*s.* for clothes; at Christmas 14*s.* divided among them for their fuel during the year; and at the feasts of Easter and Michaelmas 30s. 5*d.* to be divided between them equally.

At Shireburn Hospital in Yorkshire (1311), for 65 lepers, the daily allowance of each leper was a loaf weighing five marks and a gallon of ale to each; and betwixt every two one mess or commons of flesh three days in the week, and of fish, cheese, or butter on the remaining four. On high festivals a double mess, and in particular, in the feast of St. Cuthbert in Lent, fresh salmon if it could be had, if not, other fresh fish; and on Michaelmas day four messed on one goose. With fresh fish, flesh or eggs, a measure of salt. When fresh fish could not be had, red herrings, three to each mess, or cheese or butter by weight, or three eggs. During Lent each had a razer of wheat to make frumenty and two razers of beans to boil; sometimes green meat or onions; and every day except Sunday the seventh part of a razer of bean meal, but on Sunday a measure and a half of pulse to make gruel. Red herrings were prohibited from Pentecost to Michaelmas, and at Michaelmas each received a razer of apples.

The lepers had a common kitchen and a common cook, and fuel, and utensils for cooking—viz., a lead, two brazen pots, a table, a large wooden tub for washing or making wine, a laver, two ale vats, and two bathing vats. They were provided with fire, candles, and all necessaries; the old woman who attended on the sick had every week three wheaten loaves and one mess of flesh or fish. Each leper had a yearly allowance for his clothing of three yards of woollen cloth, six yards of linen, and six of canvas, and the tailor had his meat and drink the day on which he came to cut out their clothes. Even the grave digger had his meat and drink when a brother or sister was buried. From Michaelmas to All Saints two baskets of peat were allowed on double mess days, and four baskets daily from All Saints to Easter. On Christmas Eve four Yule logs, each a cartload, with four trusses of straw, and so on, and once a year every leper received 5*s.* 5*d.* in money.

Hospital for Persons Losing their Memory.

From time to time we read in the newspapers accounts of persons found wandering in the streets, having entirely lost their memories, and knowing not who they are, where they live, or even their own names. We are apt to think that this is a purely modern occurrence and that it is due in some unexplained way to the intensity of the

struggle for life in these day, and the rapid rate and high pressure at which we live. It seems, however, that it was not unknown five centuries and a half ago, for in 1371 Robert Denton purchased for 40*s.* of King Edward III. a license to found a hospital in a house of his own, in the parish of Berking Church in London, "for the poor priests and other poor men and women in the said city who suddenly fell into a frenzy and lost their memory, to reside in till cured." For some reason, perhaps for a lack of patients answering this description, Robert Denton afterwards changed his mind, for we find that Richard II., in the second year of his reign, by charter allowed him to annex his charity, and another messuage in the parish of St. Laurence Pountney, to the Hospital of St. Catherine by the Tower.

Sources of Revenue.

The liberal allowances made to so many inmates in the larger hospitals imply considerable revenues, and the revenues of some of the mediæval hospitals were very large. They were derived for the most part from endowments, though then as now a portion of the revenues were obtained from alms, which we now entitle voluntary contributions, economically making eight syllables do the work of one. The endowments were very varied in character, consisting for the most part of land, or of the appurtenances of land, such as houses, mills, manorial rights, free pasturage, rights of lopping and topping or collection of firewood, fish-ponds, and so forth. Sometimes, however, the endowment was of a franchise, more or less valuable. The most valuable of these was the right to hold an annual fair, which was bestowed upon, for instance, St. James's Hospital, near Westminster. All leper houses were by a bull of Pope Alexander III. freed from the obligation of paying tithes. Some, such as the great house at Burton Lazars, were exempted by royal grant from all sorts of taxes and contributions. Some received tolls for passage by land or by water, or exemption from tolls. Thus Henry III. gave to the Maison Dieu at Dover the tenth of the profits accruing to him by passage of the said port, and Magnus, King of Man and the Isles, exempted the ships belonging to Conyngesheved Hospital in Lancashire from paying any dues in the ports of his dominions.

The bounty of some benefactors was so generous that they granted freely what did not belong to them. Thus King Henry III granted to the Hospital of St. John without the Gate at Oxford the garden of the Jews at Oxford, but he generously reserved to the owners sufficient land wherein to bury their dead. King John gave to the

poor of St. Giles's Hospital at Shrewsbury both hands full of every sack of corn brought into the market there, and one handful of every sack of flour. The Knights of St. John of Jerusalem petitioned the King for the grant of the tithes of the parish of Boston in Lincolnshire, and the King was graciously pleased to rob the parish church accordingly, and to make the Knights of St. John receivers of the stolen goods.

Some forms of charity were distinctly economical, and were designed to benefit the hospitals at a minimum of cost to the benefactor. For instance, King Henry III. granted to the Hospital of St. John Baptist at Coventry free license to the brothers and sisters to go or send any messengers abroad to beg for alms during the space of seven years, and enjoyned all persons to defend and assist them. The most thrifty bequest ever made to any hospital was that made by former Kings of England, and confirmed by Henry IV. to the Hospital of St. Giles near Maldon in Essex. The keeper or master thereof was to have towards the maintenance of the leprous burghers of the said town the forfeitures of bread, ale, and fish that were not good and wholesome in the said town of Maldon. It seemed to me very unlikely that a device of such a thrifty and economical character could have been originated by the unaided genius of the English, and I looked to more northern source for the original of the plan, nor did I look in vain. It was provided, I find, by the Parliament of Scone, in 1386, that "gif ony man bring to the markit corrupt swine or salmond to the sauld, they sall be taken by the Bailies and incontinent without any question at all sall be sent to the lipperfolke, and gif there be no lipperfolke, they sall be destroyed uterlie."

The Ruin of the Mediæval Hospitals.

In the course of time, as leprosy died out in the country, the leper houses were put to other uses. In some, the endowment was faithfully applied to other charitable uses. Thus St. Mary Magdalen at Ripon, when no more lepers came there, was devoted to the relief of wayfarers, especially begging clergymen, meaning, no doubt, Franciscan friars, that they should be therein relieved one night with food and a bed, and be gone in the morning. This hospital also dispensed doles to the poor. But in many leper houses, and other hospitals also, the successive visitations ordered from time to time by different kings and bishops disclosed gross abuses. Hospitals intended for the poor dispensed their hospitality to well-to-do people who paid for their accommodation, thus reminding us of the similar transformation of the great public schools and of the hospitals founded in modern

days for the reception of the needy insane. The master or warden often became an absentee, and drew his emoluments without performing any duties, so that the hospital fell into decay and neglect; and not only in this but in holding a plurality of such posts the masters of hospitals emulated the parochial clergy. Not only was the income of the hospital spent for the private benefit of the officials, but its capital was raided for the same purpose, so that in less than 40 years the income of St. Leonard's at York diminished by nearly two-thirds.

But the ruin of the mediæval hospitals was the great spoliation by Henry VIII. He began with the small monasteries, then the great monastic bodies were destroyed, and at length his greed devoured almost every charitable institution in the country. Many of the hospitals were affiliated to religious houses, and these were the first to be robbed. There is no doubt that the monastic constitution of the hospitals, which had been for centuries their safe-guard, was now the cause and even the pretext of their ruin. We have seen that many hospitals were in fact collegiate bodies of priests, some with but little charitable function, and some with none at all. Hence they were involved in common ruin with the formally monastic bodies, and the wealth of both went into a common fund for the enrichment of court parasites.

Many municipalities, concerned at this robbery of the poor, petitioned the king to be allowed to re-establish the charities that he had destroyed, and in some instances his Grace was graciously pleased to permit them to make good out of their own corporate funds, or out of their own pockets, the funds that he had stolen. In this way were re-established the great Hospitals of St. Bartholomew in Smithfield and St. Thomas in Southwark; St. Mary of Bethlehem in Moorfields, and many another hospital throughout the country. St. Bartholomew's is still a great and wealthy hospital, with large revenues, and livings in its gift, but it is shorn of most of the ample privileges bestowed upon it by Henry I, who declared that it should have all the privileges and immunities that any church in England enjoyed, and that it should be as free as his own crown; and accordingly he released it from shire and hundred, from suits and pleas and murders, and geld and Danegeld, and hydage and assize, and works at castles or rebuilding of them or of bridges, or enclosing of parks; and carrying of wood and other things, as also from ferdwit, hengwit, wardpan, averpan, blodwite, futwite, childewite, hundredespan, tethinepan, muebbryche, mischeninge, schewinge, fridsocre, westgeiltheof, wardwithe, utterne, fowinge, and withfange.—*The Lancet*, January, 1915.

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WHENCE THE POWER OF ATTENUATED MEDICINE?

WHY DIFFERENT ATTENUATIONS FOR DIFFERENT REMEDIES?

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Our principal excuse for this paper is the painful fact that this same subject has caused, and is causing, almost a division in our ranks. We refer to the subject of potency in medicine. We believe that if this were studied by all in the light of advanced scientific knowledge this difference would not exist. We have among us many doctors who have in their offices few medicines of a higher potency than the second or third. One recently made the statement that he had but one remedy (lachesis) as high as the twelfth attenuation, and he did not use that because he did not know how. On the other hand, there are many who consider the thirtieth potency rather low and usually prescribe much higher. In the earlier or experimental years we know that Hahnemann used and got results from the cruder drugs. To the woman who walked a number of miles to consult him he gave a drop of the juice of the plant, bryonia. And to the doubter who walked the same distance to inquire why she did not return, the woman said, "Why should I come back? I was well." Yet we know that

later he used attenuated medicines, some rather highly diluted, with better results. But we have never met a statement by Hahnemann in which he claimed that all drugs or medicines should be highly attenuated. He did state, however, that there was no rule by which the most effective potency of a drug could be determined; that this could only be done by experiment. So here we can find no argument that especially favors either extreme position.

We may say, and be quite within safe limits, that we have the testimony of fifty thousand doctors, some of them the best therapeutists the world has produced who, millions of times, have seen positively beneficial results, cures, many times marvelous effects, following the administration of the thirtieth and higher potencies. Then there are volumes that may be said in proof of the efficacy of many of our remedies when applied in the lower attenuations, under certain conditions and in many diseases. Does it not seem that even with this as an incentive, those on one side might at least investigate a little on the other side? Does it not seem that in our midst at this late day, there still remains some of that same old feeling of intolerance or prejudice that prevailed in the profession more than a century ago?

The principal object of this paper is to do something in the way of bringing together these extremes so that all may think and work from the same standpoint. This would certainly make for the best interests of our cause.

Then we are going to ask that the high fellows come down a little from their perch, and that the low fellows, and those floundering about midst the uncertainties of mixed or combination medicines, come up a little higher; and let us, in an unbiased way, study this subject of force in matter and potency in medicine.

First, it is well to inquire as to the nature of the thing with which we are dealing in treating disease. What is this material or physical body other than a remarkably complicated, wonderfully constructed, marvelously adjusted, electro-magnetic piece of mechanism; a kind of dynamic, automatic machine, each part—

that is, each organ or tissue—having a structure peculiar to itself, each being endowed or provided with forces suitable and adequate to its growth, its maintenance and its functions? Whatever may be said concerning the influence of the psychic and higher forces over the body forces, and their inter-relation, it must be conceded that, in dealing with disease, we have the dynamic tissue forces to reckon with. And this is true even if there be disturbance in the higher forces, since we can only reach or affect them through the material body. It has been discovered by those who use the high frequency treatment that certain tissues respond more readily to certain rates of reversals, which is proof of what we might expect,—that each kind of tissue is adjusted or attuned to a certain rate of vibration. Or, shall we say to a certain kind or quality of force?

Next let us inquire what is disease and how do we combat and conquer it? We can readily understand that when the forces in each tissue are normal and there is harmony of action in the whole body, this constitutes a state of health. Then it follows that any material disturbance in the bodily forces is disease. An example of an infectious disease will serve to make this plainer. A homœopathic doctor is called to see a young person who exhibits the following symptoms: Skin is hot and of a bright red color, thickly studded with pin-head points of a darker hue. The glands of the neck are somewhat swollen and sore. The throat is sore and red and has the appearance of angina. He has a throbbing headache and some aching in the limbs and over the body. The temperature is about 104 degrees, the pupils dilated and there is some delirium He has some nausea and has vomited a little. These with a few other minor symptoms are noted by the doctor. The parents ask for a diagnosis and are told that it is a typical picture of a nonmalignant case of scarlet fever; and that it *is* scarlet fever unless the boy has been taking drugs. On being told that no drugs had been taken, and on being questioned as to why he mentioned drugs, he explains that repeated large doses of belladonna would, within a few days, bring about just such a condition with symptoms quite like those of the disease.

The drug might cause some other and less important symptoms, but the more prominent symptoms in the one case would be much the same as the prominent ones in the other case.

Here we have a substance produced and introduced into the system by the bacteria of scarlatina. Does it cause this great commotion, this state of disease, simply because it is a foreign substance in the body? Certainly not; because much greater quantities of inert substances can be introduced with no observable effect. It can only be because the toxin is capable of sending out, and does send out, forces antagonistic to the forces of the tissues. The one thing remarkable here is the fact that the antagonistic action of the toxin provokes reactive powers in the tissues and cells, which tends to destroy, or eliminate from the body, this same toxin. Still more remarkable is the fact that the reactive process brought about by the action of any particular toxic substance always tends toward the destruction of, or elimination of, that same toxin.

Three things we have endeavored to point out by this illustration:

First: That disease is but a disturbance or disarrangement in the dynamic forces of the tissues of the body; and that symptoms, congestion, fever, eruption are results of the effort of the body forces in destroying or throwing off the toxic matter. In this disease it would seem an effort is made to eliminate to some extent through the skin.

Second: That the dynamic force of a toxic substance caused the disease or disarrangement.

Third: That belladonna, which contains a toxic principle almost identical in action with that which caused the disease, was given in rather highly attenuated form to assist in destroying that which caused the disease.

I. Whence the power?

A few years ago some English scientist asserted that Hahnemann was a hundred years in advance of his time in his method of developing and applying the latent forces of matter. This seems to be true, although now it would sound better to say

stable energy or forces rather than *latent* forces. The reason for this we may be able to show later. To get some idea of the amount of force in matter, it will serve us best to study that little fellow that has come to be so popular in scientific circles, the atom.

Some years ago some one, in some way, estimated that the number of atoms in one grain of matter is, approximately, one septillion. Now whether this be at all approximate or not, it will serve our purpose. And as we have a little idea of his number, what do we know of his character or power? What is said of it among scientific people? It is spoken of as a center of intense energy, a point of great force. One of the foremost physicists of the world says this: "When we study the structure of the atom we shall arrive at the conclusion that it is an immense reservoir of energy." This he calls *intra-atomic energy*. So great is this force in matter, that it is said that within a piece of copper weighing one gram, there is sufficient power to draw a train of forty cars of twelve and a half tons each, the distance of four and one quarter times around the earth. This same authority has estimated that 15 grains of radium would send out one hundred thousand millions of electrons every second; and this would continue in diminishing number for more than a thousand years before all is spent. Now these electrons are forms of energy or force, and you will notice that this radium diminishes in quantity as time goes, and that after sufficient time (more than a thousand years) it is all sent out in the form of force. This is radio-active force.

Hear what Doctor Le Bon, of the Royal Academy of Brussels, says of matter:

"Far from being an inert thing only capable of giving up the energy artificially supplied to it, matter is an enormous reservoir of energy...*intra-atomic* energy...Matter hitherto deemed indestructible vanishes slowly by the continuous dissociation of its compound atoms...Matter represents a stable form of intra-atomic energy; heat, light, electricity, etc., represent unstable forms of it...By dissociation of atoms, that is to say, by the dematerializa-

tion of matter, the stable form of energy termed matter is simply changed into those unstable forms of energy known by the names of electricity, light, heat, etc...As the energy condensed in the atom is immense in quantity, it results from this that to an extremely slight loss in matter there corresponds the creation of an enormous quantity of energy...Substances termed radio-active, as radium or uranium, simply present in a high degree a phenomenon which all matter possesses to some extent."

Now this theory is not simply set forth and held by one man alone, but it is coming to be accepted the world over. We have learned that this stable force in matter can be set free, as it were, or rendered radio-active, by separation or dissociation of its atoms. As an example we are told that from a weak solution of sodium chloride are sent out electrons of chlorine and electrons of sodium. Please note that this occurs in a weak solution, not in a strong or saturated solution. In such there would not be sufficient degree of separation. It is when the atom is set free that it begins to send out its power. In radium in its natural state, that is, under ordinary temperature and atmospheric conditions, this dissociation is constantly taking place. Hence it is always radio-active. In thorium and uranium this same active state is present, but in a less degree. And we must keep in mind the fact that all forms of matter possess this quality to some degree. Prof. J. J. Thompson in his experiments has demonstrated the existence of radio-activity in most substance—water, sand, brick, clay.

Now does it not seem that Hahnemann builded even more wisely than he knew? Could there be a more exact or more systematic method of dissociating atoms, or of ionization of matter, if you choose to call it that? Measuring diluting and agitating? measuring, diluting and grinding; again measuring, diluting, and shaking or grinding; and repeating again and again. This was his method. Physicists themselves have not devised a better one. Separate the atoms, disturb the equilibrium of the force, they tell us. Do not the friction of trituration and the succussion of the dilutions seem sufficient in the way of disturbance of equilibrium?

It has been the habit of the writer, for more than thirty years, to look upon each bottle of trituration or dilution as a little storage battery, the contents of each charged with forces derived from, and peculiar to, the drug from which the preparation is made. We have abundance of clinical evidence that the force is there; and we ought to be getting busy in the way of discovering laboratory evidence where that is possible.

Has not enough been said to convince some of those who have not the conscience or the confidence to prescribe higher than the 3rd that there might be some virtue in higher attenuations? Do you remember the number of atoms per grain—one septillion—and that the atom is an immense reservoir of energy? Then in your 3rd, you have, in each drop or grain, one quintillion of these; in the 6th, one quadrillion; in the 12th, decimal one billion, and so on. When these writers use the term, "immense reservoir," they are not speaking comparatively. They refer to a very great amount of force that might be sufficient to potentize thousands of doses of a medicinal substance.

But now let us return to our case of scarlet fever and see if we can find a reason for prescribing an infinitesimal does of belladonna. We learned that the toxin of the scarlatina caused the disease by sending out forces inimical to harmonious action of the normal bodily activities. And until this toxic substance is destroyed or removed the disease will continue. We also decided that the toxic principle of belladona and that of the scavlatina bacteria are almost identical as to their dynamic forces, because of similar action and effect. Then it is very readily seen that if we administer a dose of belladonna which contains a tangible amount of its toxic principle, we will surely aggravate and prolong the trouble by increasing the amount of toxin to be eliminated. But it may be asked, How can the attenuated dose assist in the cure? If you will permit another illustration we will try to point out one way in which it may act.

A great battle is taking place, we will suppose, between the Alphas and the Omegas. It is a desperate engagement, the odds being for a time in favor of one side then of the other; but taken

altogether, there appears a slight vantage on the side of the Alphas. But just at a time when there seems to be a little lagging in the action, a great commotion and noise is observed in the rear of the line of the Omegas. Instantly, like electricity, the word goes down the line of the Alphas: "The Omegas are reinforced!" And every man is put upon his mettle. Now it turns out that this was only the blustering of a very few untrained horsemen who soon scatter and disappear. But the renewed and determined effort on the part of the Alphas brings to them the victory.

In the case of fever, the battle is between the forces sent out by the scarlatina toxin and the forces produced by the nerve cells in the boy's body. The bacteria are in the prime of their brief existence, and there is a good supply of toxin on their side. The dynamic forces of the body are fighting hard and only hoping that they may hold out until the enemy's toxic supplies are exhausted. Right here we introduce an attenuated dose which carries with it the active power of a number of ionized atoms of belladonna. And here we can say that literally like electricity, these forces are carried directly to every ganglia that is interested in the battle, and every nerve cell is urged into renewed action. Now we have brought about renewed energy without reinforcing the enemy any more than did the blustering untrained horsemen strengthen their army. This renewed activity in the reactive powers of the body will be more or less temporary, perhaps, so when they seem to lag a little we apply another dose—it may be of a higher attenuation—and give the system another hunch, as it were, and so on, until the battle is ended.

There appears to us no good reason why the same toxin which causes the disease, if given in proper attenuation, would not act just as well, if not even better. And since force and not matter must do the work, it might be administered *per orem* with the same effect as if given hypodermatically.

II. Why different potencies? We will repeat a quotation given a moment ago. "Substances termed radio-active, as radium or uranium, simply present in a high degree a phenomenon

which all matter possesses to some degree." Here we have it in a nutshell—different degrees of radio-activity in different substances. We find some, of which silica is an example, that seem absolutely inert in their natural state. Most metals and many elemental substances show little or no activity except under the proper delicate test. We must triturate, agitate and tear the atoms apart, so that the power may be liberated. To prescribe crude material of this kind would surely prove useless. Some show little activity until the 6th attenuation is reached, and more power when much higher.

But what do we find in that great number and variety of drugs derived from the different forms of plant life? We know that the cells of animal tissues, especially those of the nerves, produce and send out dynamic force. We know also that the animal cell and the plant cell are very similar. Indeed, the microscope can scarcely discover a difference between the cell of a green succulent plant and some of the cells of the animal. It cannot be otherwise than that in every form of plant there is generated dynamic energy. In the tinctures and extracts made from the great number and variety of plants and vegetable forms, there will be found just as great number and variety of forces. The active principle in some will be found in greater quantity but with lesser degree of activity. In others will be found smaller quantity but intense activity. Of some of these we know that a toxic or even a lethal dose is very small, while of others large quantities may be taken without much ill effect, unless too oft repeated and continued.

I wish to emphasize the dynamic action as opposed to the chemical action of remedial agents. I mean chemical action as it is generally understood, when one or more atoms of a drug will unite with one or more atoms of one or more of the normal constituents of the blood or tissues. If anything in a curative way comes of such action, it must result from or through the forces set free by this chemical action in the cells, like that which occurs in the cells of a battery.

Homœopathists who do not prescribe medicines in the low attenuation, often see results of the action of a drug following so

closely the administration of the dose that there is no possible time or chance for chemical action. A very few cases will illustrate. The writer was called to attend a woman in her third or fourth confinement. The case was not progressing very rapidly and the woman said, "My pains are all in my thighs, but that is all right, for I have always had them there." The doctor thought it was not all right, so he gave a dose of pulsatilla the 6th potency. When the pains recurred scarcely more than one minute later, they were located around the lower abdomen and pelvis where they should be. Delivery was hastened and made easier.

Another woman was found sitting and inclined a little forward suffering an agonizing pain in the gastric region, the whole body bathed in a cold sweat. At once the picture suggested veratrum album, and a dose of the 6th was put upon the tongue. After the lapse of not more than 5 or 6 seconds she felt that she was getting relief, and within the space of two minutes she said, "Now I feel just as well as you do except that I am tired."

In these cases there was not time for absorption and for the transmission of the medicine through the blood to the centers involved. In the first case there was a disturbance in the nerve forces and currents that controlled the muscular action. There was short circuit or trouble in certain nerve centers. The dynamic force of the drug was carried by and through the tissues to the point of disturbance, and in some way harmony of action was restored and the patient relieved. Instances in which there is no possible chance or time for absorption and transmission could be multiplied indefinitely. A case of neuralgia of the teeth only relieved by holding ice in the mouth, cured by one dose of coffea before the patient gets out of the office; another of severe sun headache relieved repeatedly within five minutes while the patient is in the sun, by a dose of glonoin 500th, are examples.

The venom and virus of animals, and toxic products of bacteria, vary in degree of activity. These as well as the product of plants to be used as curative agents should be administered in different degrees of attenuation.

Eleven years ago, when the streptolytic serum was first being used, I had the misfortune to be poisoned by pricking my thumb while working with a case in which there was gangrenous tissue. I became very sick and a good homœopathic neighbor came in and prescribed crotalus. A good neighbor of another faith came in also and suggested the serum. Owing to the action of one or both of these, improvement took place very soon; and while waiting for full recovery I had plenty of time to speculate as to the action of these remedies.

Then and there, eleven years ago, I stated to the doctors that I believed that the crotalus caused to be formed in my body and blood an increased amount of the same antitoxic substance as that contained in the serum that was injected. That belief has grown stronger every year until I am perfectly sure that it can be demonstrated that *crotalus, arsenicum, rhus* and a few other drugs will, under different phases and conditions in this form of sepsis, cause increased production of antibodies.

The same can be shown in diphtheria with lachesis and a few others. It was because of belief, in fact, that this could be demonstrated with many medicines in many diseases, that the writer spent some of his time and a little money in an attempt to work up among homœopaths, a sentiment in favor of the establishment of a grand central institute for this kind of research work and the proving and reproving of drugs. Just such wonderful and commendable work as has been done by Doctor Hooker, could have been done and should have been done, several years earlier. Dr. Hooker states that while doing this work he has jotted down notes and suggestions pointing out work that would occupy ten persons for fifty years. With present facilities when will this be done?

There are things here worth considering. If more consideration were given such study interest in homœopathy would grow and prescribing would become more productive of beneficial results.—*The Journal of the American Institute of Homœopathy*, February, 1915.

THE MANAGEMENT OF PRISONS FROM THE VIEWPOINT OF HUMANITY AND HEALTH.

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A survey of the past management of prisons and the treatment of the offender discloses conditions which, in the light of present methods, are both ineffectual and inhumane. It is only in recent years that there has been an insistent demand for humane administration, and the knowledge that health of mind and body is essential for the recovery of the convict is of still later recognition. For the inhumanities of the past we are substituting a regime in justice to the convict attains a higher end than the mere assertion of authority and the empiricism of the old prison system based solely on the deprivation of liberty is being supplanted by modern practices conceived from a radically different viewpoint. The future prison will be both a school and a hospital where criminality is studied and treated rather than a place of detention and repression, for we are realizing that individual analysis of the material for reformation is essential before treatment and final cure can be effected. We have learned that some offenders in frequent conflict with the law are but semi-responsible and eventually we shall treat them as we do the chronic insane, if we would free society from their periodic raids. We have recognized the necessity for a plan more efficient than the system that has failed, for penal institutions can be of no avail if conducted as mere places of detention or agencies for punishment. Past efforts have deprived the convict of his liberty, punished him and attempted to profit by his labor without a real understanding of the problems involved. The prisons are dealing with abnormalities, the majority of the inmates are ill, abnormal or unusual—persons handicapped by heredity deficient in mind or in body, victims of acquired mental disturbances or disorganized by vicious habits or unnatural practices.

A real appreciation of the mental and physical characteristics of the criminal has been denied most prison officials. They have not understood the material with which they labored, and that

they have failed is but a natural sequence, for it has long been recognized by those who have studied the criminal that he is usually abnormal in mind or in body. He is frequently afflicted with physical deformities, syphilis, eye strain, flat feet and divers reflex disturbances and mentally he may be feeble-minded, epileptic, a borderland case or even a lunatic. Sexual perversion is not uncommon, and the number who may be considered norms represent not more than from thirty to forty per cent. of the population. These facts demonstrate the necessity of treatment rather than repressive measures.

The prison ought to be both a school and a hospital where those who have erred can be educated in hand and mind, and cured of disease or deformity, but such humane and scientific management demands high-grade executives of special fitness and ability. The political experiment has had long trial and has merited the disgrace that it has acquired. Both officials and subordinates need special training, and the state could well afford to maintain a school for their instruction, and those not showing special aptness for their work should not be encouraged to continue. Such a school, attached to one of our penal institutions, would be a practical proposition.

The ideal warden should be both a schoolmaster and a physician, for then he would be well fitted for the supervision of the methods employed to regenerate his charges. A warden so equipped would understand men, appreciate their limitations, diagnose their defects and then outline the treatment necessary for their improvement and cure if this last be possible.

There is no more important requisite than guards and employes of intelligence, keen judgment and honesty, for without doubt every prison subordinate is an ideal citizen in the eyes of some of the inmates over whom he has supervision. His conduct will be reflected by the prisoners, and if he be rough, uncouth and a bully, we cannot expect the convicts under him to conduct themselves in a gentlemanly manner. There is always grave danger of collusion between convicts and dishonest employes, and such a condition is a menace to the management and calls for

decisive action. The prisoners must have respect and confidence in the management, and their attitude may be a determining factor for success or for failure, and in view of this there should be an opportunity for an exchange of ideas between the officials and the prisoners. Exclusiveness on the part of the warden or chief executive can only lead to suspicion of him by the inmates, and he should each day come in contact with many of the prisoners. Their statements, no matter how seemingly trivial, should be listened to with dignity and respect, for trival complaints are developed into affairs of moment by the one who may have little else to do in confinement excepting to dilate upon alleged discrimination or fancied ill treatment. At these interviews, when there is merit in the prisoner's complaint or statement, it should be given proper consideration, for abuses can be corrected, the routine adjusted and improvements effected not only for the individual prisoner but for the whole population, if appreciative regard is had for these complaints.

The cold prison atmosphere should be changed to more nearly resemble that of a combined school and hospital, for iron bars and and stone walls are of doubtful value either as a reformative factor or as a theraputic agency. For years we have been confirming many abnormal men in an environment that is quite at variance with normal living, and have expected them to become accustomed to this without friction or protest. We should endeavor to establish, as far as possible, the same relationship in prison that exists between individuals in civil life. There is no necessity for the prison silence, sullenness or other signs indicating servitude, and for these there shall be substituted normal ways of acting, thinking and working.

The modern prison fully provides for the physical comforts of its immates, and fresh air, good food, warm clothing and clean quarters are not only a necessity but the right of the caged man; furthermore, the cells should be equipped with modern plumbing and each cell should have at least five hundred cubic feet of air space and a system of ventilation for forced draught installed to insure healthful conditions. Clean clothes, ample light and a

room free from vermin and furnished with the necessities are essential, but it is far better to have all cell equipment absolutely alike and not allow the prisoner with money to furnish his room and provoke jealousy and envy among those not so fortunate and but one to a room should be allowed except under strict selection and supervision. It might be well to eliminate the bars from the door of the cell and substitute a steel door with window and grill work. While this innovation may not alter the conduct of the prisoners nor aid the management, nevertheless we must not fail to recognize the psychology of the bars.

The law states that a sufficient quantity of wholesome food but of inferior quality shall be supplied the prisoner, yet there is no justifiable reason for the enforcement of such a provision, for the prisoner needs food of good quality well prepared and of ample variety. The State, having assumed the authority to imprison a man, should obligate itself to supply all of his reasonable needs and having done so should deny him the right to secure luxuries. All articles of clothing, cell equipment, in fact, everything necessary to fill the mental and physical wants of the prisoner, should be supplied by the authority that detains him, and nothing else should be furnished or purchased for him. In no other way can we eliminate drugs, liquors and other contrabands from the prison. Many of the difficulties and vexations that beset the wardens of our prisons are the result of the pernicious favoritism shown prisoners who have influential friends. There should be no preferred rooms, no easy jobs for ex-politicians and bankers. The convict must know that money and political favor cannot change his prison status, and that justice and fairness will always be forthcoming, regardless of who he is or whence he came.

In all prison industries the first consideration must be training for future honest livelihood, for the prison must justify its existence not simply by permanently detaining the irreclaimable but by fitting its hopeful inmates for re-entry into society and industrial strife. Working the convict for ten hours a day is an error both economic and sociologic, for the temporary profit derived from his labor can never justify the neglect to train him for

future honest work and right living. It is real economy and a distinct social asset to make him a self-sustaining, law-abiding citizen. Many different systems have been tried for utilizing the convict's labor, and no doubt the State Use System is the most satisfactory, both to the convict, the State and to organized labor. Convict labor is cheap, but this is no reason for wasting it, and attempt to increase its efficiency and conserve us energies should bring industrial rewards. There must be more profits before there are any earnings for the prisoners, for the State will not draw upon its own resources for prisoners' wages, but if the convict earns a wage, why not give him the opportunity to profit by his labor. Convict earning systems are now operated successfully in many states and afford aid for those who really suffer by the prisoner's incarceration.

Health must not be sacrificed for work; men in confinement cannot be kept at the pace of free workmen, and an eight-hour day cannot be maintained if it interferes with other equally as important agencies for reformation. Industries and work that are injurious to health can be avoided and employment provided that will not impair their physical condition. Modern shop buildings, with plenty of air and sunlight and equipped with all the modern sanitary managements, are even more essential for the convict than for the free workman. Safety appliances on all dangerous machinery must be provided, and "Safety First" must be the watchword, for the mind and hand here employed are not as keen and active as in civil life and the compensation law did not include the prisoner. Watchful care is ever needed to prevent serious disabilities or fatalities.

A Farm Industrial Prison represents the most desirable plan for development, and while the Agricultural Prison movement has many advocates, in this latitude it is impossible to keep a large force steadily employed at farming. Men may be employed during the summer months at agricultural pursuits, but it is quite necessary that other means of employment be afforded during the winter season, and this restriction applies also to road-building and conservation work. The purely agricultural colonies having

large numbers of men cannot be successfully conducted unless manufacturing industries of some sort are connected with them.

The restoration of health and strength is one of the duties of modern prisons, and a well-equipped hospital of ample capacity and modern construction is needed. A physician, an experienced psychologist, a dentist and such other medical assistants as are needed should compose the resident medical staff. It is impossible for the prison surgeon to attend to all the ills that come to him, and he needs the aid and advice of competent advisors, and for this purpose a consulting staff selected from the best talent available should be attached and include a surgeon, oculist, genito-urinary specialist, neurologist and an alienist.

Reliable statistics show that most prisoners need treatment; more than thirty per cent. are mentally abnormal and seventy per cer cent. below normal physical standards. A careful case history of each man should be made, and if possible this should be augmented by a field study of his ancestory and environment. Examinations by the specialists, too, should be made, for in no other way can we determine the necessity for intervention, and prisoner should be urged to submit to such treatment or surgical procedure as will restore his health.

Prisoners subject to disciplinary measures should be seen frequently, not only to insure humane treatment but to be certain that physical or mental abnormality is not the reason for infraction of rules. The physician must be supreme here and have courage to insist that his orders be obeyed and he should be in frequent consultation with the diciplinarian and all doubtful cases that come before the latter should be examined in conjunction with the medical officer. If this course is pursued we can avoid the embarassment of punishing epileptics, fools and lunatics in an endeavor to correct by inhumane methods that which science fails to do with her best efforts. Such an inspection will eliminate the insane from the population and also diagnose the borderland cases and remove them from the exacting routine, and similar examinations will detect the drug addicts and apprise the officials of conditions with which they may be in ignorance.

The segregation of all contagious and infectious diseases shall be effected regardless of the stigma attached to some, and there must be separate rooms, furniture, clothing, bathing and dining arrangements. Tuberculous patients should be prevented from spreading infection, and all modern measures to this end be provided and the necessity for their use thoroughly explained. Those having venereal disease should be given modern treatment and have instruction to prevent the infection of others. Personal hygiene can be taught both by individual talks and by the distribution of plainly written pamphlets.

But passing mention can be made of asexualization; this operation performed upon selected cases will produce excellent results, and its value from the eugenic view-point merits careful consideration.

A fruitful field, and one as yet practically undeveloped, is the individual psychic study of the prisoner. Here is the opportunity for the trained alienist to analyze and correct, if possible, defective reasoning that has brought disaster to the convict, for patient and insistent labor may establish a normal mental state which will appreciate the rights of property, persons and society, and the individual's relationship to them all. The technical detail of this work for the alienist and psychologist will not encroach upon the legitimate field of the moral instructor.

Physically the convict is undersized; at an average age of twenty-one, his physique about equals the normal female of the same age. Mental and physical development are closely related, and physical health and mental quickening both improve from systematic exercise. While the more popular games and sports afford diverson and keep the prisoners out of doors, their actual value is limited by the small number who can participate. Calisthenics or "setting up drill" in which the whole population take part each day is an ideal method, and sports for recreation and amusement should remain of secondary importance. Special classes selected by the physicians from the retarded and defective inmates will be greatly improved by free-hand exercise

with musical accompaniment. Physical culture has long merited a permanent place in the prison curriculum.

Education, physical improvement, industrial and moral training call for insistent and exacting routine, and these essential factors for success cannot be dependent upon the convict's initiative. Freedom is his goal, and in the interim physical and mental comfort are his desires. He accepts with good grace or otherwise our efforts to regenerate him, and his interest in the result is oftentimes not active nor voluntary. Mental effort is distasteful to him and he will volunteer extra manual labor in order to avoid study. Success can not come if he be allowed to follow the line of least resistence. His efforts need frequent stimulus, and a kindly but steadfast and determined hand must guide him.

Discipline is just as important in a prison as in an army, for obedience and respect for authority must be fundamental in both. Undoubtedly many violations of the prison discipline are due to the unnatural environment of the inmates, for there is nothing approaching prison routine in civil life, and men cannot adapt themselves to this strange environment without some hesitation and friction. The law states what shall be the punishment in prison and describes its infliction in detail; it assumes to abolish all inhumane and unusual punishment and is framed with a laudable desire to punish humanely, however, the experience of the ablest prison disciplinarians seems to be in accord that punishment alone will not reform men nor compel obedience to rules. Being merely locked up will not prevent crime nor cure the criminal and being merely punished will not prevent the incorrigible from violating the prison rules during his incarceration. Prison discipline is a manifestation to a considerable degree of the prisoner's appreciation of his executives and the esprit de corps of the convicts frequently reflects the discipline of a prison. The old system taught that repressive measures are the quintessence of discipline, but failed entirely to appreciate that cheerfulness of action and willingness to co-operate is real discipline. To obey smilingly, willingly and cheerfully is the discipline for which to strive. If the privilege of unlimited conversation is granted and at the

command to cease, silence follows, this is discipline. If men are allowed hours of recreation and play and at the Recall they cease their activities and rapidly and willingly fall into line, this is discipline.

The establishment of different grades with additional privileges and the commutation of sentence for good conduct will always be a stimulus for many, and a further incentive can be had by supplying insignia indicating continuous obedience. On the other hand, clothing significant of misconduct is of doubtful value and fails as a stimulus for all but the supersensitive. The lock step, shaven head, ball and chain and other marks of dishonor have no place in humane administration. Neither the securing nor the loss of marks should be sufficient reason per se for change of grade or for parole. A system of classification or method of promotion or reduction that fails to consider the prisoner's mentality neglects a most important factor, for each convict represents a separate problem, and a thorough understanding of him without reference or comparison to any other inmate should alone determine his status.

Under modern management the number of men who are frequent violators of the regulations is quite limited and represents but a small per cent. of the population. In an institution where the spirit of the men is for co-operation, discipline presents but routine work. In others, where it is the practice to enforce obedience to the rules by severe punishment, discipline may assume tremendous proportions. In the administration of discipline we have entirely abandoned the former desire for vengeance, retribution and repression, and now strive always for prevention and reformation. Silence and discipline are no longer synonomous terms in humane prison management. Traditional practices and lack of humane and intelligent administration are still responsible for the continuance of repressive measure. The old method considered only the offense against discipline and avoided the actual issue, the offender, his responsibilities and his motives. Practically all of the persistent violators of the rules in a well-conducted institution will be found to be feeble-minded, mentally

or physically abnormal, and I have yet to know of an incorrigible prisoner who could not be so classified. All mental defectives are by no means incorrigible, but all incorrigibles are mentally or physically abnormal. The defective criminal should be segregated and society protected from him, but to this end he should not be sent to prison and punished, because Nature did not use him well in the making.

Many of the so-called "incorrigibles" are caused by physical defects in prisoners who are mentally normal. A complete and thorough physical examination by a competent medical staff should detect these physical defects and pathologic conditions and remedy them, and this alone will greatly reduce the work of the disciplinarian. Reflex irritability from many sources may provoke an irascibility of temperament that will make an alleged "incorrigible" of a man who would be tractable enough were his physical defects corrected. A few difficulties that produce reflex irritability of this character are as follows: Incipient tuberculosis, defective eyesight, adenoids, obstructed nasal passages, flat feet, stricture, bad teeth and others that would only be of technical interest. First be certain that all of the physical bases of his irritability are corrected before punishing a man for incorrigibility, for an incorrigible is never a normal man. If a complete study of the incorrigible is made, he will be found to be feeble-minded of varying degree, suffering from a physical defect or from a positive psychosis, and for correction, proper diagnosis and suitable treatment are needed, not punishment.

The epilectic is a complex problem; not only he who has violent seizures but also the one who is subject to attacks that give no outward sign. This latter type may commit an assault or violate a rule and be placed in confinement, then later declare to the authorities that he does not remember committing the offense and cannot understand why he is in a punishment cell. This is all very true, but the unfortunate is usually considered a fraud. Similar circumstances may surround the hysterical prisoner, for hysteria is not uncommon in prison, but co-operation

between the medical staff and the disciplinarians will insure the proper disposition and treatment of these conditions.

It has long been contended that the maintenance of good discipline necessitated stern and at times even severe punitive measures. The New York State Reformatory at Elmira has for some years past shown the fallacy of the old idea, and has secured discipline of military effectiveness without the use of repressive measures. While promotion and reduction in grade and the withdrawal of special privileges are still of value, the important features are the segregation of the incorrigibe defectives, the elimination of the insane, the humane understanding of the epileptic problem and the comprehensive study of the individual cases that have come before the disciplinarian. For nearly five years it has not been necessary to confine a prisoner in a dark cell or screened cell, nor has it been necessary to forcibly restrain him or to starve him by short diet. The discipline resulting from this humane and scientific system has been all that the officials could desire.

Any observing prison official knows scores of men who upon release will revert to crime. The recidivist enjoys short intervals of freedom, but spends most of his life in confinement and completes a circle of crime, arrest, conviction, imprisonment and discharge, over and over again, and each time a short sentence is imposed, for he is wise in the ways of courts and judges and is always willing to "cop a plea" for promised leniency. Our present treatment of him is futile; he needs permanent custodial care, for there is but little difference between the recidivist and the chronic lunatic; both should be well treated, but kept in permanent confinement. The optimistic contention is that every convict should always be given another opportunity to demonstrate his real worth, yet this attitude is but self-deception, and we should come to a conclusion in the case of the recidivist with the same celerity, sureness and finality that we do in the case of the lunatic.

Convict self-government is in the experimental period, and, while prisoners may be able to govern themselves and to maintain

the same standard of industrial efficiency, progress in education and reformation as under skillful management, they have yet to demonstrate this ability. That restricted liberty can be allowed selected groups of convicts and that limited authority may be vested in some is by no means a recent discovery. For just what number bars and arms are necessary, we have yet to ascertain, but it is likely that such restrictions are for the minority; however, it will take some years before final judgment can be passed upon either the honor system or the still more recent self-government scheme.

The modern prison aims to restore to society a normal man, cured of his criminality, and recovery involves education of mind and hand, together with physical improvement that will prepare the convict for intellectual and industrial development; maudlin sentimentalism is not indicated in this treatment. While in many instances the prognosis of criminality is favorable there is as yet no specific, no royal road to reformation and there can be no doubt that far better results are obtained by a humane and scientific regime than by the punitive system of the past. Despite the best efforts there will always be plenty of failures and it is useless to attempt to conceal the fact that the efforts expended upon many convicts are unavailing, moreover an accurate scientific knowledge of the mental and physical limitations of many convicts would disillusionize some enthusiastic critics and bring to the modern penal institution some long deserved credit.—*The Medical Times*, April, 1915.

EDITOR'S NOTES.

Gallstones Ejected through the Mouth.

By A. R. CARMAN.

The unique case is reported of a woman who, about a month after an attack of gallstone colic with jaundice, was taken apparently with acute indigestion, vomiting frequently for about four days and bringing up a number of gallstones, varying in size from that of a pea to a small walnut. The author collected more than thirty stones made up chiefly of biliary pigments. The patient subsequently remained in excellent health.—*The New York Medical Journal*, December 12, 1914.

Detachment of Retina.

A case of double detachment of the retina in a telegraph operator suffering also from nephritis is reported by L. W. Jones, Rochester, N. Y. The patient had had albuminuric retinitis, which is not uncommon in nephritis, but detachment of the retina from this cause seems to be rare, and Jones has not been able to find in conversation with local oculists of large experience, any history of a similar case. Roemar mentions its possibility, and Weeks reports a similar case.—*The Medical Times*, April, 1915.

Hydrochloric acid in the stomach.

The presence or absence of hydrochloric acid in the stomach can be ascertained by inserting a piece of Congo paper in the eye of the stomach tube, which is passed down the œsophagus and then withdrawal.—*The Medical Times*, April, 1915.

Thirst Cure in the Treatment of Edema.

W. Nonnenbruch has observed that by restricting fluids there is a decided improvement in edema, whether the result is of cardiac failure, nephritis, or other causes. By restricting the intake of fluids, the amount excreted in the urine can be made to double the intake. He has carried out this treatment for edema in cases of pleurisy with effusion, lymphatic leucemia, and in ascites accompanying an ovarian cyst.—*The New York Medical Journal*, December 5, 1914.

Chronic Veronalism.

Otto Glaster reviews nine cases of chronic veronalism reported since 1903 and concludes that the continued use of veronal, even if only in small doses, may lead to a severe or mild intoxication. The central nervous system is principally attacked, the parts particularly affected being the cerebellum and the vestibular apparatus. This special affinity is seen in all drugs belonging to this group. The circulatory and digestive tracts are apparently not affected. The continued administration of the drug leads to a condition of euphoria and the habit is easily acquired. It has an inhibitory effect on the activity of the bowel and kidneys, and this may help to explain the appearance of the symptoms of intoxication.—*The New York Medical Journal*, December 5, 1914.

Radium in Cancer and Allied Conditions at the Huntington Hospital.

Thomas Ordway says that the best, apparently curative results from radium therapy are obtained in certain types of skin and other localized forms of cancer. In myelogenous and lymphatic leucemia, the blood picture becomes almost normal, the spleen is reduced markedly in size, and certain symptoms may be relieved without toxemia resulting. In many cases of true cancer which have advanced beyond the operable stage, or those recurring after operation, improvement from radium therapy may follow not only subjectively, but in the local condition. This improvement may include relief from discharge, hemorrhage, and pain; cleansing or healing of ulceration; diminution in size, or disappearance of growth. Such cases however are rarely cured. Even large growths sometimes disappear under the influence of radium, but metastasis or spreading of the growth to other parts is not prevented, or the patient may succumb to the rapid disintegration of the original growth. Newer methods may improve these results of radium therapy; at present its proved value is limited, but occasionally cases beyond these well recognized limits are distinctly benefited.—*The New York Medical Journal*, December 5, 1914.

The Quatercentenary of Vesalius.

Preparations had been made for some time at Brussels to celebrate with appropriate ceremonies the four hundredth anniversary of the birth of Andreas Vesalius, who first saw the light in that city on the last day of the year 1514. The fulfilment of this intention was, however, prevented by the war. The anniversary did not, however, pass uncommomorated. A historical club meeting of the Harvard Medical Society was held at the Peter Bent Brigham Hospital at Boston on December 8th, 1914, under the presidency of Professar Harvey Cushing. An account of Louvain and its University was given by Dr. Robert M. Green, and a paper on "The Vesalian Spirit" was read by Dr. Lewis Stephen Pdcher. Dr. Harvey Cushing discussed the iconography of Vesalius, and showed lantern slides representing many of the portraits of the famous anatomist. A specially interesting feature of the meeting was an exhibition of the collection of Vesalian and post-Vesalian editions shown at the annual meeting of the American Medical Association held in Atlantic City, New Jersey, in June, 1914.—*The British Medical Journal*, January 16, 1915.

The Laboratory in the Study and Treatment of Crime.

By V. V. Anderson.

The writer first describes the establishment of a criminological laboratory in the criminal courts of Boston, as recommended by Committee A of the Institute of Criminal Law and Criminology. As it is impossible carefully to examine every individual that passes through the court, the judges and probation officers pick out the persons that seem to be serious problems and send them for a thorough mental and physical examination. The first task was to standardize certain methods of the neurologist and psychiatrist and to form mental tests for adults. The scale method was adopted, and not only a quantitative, but a qualitative estimate of the mental processes was sought. Next came a study of the personality of each individual. The importance of such an

investigation is shown by his report of the diagnoses in 350 cases. Without quoting the table in full, it may suffice to say that only three sevenths per cent. were normal, mental defectives furnished over thirty-one per cent., dementia præcox over three per cent., constitutional psychopaths over twenty-four per cent., epilepsy over three per cent., general paresis and senile dementia each over one per cent., and over twenty per cent. were pronounced subnormal. Of these 350 persons, 140 were men, 210 women. Sixteen per cent. of the men and forty per cent. of the women were mentally defective, thirty-five per cent. of the men and seventeen per cent. of the women were psychopaths. Two men and 105 women were arrested for drunkenness; of these 12·9 per cent., of the men were mental defectives, 40.3 per cent. were constitutional psychopaths, while 43·8 per cent. of the women were mental defectives and 27.62 per cent. psychopaths. In general these studies bear out the conclusions of other investigators that women criminals differ from men-criminals in a lack of intellectual development, but regarding criminals as a whole, the psychopath furnishes a group of seriously large proportions. The author then goes on to speak of a type in which exact methods shows no real defect in the intellectual field and no evidence of insanity, and yet seem to have certain anomalies of character, a certain lack of personality adjustments. They are unstable, neurotic, with inadequate and inefficient adaptation, and easily become disordered under the influence of emotion or drink. Their antisocial conduct seems to be due to a lack of co-ordination of the mental faculties and a disturbance in the working of the proper mental mechanisms. He suggests that this group may possibly belong with the neuroses and psychoneuroses rather than the defectives. Problems bristle at every point, but the reader feels that the writer is justified in the statement that in the creation of such laboratories in the municipal courts of our larger cities lies the road to the establishment of a rational and scientific method of dealing with criminals.—*The New York Medical Journal*, December 12, 1914.

CLINICAL RECORD.

AN ACONITE CASE.

By C. T. Haines, M.D.

Aconitum napellus is one of the very oldest and most valuable of drugs, and since the days of Hahnemann and other provers has probably been prescribed by homœopathic physicians more frequently than any other remedy in our materia medica. The drug has been made a medicine.

Its physiological and curative actions are well known to us all and I call attention to its use in the following case not because of any new or unusual indications, but to emphasize again its quick and satisfactory action in a serious condition that had resisted other treatment for several weeks. August 17th, I was called to see Miss A., principal of one of our public schools; and elicited the following history:—Had not been up to her usual standard of health for two or three months; felt that she was working too hard; about the first of June, one month before the close of school, her work began to "get on her nerves" and her appetite and strength failed her almost entirely; found it difficult to get through the day and dreaded the thought of to-morrow; could not easily remember the names of her teachers and others; could not think of any food that she thought would taste good to her; gave way to tears at the slightest things; ate very little and drank almost no water; began to worry about her work and feared the superintendent would dismiss her; consulted a physician who prescribed a liquid tonic and advised giving up her position; began to have very restless nights, and slept but little after the first two or three hours; dreamed about her school constantly when asleep and awoke more tired than upon retiring; no appetite; constantly worried about being dismissed; consulted her physician frequently and took considerable medicine without much improvement, but managed to get along with her work until schools closed; expected to go with her sister and some

friends to the St. Lawrence river, but learned that through some misunderstanding the cottage which they had occupied for several seasons had been rented to another party until August first; great disappointment, but decided to wait until that time; engaged a dressmaker for two weeks and stayed in the house all the time; began to be exceedingly nervous, tearful and despondent, sleepless, with neuralgic pains about the head and face; no appetite, constantly worrying about one thing or another.

By August first, she was too ill to go to "the Islands" and was in bed the greater part of the time; medicines did not seem to relieve or help her in any respect and her sister and friends become alarmed at her condition and decided to make a change in treatment. I found her in bed with a temperature of 100, pulse about 129, unable to sleep, very nervous and restless; great fear of dying, great fear that something was going to happen; difficulty in swallowing; constantly grasping her throat and trying to swallow; pains in head, face and about the heart; frequent looking at herself in small mirror which she kept under her pillow; wringing her hands and pulling her fingers; wiping her face with her hand or handkerchief; constantly moving about in bed, sitting up and lying down, and presenting a wild and staring expression indicative of acute insanity. There were other symptoms which I will not mention as I consider them of secondary importance. Heart action too rapid, otherwise normal; lungs negative, urine negative, abdomen negative, menstruation scanty but regular. Prescribed aconitum napellus, in water, two teaspoonfuls every half hour for six hours, then every hour if awake; water to drink every hour; *hot*, not boiled, clam broth, containing the finely chopped raw clam; malted milk, raw egg in orange juice, raw fruit juices.

Soapsuds and saline enemata until bowels were thoroughly emptied, then once daily; massage, oil rubs.

The aconitum was first given about 1 p. m. and the greater portion of the next day. Mental and nervous condition began

to clear up almost immeditely and rapid and marked general improvement commenced. The diet was rapidly increased and pushed, and the remedy given less and less often.

No other remedy for about two weeks except some digestive tablets. Later, ignatia and hydrastis were given as seemed indicated. The patient went back to her work in school, although contrary to my advice, exactly three weeks from the date of my first visit, and declared herself in her usual good health, except somewhat below her normal weight.

There were many things that might be considered in reviewing a case of this kind, but the time will not permit. I will simply say that I consider the aconitum, plus food and water, plus good nursing and good sense, did the work.— The *North American Journal of Homœopathy*, January, 1915.

Gleanings from Contemporary Literature.

THE AUTOSERUM TREATMENT IN DERMATOLOGY.

By William S. Cottheil, M.D., and David L. Satenstein, M.D

It is a common criticism of the dermatological speciality that it busies itself so largely with the purely scientific aspects of its field and so little with the practical results that justify its existence. Medical men find that in our cutaneous journals and special societies we have much to say on minute points of pathology and microscopical findings, and that we are strong on differential diagnosis or rather on questions of terminology that we mistake for questions of diagnosis; but that we are strangely reticent on treatment and rarely have anything that is generally useful and practical to suggest In one sense this criticism is unjust; it has not been for want of effort that dermatotherapeutics has been for many years a comparatively unfruitful field. In another, however, it is merited. One of us (W.S.C.), looking back on the quarter century during which he has been more or less intimately connected with the speciality, finds but very few facts that can be justly said to be distinct and permanent steps forward either in our understanding of the nature of many common dermatoses, or in our means of curing them. To take a few of the commonest of the diseases of the skin: What can we do in eczema, psoriasis, and lichen planus that our fathers could not do, and what more than they do we know of their real nature! Endless study and experimentation has led in most cases to an *impasse*.

It was, therefore, with considerable scepticism that we read the reports that have been published during the last year or two concerning the treatment of certain dermatoses with serum, autogenous or foreign; and the more so since these reports, in some cases were of that very rosy hue which we have learned to know as the reflection of the subjective illumination of the observer. Here are a few of them:

Veiel records a severe case of herpes gestationis, coming on very intensely toward the end of pregnancy, and resisting all treatment; he injected the serum of a healthy gravida, with temporary improvement. After a second injection of twice the amount there was very marked improvement, rapid disappearace of itching, and cessation of the bulla formation. Rubsamen had two cases, one of

severe pruritus due to pregnancy toxæmia, and the other a pustular herpes gestationis in childbed, which he cured by the injection of the clear-blood serum of healthy gravid women. Rongy has recorded good results in pregnancy pruritus from the same means. In these cases a foreign and not autoserum was employed; and in the toxæmic symptoms of pregnancy, including those appearing on the skin, the serum treatment seems to have definitely established its value.

Pretorius gives an account of a woman suffering from a severe chronic pemphigus, which he had long watched and treated. She was given 20 c.c. of blood from her husband; in eight days she was cured, and had had no relapse in eight months

Spiethoff records good results in dermatitis herpetiformis, chronic urticaria, prurigo, psoriasis, and chronic eczema from the autoserum.

Linser has used human serum (whether autogenous or not we do not now) with brilliant results in a case of herpes gestationis. In four cases of chronic urticaria he reports startling and immediate results fifteen minutes after the injections, fifteen out of his eighteen urticaria patients were cured by from two to three injections. Twelve prurigo patients were much improved by the injections, and finally, from four to six months later, were nearly all cured, He obtained especially good results in pemphigus and dermatitis herpetiformis, and also in the eczemas of children.

Ullmann used autoserum injections in eighteen itchy dermatoses, without other treatment. In seven cases of dermatitis herpetiformis he obtained no results; in two cases of generalised eczema in children he obtaided no results from the injections, but exceptionally good and quick results as soon as local treatment was instituted; there urticarias were improved, but not cured; four cases of pruritus were cured, and one prurigo was much improved.

The results reported above, though conflicting in some respects, were sufficiently impressive to lead us, without attempting any complete review of the literature of the subject to take up the matter last autumn in the City Hospital of New York. Our facilities there for clinical experimentation of this kind are especially good. Twelve cases were treated there, six of very extensive general psoriasis, three of generalised eczema, two of pemphigus, and one of leprosy. Since then we have obtained records of six private cases of psoriasis, two cases of radiodermatitis, and one each of chronic urticaria, pustular acne with dermic abscesses, furunculosis, and lichen planus. That this list is a comparatively small

one is due to various factors. The process of treatment is rather troublesome, and above all, takes care and time. In the busy hospital, with many demands on the laboratory and house staff, it was difficult to arrange for the proper treatment of any long series of cases. In private practice other factors, such as the idiosyncrasies of the patients and the question of expense, naturally interfered. What interests us here more especially is, first, the results, and second, the method to be employed. We shall consider the latter first.

Methods of Treatment.

To those experienced in intravenous medication technique, this presents no difficulties, the only additional apparatus required being an efficient electric centrifuge and some platinum needles. The ordinary centrifuge will not do, since it is too slow and it would take too long to separte the serum thoroughly. An electric machine capable of making at least 4,000 revolutions a minute is required; this will thoroughly separate the serum in about half an hour. The tubes should be large enough to hold about 200 c.c. of blood; we employ four of about 60 c.c. capacity apiece. It being desirable to avoid all possible transfers of the blood and serum, we draw the blood directly into the centrifuge tubes. A platinum needle of large calibre is used for the venipuncture; this is much smoother on the inside than the steel needles, and very much more fluid can be obtained before occlusion occurs; besides this, the needle can be more readily and thoroughly sterilized in the flame. It is well to have one or two extra venipuncture needles in reserve, so that no time is lost in resterilising, if necessary, and so that two needles can be introduced simultaneously if the flow is too slow. One of the minor difficulties encountered in our first work in the hospital was the trouble in obtaining the requisite amount of blood with the needles of the ordinary calibre and material; as a rule not more than from 15 to 20 c.c. could be obtained from one puncture, and the flow was very slow. With the platinum needles we can obtain 200 c.c., the largest amount hitherto drawn, in from three to ten minutes, depending on the blood-pressure; in some cases the flow from the vein is in a continuous stream and not in drops.

The blood is allowed to clot thoroughly, which takes about ten minutes; the clot is then well broken up with a glass rod, and centrifuged at high speed. In the electric centrifuge at about 5,000 revolutions a minute this takes from thirty to forty minutes. In a slower, water-driven or hand centrifuge it would take much

longer, which is an additional objection to their use; the serum should be reinjected within about an hour after the blood is drawn. All utensils coming in contact with the blood or serum should be cool.

The amount of blood drawn has varied from 40 to 200 c.c., usually the latter amount, or an approximation to it; and the serum recovered has been from 40 to 45 per cent. of this quantity. We had little to guide us as to dosage in the beginning. The German investigators usually employed from 25 to 60 c.c. of serum at a dose, some of them asserting that exactly the same results were obtainable from the smaller as from the large amounts.

The serum recovered is injected into a vein, usually on the other side from that from which the blood is drawn, and the operation is completed. We use an ordinary salvarsan needle for the reinjection.

We have now given over 250 of these autoserum injections, without seeing, save in a single case, any contra-indications to their employment. The patients feel no effects at all either from the drawing of the blood or from the reinjection of the serum; they go back to their occupations as soon as the operation is completed. The one exception was in a bad case of gangrenous radiodermatitis, in a case of leucæmia in which the patient did marvellously well under the first four, but had a reaction, and chills followed by fever after the fifth and sixth, which we took to be attacks of serum sickness due to the sensitising of the organism by the previous injections. We have never seen any similar occurrence in another case, no matter how many injections were administered.

Summary of Results.

Following is a brief summary of the results so far obtained: The cases were eighteen in all, twelve of psoriasis, two radiodermatitis, and one each of furunculosis, pustular acne, and dermic abscesses, chronic urticaria, and lichen planus. To take the last first, the pustular acne has been very markedly improved, is still under treatment, and is nearly cured; and the urticaria lichen planus and furunculosis got much better while subjected to it. One of the radiodermatitis cases was a gangrenous one, and the result here was not to be described as otherwise than astounding. The patient was apparently in a hopeless condition; he was constantly under opiates, could hardly get out of bed, and the sloughing ulceration had been almost unaffected by the various local general measures that had been tried. The result of even the first injection was the rapid throwing off of the necrotic tissue, beginning cicatrisation

of the ulceration, cessation of the agonising pain and the tenderness, and a rapid convalescence. This was the patient who had the symptoms of serum sickness after his fourth injection; the treatment was stopped in consequence of it; at, present the patient is perfectly well and attending to his business; the ulceration is three-quarters healed, healthy, and slowly closing up under ordinary surgical local treatment.

While in these various affections our results have been only partially satisfactory and of a nature that enables us to say only that the autoserum injections deserve further trial in these and kindred diseases, in psoriasis they have been uniform, and extremely satisfactory. We have now twelve carefully observed cases on record, all of them the severe and extensive type of the disease. Many of these patients had had psoriasis for many years or all their lives, so far as they could remember; some of them had had repeated courses of treatment without any noteworthy results, or with partial or very temporary results; some had been treated for half a lifetime without benefit, and others had long given up all attempts to cure the disease. One and all were enthusiastic for the treatment, and one at least has voluntarily asked for another course of the injections to prevent the possibility of a relapse. On the latter point we have as yet nothing to say; the time has been too short; many of the patients have disappered, which an enthusiast might take as evidence that they needed no further treatment.

These patients were given from four to six autoserum injections at intervals of from five days to one week, during which time they were not hospital patients or confined to bed, but could pursue their ordinary avocations. During this time, also, no local treatment other than ordinary baths and soap frictions were employed. In most cases the efflorescences became paler and less elevated, and showed signs of beginning retrogression. Then, at the end of the serum course, treatment with a weak chrysarobin petrolatum, two or three per cent. for the body, and an equally weak white precipitate ointment for the head and hands was begun. In from three to eight days every lesion had disappeared with but very little of any dermatitis from the medication. This also has been the case with gigantic indurated plaques of years' standing, and with patients who have been treated secundum artem many times without effect or who had had their bodies cleaned before at the expense of six weeks' treatment with forty per cent. chrysarobin ointments, violent dermatitis and the administration of *Arsenic* in very large doses.

Those who had been thorough cures before, or who had given up their cases as hopeless, were loudest in ther praises of the new method.

Mode of Action.

Questions as to the theory on which these injections are employed, which are asked by every patient and by every physician, have to be answered in the main by a confession of ignorance. So long as we are unaware of the real nature of most eczemas, of psoriasis, of lichen planus, and other common skin affections, our therapeusis is necessarily empiric and based on the experience of accident. In view, however, of the great development and refinement of microscopical technique in recent years, we are justified in regarding it as probable that there are no micro-organic causes for their occurrence; any such would probably have been discovered by the unremitting work that has been devoted to them by multitudes of investigators. We must look to some change in metabolism, to some derangement of the internal economy, for their explanation. Nor does it seem likely that any metabolic change of the grosser sort will be found at fault; these have been thoroughly investigated, and have thrown no light on the subject.

The most promising field of investigation into the etiology of the still mysterious dermatoses is that of the internal secretions. In that as yet little-known domain there are certain well-known facts that are worth noting in this connection. The bronzing of the skin and mucosæ and the falling of the hair in Addison's disease are admittedly due to derangement of the suprarenal glands. The thickened, white, cold and always dry condition of the skin in myxœdema, together with the brittleness of the nails, falling or premature whitening of the hair, with irregularities in the development of the teeth are recognized results of disturbances in the thyroid glands, are remediable by the administration of thyroid extract. Thyroid hypersecretion, giving us the symptom-complex known as Basedow's disease, makes the skin smooth, thin and moist, and the nails and hairs brittle. Scleroderma is ascribed by some authorities to dysthyroidism; and a connection between the two conditions in certain cases at least cannot well be denied. Alopecia areata, occurring as it does usually at adolescence, or at the climacterium, is thought with some reason to be in some way connected with the hyperactivity of the generative glands; and the hypothesis has been evolved that the mysterious and characteristic premature alopecia that occurs so commonly in the male at the time

of the greatest activity of the reproductive organs may be in some way connected with their internal secretion. With persistent thymus the so-called status thymuslymphaticus, there are frequently changes in the skin and its adnexa; the integument is pale, and there is often either ahetero-sexual hair-growth or these structures are partly or entirely undeveloped. In acromegaly, dependent on increased secretion of the pituitary gland, the skin is usually thickened and pigmented, the sweat increased and the hair development either deficient or very abnormally increased. The dystrophies of heredyosphilisare not to be explained on the theory of a direct action of the invading orgnanism, and may possibly be secondary effects due to dyssecretion of the endocrinous glands. It can hardly be denied that there is some relationship between either unusually active or deficient internal secretion of the ovary and testis in such conditions as acne juvenilis, chloasma uterinum, and the various menstrual, pregnancy, and partuition exanthems. In diabetes, changes of the skin and its adnexa are common; the bronze diabetes and xanthoma are extreme instances.

Internal Secretion.

Cederkreutz, in a recent review of the subject, believes it possible that there is an internal secretion proper to most of all of the body-tissues; that their action and correlation deserve careful study; that the idea of Claude and Gougerot that an "insuffisance pluriglandulair," and not a derangement of a single secretion may be the basis of skin changes, has much plausibility, and that, in addition to the affections already mentioned, the internal secretions offer us the most hopeful field for investigation as to the etiology of vitiligo, psoriasis, ichthyosis, lichen planus, pruritus senilis, and xeroderma pigmentosum.

Psoriasis is perhaps the most mysterious of the common dermatoses. Schamberg's elaborate studies seem to point to nitrogen retention in the system as a factor in its etiology, and the results of an absolutely meat-free diet in some cases is well known to all of us. Occasional cases seem to be dependent on mental conditions, such as worry and overwork. But in the vast majority of cases we are entirely at a loss to ascertain its cause. On the other hand, the administration of thyroid extract and *Adrenalin* has done good in some cases. It seems very unlikely, with the history of the affection and the unending efforts that have been made to find it, that a microbic cause will be found. Some derangement of the

endocrinous secretions seems to be the most promising field for future etiological investigation.

We are naturally not in a position to say much as to the action of the blood-serum when administered in the way that we have described. It is more than probable that the blood-serum reinjected is by no means just the same material that was withdrawn in the previous bloodletting. Blood-serum is an extremely complex material, and it is undoubtedly changed by its retention for a time outside the body, by the coagulation and centrifugation. The fact that in one case we saw distinct attacks of serum sickness follow its administration is proof of the fact. There can be no doubt that its administration in some way alters the sensibility of the skin, increasing its susceptibility to local medication, and at the same time diminishing its liability to the growth of psoriatic efflorescences and to reactive inflammation. How this is effected, whether by supplying a deficiency of some material elaborated by the endocrinous glands, or by stimulating one or more of them to renewed activity, or by supplying some material required for their action we are unable to say.

One further point deserves mention. Is it possible that the good results attained are due to the bloodletting alone? The thought has often struck me, as it must have struck others, that the generations of acute observers and able clinicians who practised bloodletting in so many affections cannot have been entirely wrong; they must have seen some good result in some cases at least. And there is at least one case of psoriasis on record to which our friend Dr. P. Brynberg Porter has called out attention, in which the late Weir Mitchell in his young days, being left in charge of a very bad case of psoriasis and not knowing what to do, put the patient to bed and bled her every day, and cured her disease. Bloodletting alone, however, has been tried, and has not given results. We do not think that the benefits of the procedure can be ascribed to it.—The *Homœopathic World*, April 1, 1915.

HEREDITY IN PULMONARY TUBERCULOSIS.

By G. Harlan Wells, M.D., Philadelphia.

I fully realize that it requires some boldness to argue before a gathering of medical practitioners the opinion that heredity exercises no influence whatever in the propagation and spread of tuberculosis. The conception of tuberculosis as an hereditary disease is so deeply rooted in the minds of the profession, and of the laity, and is so apparently well supported by a superficial review of the facts of personal experience, that he who attempts to question it lays himself open to adverse and often to harsh criticism. Scientific investigation, however, should not be hampered by an undue regard for the traditions of the past, and I do not hesitate to state that after a thorough study of this very important question I am convinced that neither tuberculosis itself nor a predisposition to tuberculosis infection are hereditary; and, furthermore, that the propagation of the hereditary view of this disease among the laity by the medical profession has sounded like a death-knell in the ears of many a curable patient, and has had a paralyzing effect upon efforts at prophylaxis and treatment that are at once rational and effective. I therefore ask that you will give fair and unbiased consideration to the facts that I shall present to you today, because they are of the utmost importance in the management and prevention of this destructive malady.

The hereditary conception of tuberculosis is founded on facts correctly observed, but in my opinion incorrectly interpreted. From time immemorial it has been noted that tuberculosis was very prevalent among the children of tuberculosis parents. As the true cause of the disease was unknown, it was naturally inferred that tuberculosis was a form of hereditary degeneration transmitted from one generation of a family to another. So fixed and definite were the laws of this hereditary transmission supposed to be that physicians did not hesitate to predict the ultimate death from the disease of apparently healthy offsprings of tuberculosis parents; and the unfortunate object of these doleful prophecies confidently awaited the advent of the destroyer with an air that was at once hopeless and pitiable. In the light of modern physiology there can be no doubt but that such a mental attitude largely contributed to impair the resisting powers of the body in such a way as to render more likely infection by the tubercle bacillus, and thus aided the fulfillment of the unhappy predictions. This in itself constitutes another reason why physicians should seriously consider their attitude in this matter, and if a careful study of the facts shows that hereditary transmission

plays little or no part in the spread of this disease we should lose no time in impressing this idea upon the public mind.

The first conclusion is that *the direct transmission of tuberculosis from parent to child almost never occurs.* I presume there are few physicians today who would seriously dispute this proposition. As Adami has very clearly pointed out in his able article on "Inheritance and Disease," in Osler's *Modern Medicine*, in order to have a truly hereditary transmission of tuberculosis from parent to offspring we must have tubercle bacillus present, either in the ovum or in the spermatozoon, at the time of conception. Gartner has shown by an ingenious experiment on guinea pigs that the chances that an individual spermatozoon fertilizing an ovum should contain a tubercle bacillus are 1 in 2,250,000. Even then it is doubtful whether a spermatozoon thus infected by a tubercle bacillus would not be so deteriorated in its vital power that fertilization would be impossible.

It is, of course, conceivable—and, indeed, we know that it has happened—that the fœtus *in utero* is infected by the father or through the maternal circulation. It must be borne in mind, however, that such an infection is a post-conceptional acquirement, and is distinct from true hereditary transmission. But even were it to be admitted, for the sake of argument, that parental infection constituted a sort of hereditary transmission, we find that it occurs so rarely as to be of no practical importance. In the medical literature of the world I am able to find only twenty authenticated cases of congenital tuberculosis recorded. Even Warthin, who is a warm advocate of the theory of placental transmission of the tubercle bacillus, admits that "the actual number of observed cases of placental tuberculosis is but thirty, and the cases of congenital tuberculosis in which the intrauterine transmission is beyond doubt are even fewer." The idea advanced by some that the bacilli are present in a latent form at the birth of the child is not in accord with our present knowledge of the tubercle bacillus, and has recently been conclusively disproven by the delicate tuberculin tests. For example, Von Pirquet, in a series of cutaneous tuberculin tests upon 147 children under three months of age, observed not a single positive reaction, and in 64 children between three and six months of age but three reacted. Professor Medin, of Stockholm, in a series of 400 similar tests on children less than one year of age, observed a positive reaction in but 10. The conception of the hereditary transmission of tuberculosis from parent to child is therefore untenable, and is worthy of no practical consideration.

My second conclusion is one that is more likely to challenge debate—namely, that *there is no hereditary transmission of a specific predisposition to infection by the tubercle bacillus to children of tuberculous parents.* In other words, I deny the inheritance of the *soil* as well as the inheritance of the *germ.* In making this statement I fully realize the frequency with which the children of tuberculous parents acquire the disease. The statistics of several thousand cases show that on the average about 50 per cent of the children of tuberculous families become infected with the disease by the fifteenth year. The studies of Floyd and Bowditch, of Boston, developed some interesting data on this phase of the subject. They examined 679 children who lived in the home of tuberculous parents and found pulmonary consolidation in 36 per cent; more than 66 per cent showed symptoms of tuberculosis in some form. Sachs, of Chicago, examined all the children of 77 tuberculous families, 264 in all, and found evidences of tuberculosis in 29 per cent. In 131 cases of pulmonary and meningeal tuberculosis Le Fetra found that the infected child lived in the home in close contact with tuberculous parents or friends in 40 per cent of the cases. But, says the advocate of hereditary theory, all this goes to show that those children had an inherited tendency to the disease. No more so, I reply, than the fact that the large percentage of the children living with parents infested by the pediculosis vestimenti who acquire a similar condition can be construed as evidence of an inherited tendency to such vermin. In each case transmission of the parasites to the new host is dependent upon close and intimate association of the infected or uninfected individuals; the question of the family relationship existing between the two does not enter into the matter.

There is no lack of facts to substantiate this point. The most conclusive perhaps is that while approximately 50 per cent of children of tuberculous parentage contract the disease if they remain at home, practically none of them acquire it if taken away from their homes in early infancy. The work of Epstein at Prague, and of Heller at Nuremberg, shows that children are completely preserved from the onset of the disease by this measure. At the orphanage of St. Martin, near Tows, 127 infants taken from tuberculous families were followed up for many years, and only three developed tuberculosis. Weill states that in the social tuberculosis work at Lyons he has removed 100 infants of tuberculous parents to a more healthy environment, and not a single one has developed the disease. These results are really astonishing, and there can be but one logical conclusion drawn from them—namely, that the essential factor in the acquirement of tuberculosis by children in tuberculous families is the

constant and prolonged exposure to the infective organisms. One of the strong arguments of the advocates of hereditary in the propagation of tuberculosis has been what they term the "habitus tuberculosus," or the tuberculous diathesis. They pretend to recognize the evidences of a disposition in the physical appearance of children of tuberculous parents. Prominent among the so-called stigmata of the tuberculous predisposition are cited pallor, malnutrition, enlarged lymphatic glands, diseased states of the bones, etc. We must recognize, however, that these conditions are by no means confined to children of tuberculous parents, but are found also in children born of healthy parents, who have been exposed to contamination by the tubercle bacillus. In fact, it is conclusively proven by clinical and post-mortem investigation that the pallor, the malnutrition, the enlarged lymphatic glands, etc., are evidence not of a tendency to tuberculosis, but to the actual presence of the disease itself. In other words, these children have not inherited from their parents any peculiar physical predisposition, but have developed the conditions above referred to as a result of the acquirement of the disease itself by post-natal contagion.

There is another well-authenticated fact the hereditary theory of tuberculosis utterly fails to explain—namely, the rapid and fatal spread of tuberculosis among nations new to the disease, especially the Indians and Negroes. Prior to the advent of the white man the disease was practically unknown among both of these races. An inherited predisposition could not therefore exist, and in fact, we would have a right, if this theory were true, to expect that a relative immunity would be present. Experience, however, shows quite the reverse to have been the case. Many tribes of Indians have been practically exterminated by it. Dr. Thomas Williams wrote of the Dacotas that of those over ten years of age who died of disease, one-half died of consumption. The death rate among the negroes in the United States is three times as great as the whites, while in parts of Africa, in the Bahamas at Gibraltar and other places they have succumbed to it rapidly. A noted writer on this subject states that "it has decimated the natives of probably every island that has been colonized by England during the last few hundred years." Certain writers have endeavored to account for the destructive influence of tuberculosis among these races by ascribing it to their unhygienic methods of living. These unquestionably have had their effect, but they cannot account for the fact that the death rate among the Indians and Negroes should be from four to five times as great as that of the Russian Jews of New York City, living in the most overcrowded portion of the Globe, in the midst of the direct poverty and

the most unsatisfactory sanitary conditions. And yet we know that tuberculosis has not existed among the Jewish race for forty centuries. Their comparative immunity strongly suggests the gradual development of a racial (and this necessitates the supposition of an inherited individual) immunity among nations in which the disease has been prevalent for many generations.

From the data just presented I feel fully warranted in stating that the idea of a hereditary predisposition to tuberculosis is a myth, born in the days of medical ignorance and kept alive today by tradition; that the so-called tuberculous diathesis, as evidenced by glandular, lymphatic and nutritional disturbances, is in reality a form of the disease itself; finally, that the prevalence of tuberculosis in the offsprings of tuberculous parents is fully and satisfactorily explained by post-natal infection (at a susceptible age) through constant and intimate association with infected individuals. Practically speaking, it is environment, and not heredity, that is responsible for the prevalence of the white plague.

Let us now consider briefly how the knowledge that the important factor in the propagation of tuberculosis is not heredity, but acquired post-natal contagion, is to be applied in the practical management of this disease. Should it be assumed that because the offsprings of tuberculous parents neither inherit the disease nor a predisposition to it, therefore they should be encouraged to marry and to rear children?

Nothing could be more fallacious. I wish to state positively that for a child to be born of a parent actively tuberculous is contrary to the welfare of the parent, of the child and of the community. The bearing of children is not only harmful, but in a large percentage of cases even fatal, to a tuberculous woman. The child itself, unless the mother is in a very advanced stage of the disease at the time of its birth, is usually sound and healthy; but if we wish to assure ourselves that it will remain so it must be removed at once from the tuberculous family and reared among uninfected people. Such a measure as this is not only opposed by the parents, but deprives the infant of the maternal care and solicitude which, if not necessary to its proper development, is certainly desirable. The economic cost of such a prophylactic measures, also, is such that it is entirely impractical among the great mass of people.

As we have previously indicated in this paper, approximately 50 per cent of the children reared in tuberculous families become infected with the disease *by the* fifteenth year. The largest percentage of infections occurs after the first year. There is only one positive

method of prevention, and that is the immediate removal of the child from the infected family and placing it in a healthy environment. When this is impossible there are two principles that we must keep in mind in instituting prophylactic measures—first, *the prevention of infection by direct contagion through association with the tuberculous person or persons;* and, secondly, *the maintenance of the bodily health of the child at the highest possible point.* In carrying out the first of these principles—namely, the prevention of contagion—the most rigid precautions must be observed. At no age is the human organism more susceptible to infection by the tubercle bacillus than between the ages of one and five years, and the opportunities for infection during this period are most numerous. A tuberculous mother should never be allowed to nurse the child at the breast. *Artificial* feeding on milk free from the tubercle bacillus should be advised. A tuberculous parent should not be allowed to kiss the child on the lips, and should exercise great care not to cough in the child's face. The child should sleep in a separate room, which should be thoroughly ventilated. Crawling around on the floor on a dusty carpet, and putting in the mouth objects that are lying around in the room occupied by a tuberculous individual, should be prevented as far as possible.

It is readily understood, however, when we come to the practical application of these measures, that in the average family they can only be partially carried out, and the opportunities for infection are so numerous and so constantly present, that it is small wonder that so many children acquire the infection.

All children of tuberculous parentage should be closely watched, and should they develop suspicious signs of infection they should be carefully tested by tuberculin, and treated at once if the reaction is positive.

The maintenance of the bodily health at the highest possible point requires the institution of a hygienic method of living, with minute attention to detail and the intelligent co-operation of the parents. Where these conditions can be met the results are highly satisfactory, and will fully repay the family physician for his efforts in this direction.

After all, the solution of the tuberculosis problem lies in the care of children, for the investigations of recent years have shown that the vast majority of cases of tuberculosis among adults can be traced to the stirring up of a latent infection acquired during childhood.—*The Medical Advance*, April, 1915.

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THE SMOKE PROBLEM: SANITARY AND MEDICAL CONSIDERATIONS, LEGAL REDRESS, EXISTING ORDINANCES AND PROPOSED REGULATION.

By Edgar R. Bryant, A.M., M.D.

For centuries efforts towards abating smoke have been spasmodically attempted with more or less ineffectual results.

Coal was discovered in England in the ninth century, and from that time on, while people have believed that smoke arising from its improper combustion is inimical to health, no successful method of combating this nuisance has been devised until recently. In the time of Queen Elizabeth the burning of coal and powder was prohibited during the meeting of Parliament lest the health of the lords should suffer from inhaling their pernicious gases. In 1661 an author contemporaneous with Charles II wrote: "The foul smoke which sullies all London glories, superinduces a sooty crust upon all things that it lights upon, spoiling the buildings, tarnishing the plate-gildings and furniture and corroding the iron bars and hardest stones with those piercing and acrimonious spirits which accompany its sulphur, and exciting more harm in one year than the pure air of the country could effect in hundreds—besides killing all our bees and making our gardens barren." Other writers have also decried against its nuisance, but it was not until 1819

that the Parliament of Great Britain appointed committees to devise ways and means for smoke prevention; and while the result of their labors has been to reduce, in an appreciable manner, the smoke of London, its baneful effects are still to be seen on plants, animals and men.

Prof. C. Roberts is quoted as having attributed 20 % of London's fogs to the smoke of her multitudinous chimneys, and to have estimated the weight and material of the canopy that inefficient combustion daily hangs over the city to be fifty tons of solid carbon and two hundred and fifty tons of carbonic oxide gas, acids and hydrocarbons. Shelley described Hades as "a city much like London—populous and smoky."

London, however, is at last awakening not only to the frightful price its people are paying in sickness, disease and death, but to an annual economic loss estimated at £4,000,000, and with increasing rapidity and effectiveness is doing away with its greatest of all nuisances. Our American cities, too, are looking to the new light of a brighter, cleaner, more nearly smokeless day. Where once belching chimneys, soot-laden air, clanging noises and landscapes blighted with flaming billboards and ten thousand intruding poles and wires were considered signs of municipal push, prosperity and business health, such evidences are now more often rightly termed municipal ignorance and business gangrene.

It is the right of every human being to enjoy pure air and sunshine. May this relief be not long in coming to the unfortunate, smoke-oppressed, dwellers of large cities, forced, as they are by the smoke conditions, to shut themselves in to inhale poison, breath-laden air— these poor creatures, who, try as they will, cannot keep clean, and finding it a useless task, choose dark and sombre furnishings rather than more cheerful ones, become depressed, careless and dirty, and rear their children in filth and squalor. Such children too often become dull, apathetic and not infrequently criminally inclined.

Carbon dioxid is an invisible, colorless gas; if inhaled pure it produces asphyxia and death. Small quantities of this gas,

largely diluted with air, first stimulate, but later depress the nervous, respiratory and circulatory systems. The reflexes are increased, the pulse becomes slow and weak and the respirations very shallow. Locally applied it acts as a stimulant to both the skin and mucous membranes, producing a sensation of tingling and causing considerable redness. Carbonic acid is absorbed by the skin and mucous membranes and is eliminated by the lungs.

Carbon monoxid, an invisible colorless gas, has a strong affinity for the hemoglobin of the blood which it enters through the lungs and forms with the coloring matter a fixed compound that destroys the function of carrying oxygen to the tissues. The air is poisonous when it contains 0·05 % of this oxid. It burns, forming chiefly carbon dioxid.

Sulphur dioxid, another enemy of all plant life, although invisible, has a strong odor that renders it irrespirable. This poison is generated wherever sulphur is burned in the air, and is known to be the principal cause of the damage done by the smoke from smelters.

Hydrogen sulphid, if inhaled pure, is immediately fatal. Even when diluted to 1 % it kills, though more slowly. Its symptoms are nausea, vomiting, depression, giddiness, headache, labored breathing, stupor, coma. Air contaminated with hydrogen sulphid acts as an insidious poison, partly by its power of reducing the hemoglobin of the blood corpuscles, but mainly as a direct paralyzer of the nerve centers of the lungs and heart. The odor is perceptible when one part is present in 10,000 of air. When sulphur is burned in the air most of the chemical is transformed into sulphur dioxid, but a small quantity of misty substance, sulphur trioxid, is formed. It is anhydrid with moisture and forms sulphuric acid, the corrosive action of which on all forms of matter is well known. Hydrogen chlorid (hydrochloric acid), an invisible gas with a sharp, penetrating odor, is harmful to animal and vegetable life. Chlorin, a gaseous element more than twice the density of air, of a greenish color, and strong, suffocating odor, irrespirable, and even in a state of dilution is very irritating to the air passages. Ammonia, a colorless gas having a pungent

odor, is irritating to the eyes and the mucous lining of the air passages. Of the nitrogen oxids of interest physiologically, nitrogen tetroxid (N_2O_4) is a deadly vapor. Persons breathing it habitually suffer from chronic bronchitis, with cough, suffocative attacks, dysuria and delirium. The symptoms may culminate in death. In nitrogen monoxid (N_2O), laughing gas, the organism does not have the power to utilize the oxygen in the gas when inhaled.

Chronic arsenic poisoning presents a wide range of symptoms, as asthma, resulting from irritation of the bronchial mucous membrane, multiple neuritis producing symptoms resembling those of locomotor ataxia or tabes dorsalis; pigmentation and irritation of the deeper layers of the skin, areas of anesthesia, muscular atrophy and localized motor palsies, usually confined to the toes.

Chronic lead poisoning shows a blue line on the gums, due to the formation of sulphite of lead in the capillaries of the gums. Wrist-drop owing to paralysis of the extensor muscles of the forearm results. Painter's colic, an agonizing griping pain above the navel, is a prominent symptom. Universal neuritis, producing symptoms similar to locomotor ataxia, may be present.

Soot, the unburned carbon often containing traces of sticky tar, is injurious to vegetation and creates a nuisance. It settles on every object in the city, on houses, and if windows are open, on books, tables, chairs, linen, etc., increasing laundry bills and fostering tuberculosis by keeping the air laden with carbon particles to lodge in the bronchial tubes, setting up an inflammation.

These are the unvarnished facts. Let London, Pittsburgh, Chicago,—let every little hamlet that owns a tall smoke stack, look out for the lives of its children and its plants. San Francisco is acknowledged to be the best naturally ventilated city in the world. Fortunately most of our smoke producing chimneys are near the water front, where the brisk west winds arrest and waft the pernicious vapors over the bay. And yet, in the

face of this proud boast, the dwellers upon Russian Hill, among whom live a goodly percentage of our artistic and literary colony, are complaining bitterly because they must either keep their windows down, or give over to destruction their *bibelots*, their curtains, carpets, in fact all of their house-hold belongings.

In the majority of our large cities ordinances have been passed prohibiting the emission of dense black or gray smoke from chimneys, and prescribing the appointment of inspectors and the imposition of fines or penalties for the infraction of the law.

All of the smoke ordinances of the cities of the United States and Canada agree in most particulars. They all prohibit dense black or gray smoke except for a prescribed few minutes in certain hours of the day, but differ somewhat in the regulation of the ordinances as to the appointment of the inspectors and the infliction of penalties.

Boston classifies stacks according to the style and size of furnaces, following the Ringlemann chart, which shows the density of smoke that may be emitted from various types of chimneys and duration of such emission. It specified increasing restriction each year until 1913 The statute is well supported and excellent results are reported. For first offence the fine is not less than ten or more than fifty dollars, and not less than twenty nor more than one hundred dollars for every succeeding offence.

Buffalo prohibits discharge or escape into the open air of large quantities of smoke, soot, dust, gas, steam of offensive odor, or to permit or allow any smoke, soot . . . . to escape in such a manner or in such quantities as to cause or have a natural tendency to cause injury, detriment or annoyance to any person or persons or the public, or to endanger the comfort, repose, health or safety of any person or persons, or the public, or in such manner as to cause or have a natural tendency to cause injury or damage to business or property. Fine not to exceed $250.00 for each and every offence.

Cleveland allows no period of emission of dense smoke. Issuance of dense black or gray smoke is a nuisance and is prohibi-

ted. Fine not less than ten, and not to exceed one hundred dollars. The Cleveland Chamber of Commerce has done much towards improving the smoke conditions.

Chicago provides for a department of smoke inspection, and allows no new power plants to be built or old plants reconstructed until plans and specifications for such work have received the approval of the smoke inspector, and until a permit for such work has been issued. Fee for inspecting plans and specifications or new plants and of plants about to be constructed, $2.00; for inspecting plans for repairs and alterations, $1.00; for examining plants after erection or reconstruction and before their operation and maintenance, $3.00.

Cincinnati prohibits emission of dense smoke in accordance with the established standard for its permissible density, and allows a period, not to exceed six minutes in any one hour, during which the fires are being started.

Los Angeles, using almost exclusively oil fuel, establishes a standard of density of smoke which is 19% black, or a density about No. 1 of the Ringlemann chart. Emission of smoke of greater density for more than five minutes in any one hour is prohibited. It is to be noted that though using oil in firing so as to prevent black smoke is less difficult than similar firing of coal, these specifications as to density and time of emission are much more difficult to comply with than similar regulations in other cities. Nor are private dwellings exempt in Los Angeles, as they are in other places. There is no provision for inspection of new, or reconstructed furnaces, but no one may erect or maintain any chimney within fifty feet of any window adjacent unless the height of such chimney be greater than every portion of the aforesaid window.

New York City demands that no person shall cause, suffer or allow, dense smoke to be discharged from any building, vessel, stationary or locomotive engine or motor vehicle, place or premises within the city, or upon the waters adjacent within the jurisdiction of said city. All persons participating in any violation of this provision, either as proprietors, owners, tenants,

managers, superintendents, captains, engineers, firemen or motor vehicle operators or otherwise, shall be severally liable therefor.

Pittsburgh provides against emission of dense black or dense gray smoke except for eight minutes in any one hour, and imposes a penalty of not less than $10.00 and not more than $100.0 for each offence. In default of payment of fine and costs the penalty is imprisonment in the workhouse for thirty days or less. Each day in which smoke be emitted shall constitute a separate and distinct offence.

This brief resume of the legislative efforts of the chief cities of our country will show what means have been expended by them to secure an amelioration of smoke conditions. Much has been accomplished, and the future gives bright hope of great advances throughout the land.

Are cities to continue with this unwholesome, soot-distributing pall hanging over them, or shall they accomplish the passage of legislation necessary for the abatement of the smoke nuisance? Without injury to any enterprise, and with but a primary slight expense, and secondarily a great saving, ordinances can be passed that will give the cities many more clear, healthier, and vastly more enjoyable days than they now know.—The *Journal of the American Institute of Homœopathy,* May 1915.

CLINICAL VERIFICATIONS OF RADIUM BROMIDE AND PYROGEN

By A. L. Cardozo, M.D.

There is no chemical or drug in the whole world that is attracting more attention to itself at the present time than radium. In scientific circles great wonders are predicted for it. Among professional circles research and experimental work are going on, and the possibilities of its effect on the human system, internally and externally, are most alluring. The laity are anxiously looking on and watching the daily press and weekly magazine to read another glowing statement of its powers.

Radium is a metal which possesses the properties of emitting rays of light, heat and chemical action. It was discovered by Professor Curie and his wife in the Industrial School of Physics and Chemistry in Paris. In 1896 it was found that uranium and all its compounds continually emit radiations which have a penetrating power similar to that of X Rays. Working on these theories Prof. Curie, after a number of experiments, in 1902 produced the first chloride of radium the world had known.

It is unfortunate that the bold statement of the scientist is magnified to meet the wild dreams of the experimenters, as in that way pendulum of enthusiasm often swings too fast, and it must oscillate backwards and forwards many times before a rational standard is reached.

It is supposed to be a specific for carcinoma. Let us see just how it does act.

"The alpha and beta rays which constitute the greater part of the radiation are called soft rays and have little power of penetration. They are absorbed completely by the superficial layers of tissue, and the quantity absorbed by each cell is so great that the tissues are destroyed, and the action of the rays are caustic. The hard gamma rays represent only about one per cent. of the radiation. They penetrate into the deeper layers of tissue and exert the selective action on the cancer cells."

The rays do not destroy the cancer in mass but change the size and shape of the cells. From hypertrophied cells and large round cells, they become small, flat and spindle shaped cells. Before these cells can regain their normal condition, connective tissue cells appear and a leucocytosis takes place and those cells that have been affected by the rays are absorbed. It will thus be seen that in a large cancer mass, one must have many radium tubes and a number of treatments or the local treatment of the disease will fail. When there are deep crypts and the lymph nodes are affected, the local rays will not cure, and we must still resort to surgery and radium for the best results.

For many years the world's famous baths and springs of Europe have claimed marvelous cures in kidney affections, rheu-

matism and gout. Careful chemical analysis (?) showed various combinations of salts. In this country our spring-waters show an equal, if not a greater, percentage of salts, but the same cures cannot be affected. What is the reason? It is now known that the real virtue of the curative powers of the foreign springs does not lie solely in their salts, but in the radio-activity of waters. Within four to twenty miles of these famous baths, bodies of uranium, or pitch-blend ores have been found in the mines, and radium contained in these ores has emitted its radio-emanations to the waters flowing through underground conduits, finally reaching the various springs.

It is a matter of interest to us, however, to know that in our own country, in the State of Colorado, are to be found the largest beds of pitch-blend and other radium-bearing ores in the world. The Curies received their specimens of pitch-blend from these veins. Within two miles of the mines, containing these deposits are the famous Idaho Springs, which, for their curative powers, even surpass the well-known foreign springs.

But we do not need to send our patients away to be treated, for if radium is indicated the homœopathic physician has in his armamentum the radium bromide pure that is safe in its action, and stable in its potential energies. The R.B.P. that I have used is made by B. & T. Co. and is 4,000,000 strength, (See B. &. T. Report) and can be readily had.

There have been many exhaustive tests made and recorded from internal use of R.B.P. and it would be lengthy and uninteresting. I will not go into details, but refer for symptomatology to the Journal of the American Institute of Homœopathy and the NORTH AMERICAN JOURNAL OF HOMŒOPATHY and I will confine myself to the most important action of the drug and my own personal experience with it.

Its action on the circulatory system is very marked, as is shown by the greatly lowered blood pressure. In cases where glonoine has given very little or no relief, radium has effected a perfect cure. The elements of the blood itself are altered and

an increase in the leucocytes is noticed, sometimes as much as 30% to 50% for the polymorphonuclear neutrophiles above the normal. Thus it would seem that it would be a very valuable remedy in some surgical cases or in long continued fevers where there has been a drain upon the system, with a lowered power of resistance. With the high blood-pressure we get those congestive headaches that are so trying to our patients. It will be well to remember radium in these cases. In menstruation, where the congestive and crampy pains are nearly unendurable and the headaches almost drive the patient wild, I have seen the 20th work wonders. I will state two cases to show the different types.

Case I. Lady 24 years old, married one child, for over a year had severe headaches as if a weight were pressing on her head, her eyes were heavy, and sight was sometimes dimmed. Headaches would last for about three weeks, growing worse, and worse, as the time for menstruation drew near. Menstruation was regular twenty-eight day type, but it was very scanty only a few drops each day for two or three days. I had tried sepia, glon, puls and graph. These remedies seemed to do a little but not enough, I then gave her radium 30th, one tablet in the morning, and one tablet at night, for one week. The result was far better than I had dared to hope for. The headaches entirely disappeared and the menstruation is much freer and greater in quantity. For the past five or six months, she has had no other medicine and has had no headaches. She says: "Life is again worth living."

Case II. Lady, married, aged forty-five, mother of four children. General health has been good. For about three years has been suffering with severe headaches. Felt as if her head would burst. Could not lie down. Must tie a band tightly around her head, and must have air. The first and second days of menstruation, was forced to remain in bed because of the combined pains of the headache and uterine cramps. At such times, it was often necessary to summon the nearest physician, and a hypo. of morph. had to be administered.

The usual remedies for these cases were given, but only gained paliative relief. Radium bromide 30th was given twice daily, with instructions to be continued for a period of ten days. At the end of the third day, however, patient called at my office to ask should she continue to take the medicine, as it seemed too strong. She felt like a new woman saying that she knew she had a head, but was unconscious of its possession. It is nearly three months since her last attack, and there has been no recurrence of the headache. Her general health has greatly improved.

On the skin it has a very strong influence. One of my cases developed a red rash, which itched severely, and a great number of little pimples with light serous fluid in them. Another case where the skin on the extensor surfaces of the arms and legs and on the back, was covered with pimples, some of which had the light, serous fluid, and some of which contained a drop of pus.

Another case resembled psoriasis, except that the patches were very small and fine, bran-like scales would peel off on the slightest motion. This case did not respond to arsenicum, iodide, sepia or sulph., but radium bromide 30th cleared it up within a week.

In rheumatism radium acts similarly to rhus tox, as much as the pain seems to be relieved by motion and by dry heat. But where rhus tox affects more the muscle-sheaths and tendons, radium seems to act more favorably on the synovial membranes and their surrounding tissues. The joints are swollen, red, and very painful. It appears to afford better results on the smaller joints, as the wrist and fingers, and the great toe-joints, where it resembles gout. It is possible that these results are obtained by its action on the kidneys by greater elimination and increase in the amount of uric acid in the urine, thereby promoting better metabolism.

The action of the radium on the kidneys is very marked. Some writers have observed that it increases the amount of uric acid, albumen is present and some casts have been found. When given in the sixth potency, the urine itself becomes radio-active.

I will conclude my paper by citing two cases that will show how beautifully a well-selected remedy will act, when the odds are apparently against us.

Case I. I was called to see a child three years old, who had been treated and given up as hopeless. I found his entire body and face swollen beyond recognition or description, and water oozing from many places where the skin had burst. He had not voided for eighteen hours, and he was lying in a state of coma. I placed hot packs around him, ordered a laxative enema and gave him apis 3. The next morning he was a little better, and treatment was continued for another twenty-four hours. Other conditions arose which decided me on changing the medicine to mer. cor. Under this remedy he responded so that in a week's time he was able to be up and about in the house but the urine was still loaded with albumen. For the next month, his condition remained unchanged, the albumen varying from about ten to fifty per cent. I gave him a few doses of radium 36th. The urine cleared, was free from albumen, his general health commenced to improve. Since then, for eight months he has reported to me the urine has remained clear, and he is now a strong, sturdy, normal little chap.

Case II. A young man twenty-six years old, had been troubled for some years with kidney and heart affections, as his doctor told him. His pulse was rapid and of a high tension. He complained of headaches, as if a mailed hand were placed over his right eye and extended backwards, and that pressure would almost make him scream. He had some gastric and intestinal disturbance for which I was treating him, and thought at the time that the headaches were due to that cause. It was only after consultation with his old family physician that the kidney trouble was first mentioned to me. In a letter his physician wrote me, he said that after a careful examination, he did not think the patient would live more than two weeks, as his kidneys were so bad, and his heart could not stand the strain. Examination of the urine showed about twenty per cent. albumen, coarse and fine granular casts, and some hyaline

casts. The blood-pressure was very high, judging by the tenseness of the arteries and the violent throbbing of the temples. His longing for fresh air day and night was a characteristic symptom. 'The usual remedies having failed to bring relief, and the patient gradually growing worse, my attention for the first time was called to the internal use of radium. This remedy appeared to act like magic. His headaches ceased over-night, and I had difficulty in keeping him in bed after a few days. The urine increased in amount,' the specific gravity became almost normal, albumen and casts gradually disappeared. Within a month, this young man, instead of being buried, went to Atlantic City for recreation and change of air and scene. For two years he was under my care, but only for observation, as none of the former symtoms reappeared. He then went west, and for the following five years, was in normal health.'

Clynical verifications of Pyrogen. The old adage:—"Great minds flow in the same channel" very often finds verification in medical circles. While the students of the old school were in their laboratories, working with ceaseless energies with their chemicals and high-powered microscopes, carefully differentiating streptococcus, staphlococcus and diplococcus, and the many other micro organisms that go to make a direct or mixed infection found in the purulent dicharges, the thinkers of the new school were working along similar lines, but from a different stand-point. Their task was infinitely more simple and yet scientifically on the same basis. In 1875 Burdon Sanderson made the statement that only liquids that contain bacteria or have a marked proneness to their production are capable of setting up a pyrexia. He also advanced the theory that it is a chemical, non-living substance, formed by living bacteria, or by living pus-corpuscles, or by the living blood or tissue protoplasms from which these corpuscles spring.

The scientists of the old school having differentiated the micro-organisms in the purulent discharges, and recognizing the absorption of the bacteria or their products, into the system, with the resultant fevers, advanced the theory of the anti-toxin as its cure.

John Drysdale, a renowned homœopath, five years after Sanderson's remarkable statements were made, working with those theories as a basis, was the first to suggest the use of pyrogen as a medicament. On the Hahnemannian principle of similia, he decided to try a trituration from the purulent abscess itself. Thus pyrogen may be truly called a homœopathic "anti-toxin." It did not come into extensive use, however, until Burnett published his phamphlet on "Pyrogen in Fevers and Blood Poisoning" in 1888. Since then it has been used in both high and low potencies.

Pyrogen, also known as pyrexin and sepsin, is a product of the decomposition of chopped lean beef in water, allowed to stand in the sun for two or three weeks. This is then filtered and the resulting fluid is the direct φ.

Sepsin is made directly from a purulent abscess but, as its chemical action is about the same as pyrogen, it is not used as pyrogen.

I will not attempt to give a detailed account of its action and symptomatology, but just a general statement showing the underlying value of its use.

I do not think that it is indicated in acute febrile conditions, or when boils or abscesses of new formations have appeared. In these cases it would not supercede hepar s., merc. cor., silicia, or baryta carb., or in bone-abscesses, where one would consider calc. fl., fl. ac., merc. cor., phos.

But when the well-selected remedies fail to act, or to maintain the ground that they appear to have gained, and one finds a low grade septic condition, with a slight rise of temperature, chills, and a breaking down of strength, and vital forces, it is then that one should consider pyrogen and should get the best results.

In typhoid fever, pyrogen is of great value when the fever has run a long course of high temperature. In that stage when the disease is at its height or when the tissues begin to disintegrate, a few doses of pyrogen may change the whole aspect of the case. In hemorrhagic conditions, when the toxic

products of the disintegrated Peyer's patches may be absorbed by the blood-stream or, breaking through into the peritoneal cavity, set up a septic peritonitis, pyrogen may neutralize purulent actions. And yet again, when a fever continues for a long period, and the patient appears not to respond to well-chosen remedies, and the vitality seems to be ebbing away slowly, pyrogen, in the high potencies, will very often check that low-grade fever, and give the patient a new lease of life.

I have also found it of great service in a case of bone-abscess, when it worked in a manner that was gratifying, to say the least.

Case I. Lady, about 83 yeas old, had not been sick for over twenty years. For several months she had been complaining of loss of appetite, and did not sleep well. Felt very weak and not as strong as she was. Occasional headaches. She responded to the usual remedies and was able to be up and about the house. One morning she had a pain and swelling in her neck, just under the jaw bone. An abscess formed and it did not tend to heal.

Baryta carb. and merc. cor. were given her and surgical dressings applied, but the tissues kept on breaking down. The neck was then incised, the edges curretted and the whole wound surgically cleansed. There catgut sutures were put in to bring the parts together again, and a small drain was left in place. In two days, two of the sutures had sloughed through and the neck was in a worse condition than it was before. Patient had been running a temperature of 99-101. At this stage pyrogen 30 was given T.I.D. for two days. At the end of that time there was a normal temperature and neck was not discharging,—the whole wound seemed smaller. Pyrogen 230, 1 dose, was given and three days later the neck was entirely healed. Patient never had a recurrence of the condition and lived for over one year longer and died of senile atrophy and acute cardiac dilation.

Case II. Boy 16 years old, who had some trouble with his teeth. This appears to have been neglected, and some months later an abscess of the jaw formed. The family doctor was

called in and gave him some poultices, and some mouth-wash, which did not seem to relieve the condition. He made a small opening in the lower angle of the jaw and tried to drain in that manner. Condition went from bad to worse, fever going up to 103 $\frac{3}{5}$, when I was called in to see the case. I found the abscess extending from the lower angle of the jaw all along the ramus, around to the dental foramina on the opposite side. The whole jaw-bone was involved. The left side of the face was so swollen as to completely close one eye and the mouth could not be opened more than $\frac{1}{4}$ of an inch

We took him to the hospital, made free incisions and got thorough drainage in hopes that that would relieve conditions but, after several days, the temperature still remained high and the pulse getting weaker. We knew that more radical operation had to be performed, laying open and curretting the whole jaw-bone, clearing away all necrossed tissue. We packed the wound with iodine on plain gauze and had good drainage. We left the dressing around it for three days, then, in the presence of four or five physicians and surgeons, we took this dressing off. The swelling had gone down, but the purulent discharge was so abundant and the odor so characteristic, as to elicit the comment spontaneously from several of the physicians: "That's Ripe." We put him on pyrogen and irrigated the open wound with normal saline solution. In two day's time the temperature was 99, the discharge had stopped, and the odor gone. Two days later the wounds were beginning to granulate in a healthy manner. Patient was getting his appetite again. There was no more discharge, and his condition was very much improved.

We then continued the plain dressings, stopped the pyrogen and gave him radium 30th. Patient made an uneventful recovery.

In septic conditions such as puerperal infections, or post-partum septicemia, with their discharges, foul odors, and constant fevers, where douches are impracticable and do no good, pyrogen will be found to be of inestimable value. The following cases will speak for themselves.

Case III. Age 26 years. Patient was delivered at term of a full-grown child, condition apparently normal. Forty-eight hours after delivery, patient had a chill and temperature rose to 103, pulse 125 with a scanty flow lochia. The mixed vaccines (Van Cotts) were given, three doses twenty-four hours apart. Temperature gradually came down to normal in three days, remained so for 8 to 10 days, when patient had another chill, temperature shot up to 103⅘, and was in a very bad condition. She was brought to the hospital, incision was made in the cul de sac, which was irrigated and packed with the iodoform gauze. Patient did not seem to get any better, and temperature remained around 101 at night, 100 morning temperature, but the patient's strength was gradually becoming weaker. The face was very wan and white, pupils dilated and no strength or any motion was left in the patient.

Three weeks after admission, the patient had been running this temperature for this time. Pyrogen 30th was given Q. 4 h. Within 24 hours the temperature commenced to go down, and in 48 hours it was normal. The discharge gradually stopped, and the patient showed all signs of improvement. Three days later she was sitting up out of the bed, and, in two days following insisted upon going home for further treatment, as she was able to walk across the room, and take her meals with a ravenous appetite.

Case IV. I was called in to see this patient for the first time, one afternoon and found the woman 27 years old. Menstruation was regular up to three months previous. For the last ten days, she claimed to be menstruating, but from her physical appearance, it struck me she was a very sick woman. Temperature 105 3/10. Pulse 156.

I decided that it was something more than a normal condition that confronted me. Physical examination showed uterus enlarged about the size of a child's head and very boggy. Dark brown discharge flowing freely. We took her to the hospital and carefully evacuated uterus, taking all surgical precautions necessary for such a case.

The doctors who were with me were making bets whether I would sign a death certificate that night, or within 12 hours. None of them gave me the slightest hope of saving my patient, 24 hours after curettage. The next morning the temperature was 103,—pulse 130, and condition not very good. I put her on pyrogen 30 Q. 4 h. Her temperature gradually went down, the discharge gradually cleared with the odor becoming less and less offensive, and in seven days her pulse, temperature and respiration were normal. Tonic treatment, rest and diet include the rest of the treatment. The patient made an uneventful recovery, but to my mind, undoubtedly her life was saved by pyrogen.

Discussion of dr. Cardozo's paper on radium.

Dr. Coleman: Dr. Cardozo's paper on radium shows the homœopathicity of the drug to the cases he cites. I have here a proving of radium bromide made by Dr. Dieffenbach which gives the headaches both occipital and vertex which appear right through the proving. Better in the open air, dull headache over left eyeball, darting pain over left eye, as if moving bodies in the eye. Regarding blood pressure I do not follow the homœopathic application so closely. Following are a few symptoms from the proving. The systolic pressure before proving was 111 m.m. and after proving it was 110. Strength of remedy 12x. Another proving showed 120 after; another was 120 before and the same after proving and another was 135 before and 120 after. I have had gratifying experience with radium brom. 30x in rheumatism where rhus tox only partly helped or did not help at all. In one case of severe sprain where there had been a tearing of the ligaments about the ankle joint radium brom. 30x proved of great value after rhus tox ceased to relieve.

Radium brom. has the symptom of pain on first moving the part, but relief from continued motion. I want again to congratulate Dr. Cardozo on his excellent prescribing.

Dr. Wood spoke of a case of eczema of the nipple in a woman who was a decided brunette. It was a condition in which the papules were arranged in rows, and when the scales were removed

it left a bleeding surface. Petroleum was given without result, but radium bromide paste cleared the condition up. It was not given internally.

Dr. Fiske: I have used radium in a case of arthritis deformans, in which it was used as a last resort and, I am free to say, without result. I have used it in other cases of rheumatism articular, and in hypertension and I can say that it has been absolutely negative in rheumatism and in hypertension of no avail. Homœopathic materia medica is naturally quite barren in the treatment of cases of hypertension because when most of the materia medica was written, the subject was practically unknown. We can treat symptomatically and get results without question, but there are many symptoms that correspond to conditions that baffle us. If radium bromide will help us, I think it is a remedy that we can frequently bring into use. If we were to go into the subject of hypertension it would lead us far afield from radium bromide. I have a recent, or present, experience in the treatment of this condition which has led me to believe that picric acid in some form is one of the most efficient remedies that I have found in all the materia medica. Most hypertensions are associated with some form of renal degeneration and picric acid has done more for me than any other remedy.

DISCUSSION OF DR. CARDOZO'S PAPER ON PYROGEN.

Dr. Coleman: Pyrogen, pyrexin or sepsin is a product of the decomposition of lean beef. Septicaeminum is made from the contents of a septic abscess. The introduction of nosodes into medicine was made by Dr. Lux in 1823 and shortly after Dr. C. Hering took up the idea. Both Lux and Hering taught that these substances should be attenuated. Many years later Pasteur and Koch revived similar teaching. It is interesting to note that Swan antedated Koch in the use of tuberculin (bacillinum), and to Swan, a homœopathist, not to Koch belongs the credit. Burnett developed the action of bacillinum and did better work than Swan or Koch. One reason why he obtained better results than Koch was the less frequent repetition of the dose; he gave the drug a chance to react. Koch repeated his

doses too often. The repetition of the dose is most important, and I believe that both classes of men, those who repeat too infrequently are at fault. In cases of chronic tuberculosis better results are obtained from baccillinum when used infrequently. This is not true of all remedies used in this disease, however. In the case Dr. Cardozo relates better results followed the frequent use of the remedy. In intermittent fever single doses excell those constantly repeated, but in acute rheumatism the reverse is the case. I have had to give narcotics or coal tar products in my cases of rheumatism, but the remedy must be given low and frequently repeated. Rheumatism exhausts the dose rapidly. Drysdale repeated his dose of pyrogen every two hours in typhoid fever and gave the remedy in low potencies. Burnett attenuated his remedy to the sixth, in which strength decomposition did not take place. Too little attention is paid to homœopathic pharmacy and it is remarkable to see so little knowledge among physicians and students regarding the technique of the preparation of drugs. Certain substances, pyrogen, phos., etc., will decompose in the lower potencies; the sixth or higher potencies will keep. Pyrogen will act better in cases which are similar or homœopathic. Superior results are obtained in cases of septicaemia than in cases of sapraemia. Pyrogen is a more perfect curative agent when used as a homœopathic remedy than as an isopathic remedy. Pyrogen is isopathic to sapraemia. I do not believe with a certain member of our school that giving the autogenous remedy is the purest homœopathy. It is not homœopathy; it is isopathy. It cannot take the place of the homœopathic remedy as a means of cure. Nevertheless autotherapy is of value in certain cases and we must not ignore it. We should "prove all things and hold fast to what is good."

Pyrogen resembles baptisia, rhus tox and arnica. It has restlessness, bed feels too hard, carrion like oder of the secretions. It has similar symptoms to certain cases of typhoid fever, and in such cases acts better than when used isopathically. I have had more experience with hepar sulph., silica echinacea and the other homœopathic remedies than with pyrogen. Drysdale

called pyrogen the aconite of typhoid fever, with the restlessness, foul odor of the secretions, chill in the back between the scapulae, etc. The cases noted by Dr. Cardozo are most instructive and I wish to give him my cordial congratulations on his results. He has a keen appreciation of the homœopathic materia medica and is a fine prescriber.

Dr. Shaw: I was present at the operation on the boy whose case is mentioned by Dr. Cardozo. The extent of the necrotic portion of bone was surprising. The condition responded to the combined treatment of drainage and pyrogen in a remarkable manner.

Dr. Cardozo: This young patient had his jaw locked and we could only wedge a knife between the teeth. Dr. A. H. Bogart made a free incision across the length of the jaw merely leaving space where the arteries and nerves are situated. Dr. Bogart said at the time that he believed the best I could do in the case was to have a sinus, or perhaps two sinuses which would be open and running for months. The condition improved so rapidly under the pyrogen that I had difficulty in keeping the wound open to get a good drainage.—The *North American Journal of Homœopathy*, May, 1915.

EDITOR'S NOTES.

The Late Dr. John W. Hayward, M.D., M.R.C.S., L.S.A.

In our March number appeared the obituary notice of the late Dr. John W. Hayward, which was a reprint from the January number of the *North American Journal of Homœopathy*. This obituary notice first appeared in the December number of the *British Homœopathic Journal*, so the editorial note there was not by the editor of the *North American Journal of Homœopathy* but by the editors of the *British Homœopathic Journal*. And we thank the editors of the Journal for having drawn our attention to this. We regret for this omission of acknowledgment which was not intentional but merely an oversight.

The Chemistry of Rice Polishings.

The curative substance of rice polishings is still resisting analytical attempts to isolate a definitive principle. Some recent work by J. C. Drummond and Casimir Funk upon this subject is recorded in an interesting paper published in the December number of the *Bio-chemical Journal*. These workers carried out an exhaustive fractionation of the phosphotungstic acid precipitate from an alcoholic extract of rice polishings. They confirm the presence of considerable amounts of choline and nicotinic acid in the polishings, and betaine, adenine, guanine, and possibly guanidine were detected. Small amounts of other substances were isolated, but in quantities insufficient for identification. The work of the Japanese authors, Suzuki, Shimamura, Odake, who claimed to have isolated the curative substance in the form of its picrate, was repeated, but the results did not lead to any confirmation of the work of these investigators. While Drummond and Funk failed themselves to isolate the curative substance which occurs in rice polishings, they are inclined to think that it is decomposed during the fractionation process, when all trace of it is lost. From this it would appear that the so-called vitamine is a readily decomposed base, and it would be interesting to discover what happens to its nitrogen in the processes of nutrition. Usually inert, nitrogen may in a nascent state prove to be an activator.—The *Lancet*, Jan. 23, 1915.

Consumption "Cures" in America.

American experience is that the wide prevalence of consumption makes this a particularly favourable field for the nefarious operations of quacks. The victims of the disease are in general an easy prey because of the indomitable hopefulness which is almost a characteristic of their pathological condition. In a paper recently read before the New York Academy of Medicine Dr. Adolf Meyer stated that an estimate made by the National Association for the Study and prevention of Tuberculosis for the

five years ending July, 1913, showed that 500 fraudulent cures for consumption had been tried in the United States, yielding a clear profit to the exploiters of £10,000,000. It was also estimated that £4,000,000 were invested in manufacture; that the annual income was £3,000,000; that one-third of the income was spent in advertising, leaving £2,000,000 a year of "blood money" taken from ignorant consumptives. In view of these facts the American Sanatorium Association, which numbers among its members the physicians and other directing officers of all the large tuberculosis sanatoriums in the United States and in Canada, has been moved to make a strong pronouncement against the evil. At its annual meeting, held at the Massachusetts State Tuberculosis Sanatorium, Middleboro, on December 16th, the association declared that it knew from experience that "all of the many advertised medicines and other forms of special treatment recommended by unscrupulous quacks are absolutely worthless." Resolutions were passed emphatically approving of the campaign that had been started against these methods of treatment, and condemning the publication by any newspaper or lay periodical of advertisements of patent medicines or quack remedies and devices purporting to be beneficial in tuberculosis. The American Sanatorium Association has taken the right line. It is the spread of sound knowledge and the suppression of lying statements that is needed. But the law, too, can help if it will insist on the censorship of fraudulent advertisements in newspapers.—*The British Medical Journal*, January 30, 1915.

Lebanon Hospital for Mental Diseases.

In many parts of the globe, but particularly in Great Britain, America, Switzerland, and Holland, subscribers and others interested in the Lebanon Hospital will be wondering how this admirable and unique institution is faring. The hospital is close to Beyrout, but, so far as is known, has not suffered during the Turkish advance, and is thus more fortunate than the historic colony for the family care of the insane at Gheel, in Belgium. Nevertheless, very disturbing news has been received in London from the workers at Asfûriyeh, who say that a state of chaos

exists in Syria, and that it is almost impossible to get money at all. As a great part of the income of the hospital is derived from patients' payments, and as these have stopped for the time being, the managers will require to fall back upon reserve funds, which cannot last long. From time to time the valuable services rendered by this hospital have found mention in these columns, and we need now, therefore, only recall the following facts: It is the first and only hospital of its kind in Syria, Palestine, Asia Minor, or Arabia, and offers the only alternative over this wide area to the ignorant and superstitious treatment—by chaining, branding, and exorcism—meted out to the insane. Since its opening in the year 1900 more than 1,200 patients have passed through the institution, and of these 334 have been discharged as recovered and 300 as improved. These figures, satisfactory as they may be and are, indicate but a small part of the beneficent work accomplished. Though Christian in foundation, the institution opens its doors alike to Jew, Gentile, and Moslem. Patients have come from all over Palestine, Syria, and Asia Minor—some even from Egypt, Cyprus, and Armenia—and their home-going from this modern and thoroughly scientific institution must have done much to spread true views of insanity and to mitigate the horrors of its treatment in these places. The hospital is always full. During the last few years it has been progressively extended to meet the ever-increasing demands on its accommodation; the last addition, a house for thirty-six male patients, was opened early in February of last year. These recent extensions increase the responsibilities of the Committee of Management, and strengthen the appeal they have recently made for financial help. Our attention at home is naturally and legitimately focussed on events nearer hand, but so admirable is the pioneer work done by this hospital, so exceptional are its claims upon philanthropic interest, and so urgent its present needs, that we venture to hope the appeal of the committee (Lebanon Hospital Office, 3E, Queen Victoria Street, E.C.) will find a generous response and enable it to carry on, as before the war, its work of humanitarian service.—*The British Medical Journal*, January 23, 1915.

Problems of Childhood.

Among the more troublesome questions that are not infrequently propounded to the family physician are those of anxious parents worried because of abnormal tendencies in growing children. "What shall I do with my boy?" He is growing dishonest, or untruthful or it may be immoral. At first glance it would seem that these are not questions which should properly be propounded to a physician, for they could hardly be considered as having to do with the health of the child, and yet they are asked and the physician has usually to confess himself unqualified to help. In certain neurotic conditions surgery has been resorted to, as in those cases where circumcision has been undertaken to relieve habit spasm and allied states, but often without due consideration. Many students of childhood are coming to the conviction that there is a physical basis for many cases of moral squint, as is well illustrated by the case of a boy of eleven, an exceptionally attractive, bright and promising child in whom two traits developed with alarming rapidity and proved uncontrolable by the ordinary means of discipline—lying and theft. The methods of psychanalysis usually employed in the study of adults failed to discover a cause in this boy who moreover seemed to be well up to the average in his physical makeup. Repeated attempts at correction proved futile, his thieving became more and more bold and crafty and he developed a constant mendacity that finally determined an unusual step. After repeated observation by an able, experienced physician in a neighboring city, who was peculiarly well skilled in psychology, it was determined to withdraw the boy from school and from his home and place him among strangers where he was compelled to earn his living out of doors at the age of twelve, as it was believed that his physical had fallen behind his mental development and that an abnormal appetite, especially for sweets, prompted his thefts. After two years the boy has developed physically, has learned to control his evil tendencies and promises to become a wholesome and well-rounded man. His mental and intellectual growth had been overstimulated at the expense of lagging physical development.

If this somewhat extreme case be taken as a base upon which to build a hypothesis, it is not unreasonable to argue that children who show some slight variation from the hard and fast classification adopted for grading in schools should be considered in somewhat the same way and studied with a view to the elimination of physical defects before being punished for failure to keep up with their classes in school. If one may accept the views of a number of progressive teachers in the lower grammar and primary grades, it may be assumed that the next few years will see a material change in the method of teaching, especially in promotions. Already several classes for abnormal children have been established in public schools and private schools are springing up in which grading is attempted in a very general way only. If a child does well in arithmetic but poorly in history, he is not compelled to repeat the lessons of the past term because of failure to advance, but is carried on, advancing normally in his favorite studies and more slowly in those that he does not grasp. If one believes that mental astigmatism exists because of asymmetry in growth, it is only fair to approach the problems of abnormal children with the conviction that a bodily cause can be found and to devote a most careful and painstaking analysis to each physical function in order to determine whether it measures up to the requirements of the growing mind. Abnormalities that are producing irritation, such as adenoids, bad teeth, defective vision, digestive disturbance, etc., must be promptly corrected and time enough devoted to the individual case to assure oneself that the demands of schooling are not beyond the reserve energy of the child to supply.

In the home life the same test should be applied to the daily routine and errors of conduct studied to see whether they may not have their origin in some physical defect. Knowing, as we now do, what marked influence is exerted upon growth by the secretion of the pituitary, thyroid and adrenal bodies and by the gonads the effect of irregularities in their secretion in children should receive more attention. It is more than likely that laziness and inattention are not evidences of original sin but are the result

of faulty metabolism, possibly of biliary or gastrointestinal origin, while a persistent thymus may be the unsuspected source of mental dulness as well as physical status lymphaticus. A slight degree of hypothyroidism may be as common in children as in adults and may possibly play a more important role than is generally thought. Cretinism is by no means the only manifestation of abnormal thyroid development. Pediatrics is rapidly assuming a position of prime importance in medical practice and it is time that its principles should be applied more generally to these neglected problems in the development of the child.—*The Long Island Medical Journal*, March, 1915.

Esculus Hippocastanum.

A study of the provings of this drug shows a marked action upon mucous membranes; the portal system is congested, giving rise to symptoms of retarted circulation in the rectum, resulting in hemorrhoids. This pathological state probably gives rise to the great characteristic of the drug; namely, the severe aching pain in the back, in the lumbosacral region, affecting the hips. The sacro-iliac symphysis is the center of attack. The patient cannot walk because that part of the back gives out—must sit down, feels better when lying. Such a backache is often met with during pregnancy, sometimes in hemorrhoidal subjects, the piles are very sore (bruised feeling), not raw like aloes, with aching, burning, rarely bleeding, not much constipation, but marked dryness of rectum as if filled with small sticks or splinters. Feeling in rectum as though fold of mucous membrane obstructed the passage, and as if rectum would protrude. Purple hemorrhoids, with great backache. The sharp pains and slight hemorrhage and sometimes obstinate constipation mark the esculus piles. Fissure of anus may call for it when there are pains following stools. A similar dryness and roughness is experienced by the prover in the throat. Thus we have dryness, constriction, roughness, scraping sensation. Burning and raw feeling, excoriating feeling. Tickling fulness, pressure as if there were something to be expelled. Frequent desire to swallow, which is difficult. Throat very dark and congested. Now it is interesting to know that the majority of sufferers from chronic

sore throat (pharyngo-laryngitis), are also subject to hemorrhoids. According to Jousset, "angine granuleuse" is one of the local manifestations of the hemorrhoidal diathesis.—*The Journal of the American Institute of Homœopathy*, April, 1915.

The Reading Mania.

"Reading," says Bacon, "maketh a full man"; but, as is the case in every form of human activity, there is a right and a wrong kind of reading. Over-reading, like over-eating, produces an unwholesome fullness, which makes learning, as Falstaff says, "a mere hoard of gold kept by a devil," which may be taken as a figurative description of a state of mental indigestion which renders it useless. On the other hand there is a reading which makes an empty man, for it leaves on his mind a confused mass of blurred impressions, sometimes a mere blank. At present most of us read too many newspapers; one finds in them the same things over and over again, repeated, it may be, at considerable intervals, till all sense of historical development is lost, and we tell each other as news events already old, or rumours which might have been thought to be dead and buried months ago. This is a consequence of the abnormal conditions in which we are now living. But apart from the war there has grown up in modern life a passion for indiscriminate reading, which acts on the mind in a manner which may be compared to the effects of the drug habit on the nervous system. As M. Ossip-Lourié points out in the *Revue Philosophique* for March, with the multiplication of books serious reading has diminished; there is a large class of persons who read not for the sake of information to be got from books or of new ideas to be found there, but as a mechanical exercise. They read everything that comes in their way, literary or scientific, without remembering, sometimes without understanding, anything. M. Ossip-Lourié cites the case of man whom he found in the Bibliotheque Nationale with a Russian review before him. Curiosity prompted him to ask whether the reader knew Russian; to use Mr. Asquith's familiar formula, the reply was in the negative, and the explanation given was that all the other reviews were in hand! The reading mania is a form of pathological laziness. Reading to be profitable

should be critical; the reader should seek to find some stimulus to thought in his book, and should, so to speak, mentally wrestle with the writer. One need not conscientiously read every line. Dr. Johnson never red a book through, and yet he could, in his own words, tear the heart out of an author by a rapid glance through his pages. On the other hand, sufferers from the reading mania surrender such intelligence as they possess into the hands of a writer and repeat the statements and arguments of their newspaper like parrots. M. Ossip Lourié insists that this kind of reading has an injurious effect on the nerve centres, impairs the memory, and disorders the process of thought. It certainly causes a loss of power to see things, in Matthew Arnold's phrase, as they really are; it makes a man blind to the most ordinary phenomena of life, and even dulls his consciousness of his own acts. He becomes, in a word, the slave of other people's ideas and incapable of thinking for himself. He lives in a world of dreams and illusions, and this state may reach such a degree that he forgets his duties to his family and to society. If the reading mania is long continued, it is, according to M. Ossip-Lourié, apt to cause a kind of cerebral exhaustion, among the symptoms of which is temporary verbal blindness (alexia). Another effect may be graphomania, which often finds vent in constant letter writing. An illustration of this is seen in the apparently irresistible tendency which drives many persons, especially during times of public excitement like the present, to discharge floods of secondhand platitudes in the newspapers. Although mental specialists pay little or no attention to the evil effects of the literary dram drinking which he describes, the number of cases of mental aberration produced by unwholesome reading is, according to him, immense. Somewhat to our surprise, he makes no reference to cheap education as a principal factor in the diffusion of this most pernicious form of mental dissipation. Good as the work of the elementary school has been on the whole, it has the serious disadvantage of being superficial and incomplete. The records of the public libraries bear witness to the unsatisfactory class of literature that finds favour with many of their frequenters. Even among persons of higher education the old maxim in regard to reading, *Non Multa, sed multum,* has, to a large extent, fallen into contempt. The result is seen in the superficiality, and what Swift called "index

learning," which are so common. This is worse than ignorance, because it gives a man a false sense of knowing what he does not know.—*The British Medical Journal*, May 22, 1915.

Vitamines.

The old-fashioned millstones crushed the whole grain, but the steel rollers of the modern miller separate the outer coats. Recent researches have shown that beri-beri and scurvy, possibly rickets, and perhaps pellagra, are due to the deficiency of certain substances in the food, minute in amount but essential to nutrition. Funk gave the name "vitamines" to these substances, but their chemical nature is imperfectly known, and it is not certain whether the bodies which exert a beneficial action in one or the other of the "deficiency" diseases all belong to the same chemical group. The substitution of polished rice for the old-fashioned whole berry has been proved to be the cause of beri-beri, a disease characterized by peripheral neuritis and consequent paralysis. When the polishings are added to the diet, or the natural rice substituted for the polished, beri-beri is cured. The vitamines in the cereals, including wheat, oats, maize, and barley, are contained exclusively in the outer coat. They are necessary for the growth and nutrition of the embryo as it develops into a seedling, and are placed in the outer coat no doubt because they can there best be utilized. As the modern miller with his steel rollers separates these outer coats, white bread contains no vitamines, and cannot, with water, form an adequate diet. On the other hand, whole-meal or black bread suffices. Vitamines are soluble in water and alcoholic extracts may be prepared containing them. Such extracts added to polished rice or white flour make these foods far more sufficient, but they do not replace all that is in the whole berry. Potatoes, carrots, fresh green vegetables and fruits, lime juice, fresh milk, meat, and yolk of eggs, contain vitamines. Thus those who can add these foods to white bread do not suffer. Yeast is especially rich in vitamines. Foods are robbed of vitamines not only by modern milling processes, but by superheating in the process of canning, and by stewing if the stew water is thrown away.—The *British Medical Journal*, May 29, 1915.

Gleanings from Contemporary Literature.

THE TREATMENT OF CANCER.

INCLUDING—

(1) Notes on New Anti-cancerous Preparations.
(2) The Theory of Canalization by means of Remedies.
(3) Cancer of the Breast.

BY ANTON NEBEL, M.D.

[Foreword by Dr. Clarke.

My friend, Dr. Nebel, has honoured me by entrusting to my care the M.S. of the following articles. I will not dilute their weight and potency by any remarks of my own, further than to say that in my opinion, nothing more vitally important has appeared in homœopathic literature for many years Dr Nebel has struck and illuminated the true evolutionary line of remedial—as distinct from surgical—therapeutics.—J. H. C.]

(1) NOTES ON NEW ANTI-CANCEROUS PREPARATIONS.

In my conference on the scientific basis of the homœopathic treatment of malignant tumours, I tried to place on scientific grounds the therapeutics of the four most prominent investigators of the internal treatment of cancer, *viz.*, Pattisson, Burnett, Cooper, and Schlegel. On that occassion I also spoke of the experiments I had made during several years with isopathic anti-cancerous remedies, *viz.*, Doyen's micrococcinum, Schmidt's antimeristin, digests of cancerous tumours and human anti-cancerous serum.

Thanks to pecuniary help received, partly from my patients and partly from my colleagues, I was able to start a small laboratory for the investigation of cancer, where I could examine the differnt points worthy of study mentioned by me in my conference at Berlin. I think the time has now arrived to publish the results obtained in the course of those studies.

THE TWO PREPARATIONS: ANTI-CANCEROUS HUMAN SERUM—C.S. (CARCINOMIN SERUM), AND SENSIBILISED TOTAL CARCINOMIN—C.T.S.

Immune Serum from Yeast Cells—H.I.S. (Hefe immun serum).

The composition of these two preparations I have left unaltered since the Berlin Conference. The pecuniary means at my disposal were not sufficient to enable me to obtain, by the immunization of large animals, a serum sufficiently free from toxin, so I was obliged

to use cultures of yeast cells of special resistance, and to nourish them with toxins extracted from certain cultures and the digests of tumours. By the separation of the toxins from the immunizing substances developed by the yeast cells I obtained the *H.Y.S.* (Immunizing Serum of Yeast Cells). The violent reaction of this remedy in subcutaneous injections induced me afterwards to administer it internally.

I shall now describe the characteristic indications of these remedies.

Anti-cancerous Human Serum (Carcinomin Serum), C.S.

This preparation is taken from the human body. It sometimes happens that in a course of homœopathic treatment the cancerous tissue is absorbed and in the place of the tumour there is formed a cyst filled with a liquid the colour of Malaga wine containing hæmolysins and pricipitins. This liquid is the mother tincture of Carcinomin Serum (C.S.), and it serves also for the sensibilization of the cancer toxins (Carcinomi, Toxin. C.T.S.). Lachesis and arsenium come the nearest to this preparation, and the following table shows the affinities of this remedy.

This remedy is especially indicated when the resistance of the organism has been seriously weakened by illness, insufficiency of the liver and heart, or tendency to hæmorrhage. We can say that if we call Koch's tuberculin the isopathic sulphur, the C.S is the isopathic lachesis.

Carcinomin Serum—C.S.	Acidum fluoricum.
	Arsenicum.
	Arsenic iodatum.
	Arsenic polysulfidicum.
	Carborandum.
	Ferro silicium.
	Lachesis.
	Lycopodium.
	Mesothorium.
	Petroleum.
	Phophorus.
	Radium bromatum.
	Radiothorium.
	Serum marmoreck.
	Silicea.

You will find in the patient a diminution of immunity against tuberculosis, or, to speak more clearly, the patient has suffered in his youth from tuberculosis, from which he has partially recovered, but his power of resistance has considerably weakened. Whenever you

find a constitution undermined in this way, when you find a feeble heart, and when there is no large tumour present, you begin with this remedy. If, on the other hand, there is a large tumour, you would run the risk of liberating not only the toxins it contains, but also those stored in other vital organs, such as the liver, spleen, &c., and poisoning the blood with them. The debilitated organism would not be capable of withstanding the assult of this intoxication, and it would rapidly succumb. It is absolutely necessary to begin by gradually eliminating the toxins outside the tumour with canalizing remedies. Naturally I give taraxacum, hydrastis, cundurango, &c., when these remedies are indicated, but when the indications are somewhat confused, I advise the use of my general canalizing remedy. I am aware that this method of proceeding may be considered somewhat heretical, but the success I have obtained with it has completely deadened any dogmatic scruples I may have felt.

The remedy was originally composed of cratægus, scrophularia nodosa, hydrastis, chelidonium, china, and ceanothus, but subsequently I improved the combination.

After giving this general canalizing remedy for two or three weeks the indications generally became more defined for the administration of a single canalizing remedy. Meanwhile, the patient becomes stronger, and if the new symptoms are not sufficiently clear for the choice of a single constitutional remedy, then the opportuinity for giving the carcinomin serum has arrived. After giving three or four injections at intervals of from six to eight days you can proceed to administer the more active remedy, C.T.S. Following this prudent proceeding I have been invariably successful, and I have never departed from it without regretting it.

Let us now made a brief synopsis of the treatment just described.

When the skin is very dry and withered, the cachexia very pronounced, the heart weak, when there is a diminution of urine and obstinate constipation, when large tumours are present, or tumours in old people, you must begin with the canalizing or drainage remedy, and then, when the fuctions of the eliminating organs have improved, the constitutional remedy can be given.

C.T.S.

After having patiently studied in a large number of cases the toxins of the *Micrococcus neoformans* and at the same time two preparations derived from Dr. Schmidt's cancer microbes (preparations which correspond to Denys's tuberculinum and to Koch's tuberculin T.R., in the mode of extraction), and also the digests of tumours,

I tried another experiment introducing microbes sensibilized with the before-mentioned human serum; the result of this procedure is the new preparation C.T.S. The table on next page illustrates the affinities of this remedy."

This remedy is especially indicated for patients whose vital forces have not been seriously undermined, for, those who are partially immune against tuberculosis, for arthritic constitutions, and for those suffering from tumours of a scirrhous nature.

It would be interesting to discover the relative amount of silica in hard and in soft tumours, because it is evident that in hard tumours, where conjunctive tissue is prominent, the proportion is larger than in soft tumours. So for the latter the decoction of granite is especially efficacious. I usually employ the red and the white granite of Baveno and Mont Blanc granite. A piece of granite is boiled for an hour in a litre of water, which should be taken in the course of the day; it invariably increases the flow of urine. For soft tumours this decoction can be taken from four to six weeks, then stopped for a month, and taken again for two or three weeks, and so on, As a rule this treatment will help to transform a soft into a hard tumour. It can also be used for hard tumours, but in these cases it can only be taken for from ten to fourteen days; it must be stopped for a month when pain or local inflammation ensues. It rests with the chemists to discover the elements contained in this decoction.

C.T.S. {
Apis Mellifica.
Argentum metallicum.
Argentum nitricum.
Aurum.
Baryta carbonica.
Calcarea fluorica.
Carbo animalis.
Carbo vegetalis.
Causticum.
Cuprum oxidatum.
Graphites.
Granite.
Hecla lava.
Lapis albus.
Lycopodium.
Mercurius auratus.
Petroleum.
Sepia.
Sulphur.
Sulphur iodatus.
Thuja.
Thyreoidea.
Tuberculin T.R.
Vipera
}

Let us now return to our new preparation. It is best not to prescribe injections of C.T.S. oftener than every eight days. After four or five injections have been made, or later perhaps, a crisis is produced; in the region of the tumour a pasty swelling manifests itself; the lymphatic vessels swell, spontaneously they become sensitive both with and without pressure, the glands become swollen and painful, the elimination of the toxins is arrested. When this happens the injections must be stopped and a thorough examination of the patient should be made. Conium, apis mellifica, scrofularia nodosa, &c., and hot compresses of fleurs de foin (leaf tips or flowers) will help the elimination of the toxin contained in the lymphatic vessels and interstices. On resuming the injections special attention must be paid to the canalization or drainage. After applying the C.T.S. for two or three months you can pass on to the use of the stronger prepation C.T.S.I., which can be given at intervals of eight or ten days. It is obvious that if the patient shows marked indications for any ordinary homœopathic deep-acting remedy, the injections should be stopped and the remedy indicated administered instead.

It goes without saying that as a rule cancer patients present an undefined mixture of psoro-sycotic constitution with the cancerous, therefore the choice of the right remedy is extremely difficult. So it is a great pleasure to me to feel that I have rendered a real service to my colleagues by introducing to their notice these isopathic remedies which can be used with full confidence for curing their cancer patients.

This treatment has awakened great interest even among those colleagues who formerly were indifferent to the medicinal treatment of cancer and I emphatically state without fear of contradiction, that the results obtained by this method are far superior to those obtained by the application of X-rays, radium or mesothorium.

I shall not dwell at present on the indications for the yeast cell immunizing serum because the production is limited; I can only say that it is an auxiliary remedy of great value and I hope that ere long the pecuniary resources of the laboratory will enable me to place it in sufficient quantities at the disposal of my colleagues.

(1) THE THEORY OF CANALIZATION OR DRAINAGE (ELIMINATION) BY MEANS OF REMEDIES.

This theory has proved a good heuristic principle. Paracelsus in several chapters of his works dwells upon and develops it; we can condense as follows what he says in "Commentaria in Aphorismos Hippocrati," Aphorismus 21: "Nature is a much better physician

than man. She knows best how elimination should be produced. When she desires to expel the morbific products by perspiration the body should be compelled to perspire. Thus pleurisy and bubonic plague are not eliminated by the intestines, urine, or vomiting, nor through the eyes, ears or mouth, but principally by perspiration, and the same principle applies to the stools and urine; therefore if the vital forces give an indication for elimination through a certain emunctorium, help must be given in this direction and not in any other." "The doctor is merely a servant of Nature who will not allow herself to be handled ignorantly. He who is familiar with these principles understands the third part of medicine. Some doctors only search for one emunctory, others for another. For instance, one will treat all his patients by inducing perspiration, another by purgatives, another by emetics and so on. This is a mistake, of course, because what should be done is what Nature indicates."

Hahnemann, also, in his introduction to "The Chronic Diseases," refers to this theory in terms which may be briefly expressed as follows: "The superficially-acting remedies, such as belladonna, pulsatilla, &c., can, for a short time, ameliorate a chronic disease, but their eliminating powers are so limited as to be quickly exhausted, and they must be replaced by deep acting constitutional remedies."

In my essays on "Tuberculin" I drew attention to the fact that its action can be intensified by doses of taraxacum, chelidonium, &c., given simultaneously, and in a conference at the last annual meeting of the "Centralverein" at Lucerne. I divided the tuberculosis remedies into constitutional, eliminative (drainage), and re-mineralizing. At the suggestion of Dr. Lager I substituted the name "canalization" for that of "drainage." I refer to this matter because Dr. Vannier, of Paris, in most of his articles published in the "Homopathie Francaise," is guilty of plagiarism. For instance, in his article on "Drainage" he does not mention that I am the originator of this idea. My "Drainage" theory is built upon the histological studies concerning the healing processes of cancer and tuberculosis.

In examining the action of tuberculin in tuberculous animals (guinea-pigs and rabbits) we can discern an extensive dilatation of the blood-vessels round the diseased spot, and a strong immigration of leucocytes. These secrete substances which partially neutralize the toxins with which they charge themselves, as also with the *débris* of destroyed cells; then some go into the circulation through the lymphatic interstices, and others through the bronchial mucous membrane mixed with mucocities into the lumen of the bronchi. These

leucocytes that return through the lymphatic vessels into the blood, there discharge the toxins; these become fixed in the organs—the liver especially—where some of them become neutralized; the rest are eliminated from the blood through the different emunctories—the skin, the kidneys, and the mucous membranes. With homœopathic remedies we obtain indirectly an active immunization of the organism and at the same time its disintoxication by the elimination of the toxins, as above described. Daily observation shows that the first dose of the constitutional remedy often provokes an aggravation; it causes cough or a more profuse expectoration, diarrhœa, leucorrhœa, increased secretion of urine, eczema, perspiration, and pains of different kinds. The second has less pathogenic effect; the third or fourth dose produces hardly any reactionary pathogenic symptoms; a partial immunity has taken place. Each time when the mass of toxins has been transferred to the blood, they are neutralized by antibodies generated by the preceding doses; so we can say it is thus the constitutional remedies act most acutely as canalizations. But in many cases where the functions of the eliminating organs are obstructed they act imperfectly. For instance, when the skin is dry and withered and impedes perspiration: where there is constipation and kidney trouble the constitutional remedy conducts the toxins from the diseased area to the blood. But the elimination is often impeded, and it is then you must resort to the canalizing remedies *sensu strictiore*. For instance, a patient having the characteristics sulphur headache suffers at the same time from severe constipation. If the function of the organs of elimination is normal the headache and constipation are cured by sulphur alone. But if the elimination is impeded, they become more pronounced. Then a dose of nux vomica given after sulphur will cure the constipation and allow the latter to act freely. Take another case. Sulphur in high potency has awakened tuberculosis; the patient has fever at midday, especially from 1 to 3 o'clock; there is a dry cough and a hectic flush, and at the time the fever is highest the face becomes cyanotic. In this case pulsatilla diminishes the temperature, provokes expectoration, and the fever disappears. So we can say that nux vomica and pulsatilla are the canalizing remedies of sulphur, the first having predominant action in the intestinal canal, and the other on the bronchial mucous membrane. Or take a case of tuberculous pneumonia. The patient is in a high fever; his face looks like a drunkard's; the tongue is thickly coated and the stomach is swollen. Baptisia diminishes the fever, causes acute diarrhœa and a pronounced amelioration of the general

state takes place. Here we have the canalizing action of baptisia. Take the characteristic of lachesis: *amelioration of all symptoms when the secretions are established.* The toxins have taken a neurotropical direction; a death in the family, financial losses, intense grief, lues or alcoholism have weakened the nervous system, the toxins flow towards the *locus minoris resistentiæ*, and stay there. Lachesis canalizes the toxins from the nervous system to the mucous membranes. For instance, there is an inflammation of the sinus frontalis; there is a severe pain from the left eyebrow to the ala nasi; every time the head is bent or shaken by rapid motion or going downstairs the pain increases; the patient awakens in the morning with a severe headache and stopped nose; as soon as the reaction sets in the pain diminishes, and this is produced by lachesis. A child with tuberculous meningitis presents symptoms requiring lachesis. He mutters incoherently of angels, his toys, &c. In a short time lachesis calms the delirium; general perspiration is induced beginning at the head and neck, whereas before it was impossible to obtain. Now he begins to complain of pain in the throat, the mucous membrane of the pharynx is very red, and secretion sets in. Belladonna relieves these symptoms, so it may be said to be the canalizing remedy of lachesis.

Now let us consider the stadium of ferrum and calcarea carb. as characterized by the so-called florid anæmia in patients with erethitic tuberculosis. The face and respiratory organs are congested and constipation is present. We know the tuberculins have a hæmolytic action; there is decomposition of the hæmoglobin of the red blood corpuscles; the product of this decomposition is retained in the liver, spleen and marrow. As soon as these organs become saturated with this product they begin to eliminate through all the colon but principally through the ascending colon. As a consequence, constipation is produced. Pulsatilla having a specific action in these organs helps this elimination. In every manual of homœopathic materia medica we find that pulsatilla is an antidote to iron. I need not dwell on the fact that at the same time pulsatilla eliminates the iron and tuberculins through the colon and other mucous membranes.

Now we will consider the well-known canalizing remedy in syphilis, viz., kali iodatum. If it is administered to a patient saturated with mercury or arsenic it will be found that in the urine there is an increased elimination of these drugs. Considering that the toxins of syphilis have in their action a great resemblance to mercury and arsenic, we can deduce that kali iodatum helps the elimination of the

toxins of syphilis and must therefore be considered the canalizing remedy.

Hahnemann and the old Homœopathic physicians saw these things quite clearly, and now-a-days we must harmonize the teaching of the Organon with the results of modern medicine in order to understand better the neglected and obscure statements regarding antidotal, complementary and inimical remedies

The canalizing action of the remedies becomes most evident in *acute diseases*, therefore the canalizing remedies *sensu strictiore*, as, for instance, aconite, belladonna, bryonia, &c, are there indicated. In cases where, besides the toxins of the acute infectious diseases, the toxins and metabolic products of the underlying chronic diseases call for elimination, the indications for deep-acting remedies show themselves.

The drainage theory is of the greatest importance in chronic diseases, especially in cancer cases, and it may be affirmed that constant and satisfactory results can only be attained by the study of this theory. Many allopathic authors have stated that in the course of an X-ray treatment, or after the application of strong doses of radium or mesothorium, patients often die of the absorption of the toxins liberated by the necrotizing action of these applications.

Everyone attempting to make a speciality of cancer treatment should thoroughly master Cooper's book, "Cancer and Cancer Symptoms." Before him scarcely anybody has insisted on the importance of the drainage of the toxins and of the danger of the too rapid absorption of the tumour when there is no normal function of the emunctories. The secret of Dr. Burnett's success consists in this method of administering a canalizing remedy after a course of deep-acting remedies. The great intuition of these two prominent men is thus demonstrated.

The importance of the theory of canalization was brought home to me by the clinical incidents occurring through the administration of micrococcin Doyen. In some cases the application of this remedy was followed by remarkable and lasting amelioration. In others the amelioration occurred after some days and it was followed by violent reactions with local aggravation. This happened when constipation set in or where an existing constipation became worse, or where the urine became scanty, so it can be stated as an axiom that *a cancer patient is incurable by homœopathic treatment if the elimination of the urine cannot be increased.* The prognosis becomes doubtful and serious when with a marked increase in the flow of urine constipation

persists. This explains why cancer of the stomach or intestines accompanied by diarrhœa has a milder and slower course than the same form accompanied by constipation.

This theory helps us to understand some difficult phases in cancer of mucous membranes, *i.e.*, cancer of the rectum and of the womb. A cancer of this kind has been healed to a certain extent, parts of the tumour have been abraded by the remedy, the mucous membrane feels as if it were of the consistency of india-rubber, it is in the state of chronic interstitial inflammation, it resists further elimination of the toxins. Now a critical moment sets in, increased pains and cachexia, and especially stomachal symptoms, loss of appetite, coated tongue, nausea, vomiting, &c. It is now we should remember the Commentary of Paracelsus to 21st Aphorismus Hippocrati, "*Quae ducere apportet.*" The simile, and especially the simillimum, opens the way to the emunctories indicated by nature. We should not forget that the great difficulty in the treatment of cancer consists in the fact that the self-regulating powers of the vital economy are seriously impaired, and especially that the elimination of the morbific products is impeded.

In what relation will the canalization remedy *sensu strictiore* now stand to the constitutional remedy? Paracelsus' practice was to combine organ-specific plant remedies (remedies from the vegetable kingdom) with metals and minerals. Hahnemann advised giving an antidote when the deep-acting remedy had caused a serious aggravation. Burnett's method consists of giving a constitutional remedy for one or two months, followed by a canalizing remedy for a certain time. The analysis of the histological and clinical process in the cure of cancer justifies the apparently heterodox method of administering the canalizing remedy immediately after the constitutional one.

(3) CANCER OF THE BREAST.

Let us apply the principles developed in the preceding sections to the treatment of cancer of the breast, which Dr. Schlegel states in his work is one of the most difficult to cure. Here there are no mucous membranes at hand through which the toxins can be eliminated, they must therefore be absorbed and carried through the lymph vessels into the blood and eliminated from thence through the gastro-intestinal tractus and the mucous membranes of the "tractus genitalis." So you find especially indicated as canalizing remedies those which have specific affinities with the above-mentioned mucous membranes, viz., condurango, hydrastis, conium, scrophularia, phytolacca, &c. If prominent symptoms are absent, it is especially necessary to

find out if the lymph vessels or the mucous membranes fulfil their functions or not, and if the transmission of the toxin into the blood is impeded by the lymph vessels we must prescribe remedies which act especially on them—a fact to which Pattisson has drawn attention—such as rhus tox., carbo animalis and vegitabilis, apis, vipera, thyreoidea, asterias rubens, and murex purpurea are also indicated. With the last three remedies you find the stimulative action on the organs which are in sympathy with the mammæ, viz.; the ovaries, uterus, and the thyroid gland. In a similar manner as the lymphatic system, the mucous membranes above mentioned can impede the canalization. Or you can be forced to drain an organ acting as an accumulator for the toxins, the spleen for instance, for which you will require ceanothus or something similar. As local remedies we can use compresses of "fleurs de foin," arnica and phytolacca, polygonatum verticillatum, sambucus ebul, neottia nidus avis, the development of the roots of which shows by signature its relation to the ramification of the lymph-vessels.

Amplifying the two preceding articles we can draw up, approximately, the following list of constitutional, with their respective canalizing, remedies.

Constitutional Remedies.	*Canalizators.*
Acid fluoricum.	Belladonna.
Apis mell.	Bryonia.
Arsenic album.	Coccus cacti.
Arsenic iodat.	Condurango.
Asterias rub.	Conium.
Calcarea fluorica.	Cyclamen.
Carbo animalis.	Euphorbium
Carcinomin—C.S., C.T.S., C.T.S.I.	Helminthochorton.
Causticum.	Hydrastis.
Carborundum.	Phytolacca.
Cuprum.	Polygonat. officin. et verticilatum.
Ferro silicium.	Sedum acre et alpestre et alba.
Granite.	Semper vivum tectorium.
Graphites.	
Hecla lava.	
Lachesis.	
Lapis albus.	
Murex purpurea.	
Petroleum.	
Phosphorus.	
Psorinum.	
Radium bromatum.	
Ragatz (water of).	
La Raillére (cauterets).	
Sulphur iodat.	
Thuja.	
Thyreoidea.	
Vipera.	

Let us give a short characteristic of each of these remedies:—

Acidum fluoricum is especially indicated in recurrences after operations. The scar shows keloid degeneration, redness and itching in the scar, in cases where the treatment has been successful and yet the resulting scar-tissue is very sensitive to pressure.

Apis Mellifica.—Œdematous swelling round the tumour, skin covering on the tumour red or bluish, and very sensitive to pressure; small nodules in the neighbourhood of the tumour, with great sensitiveness of the "musculus pectoralis."

Arsenicum Album.—Acute burning pains in the tumour with great irritability; open cancer of the breast, offensive secretion; partial gangrene.

Arsenicum Iodatum.—Scirrhus of the breast in emaciated people with hard lymphatic glands. Scirrhus with simultaneous affection of the apex pulm; burning pains in the neighbourhood of the tumour.

Asterias Rubens.—Severe lancinating pains, especially in the left mamma with retraction of the mamilla. Sensation as if the mamilla were drawn back by a cord. Especially indicated in co-existing ovarian irritation of the same side. A prominent remedy in very painful cancer of the breast.

Calcarea Fluorica.—Voluminous scirrhus of the breast with dilated and deep blue veins in the neighbourhood of the tumour. In stout persons of the habitus of graphites or calcarea carb., acts especially on the right breast.

Carbo Animalis.—Very hard tumours in patients with a tendency to acne rosacea; lymphatic glands hard as stones with burning pains; lymph vessels like hard strings with burning pains.

Carboruudum.—Very hard scirrhus of the breast in emaciated patients of the habitus of silicea. The patient is very chilly and is much troubled by flatulence and indigestion.

Causticum.—Scirrhus in aged, dark-complexioned persons of arthritic constitution; wart-like nodosities on the face, the space between the mucous membrane and the skin of the lips is bluish as in heart weakness. Principally left side scirrhus.

Cuprum Metallicum and Oxidatum.—Scirrhus in stout anæmic people; slimy metallic taste in the mouth; pains in the mammæ before the periods; scirrhus with weak heart.

Ferro Silicium.—Scirrhus of the breast in emaciated and nervous patients with congested face; congestion and sensation of heat in the upper part of the body, sensation of coldness in the lower part; great sensibility to heat and cold but chilliness predominates.

Granites.—The indications for this remedy will be found in the first article "On New Cancer Preparation."

Graphites.—Voluminous cancer of the breast in corpulent patients; right-sided burning pains in the tumour, the lymphatic vessels and glands.

Lachesis.—The skin over the tumour is livid; when ulcerated the skin in the neighbourhood is bluish; pain in the tumour before menstruation, better after the period sets in; tendency to bleeding; secretion smells like a body in a state of decomposition; great sensibility when wound is being dressed.

Murex Purpurea.—Left ovarian affection co-existing in cancer of the right breast and *vice versâ*; pains accompanying the periods; pains from the left ovary to the right mamma, or from the right ovary to the left mamma; womb enlarged; sexual excitement especially before the periods.

Petroleum.—In rheumatic constitutions with constipation; lips brown with a cyanotic tinge; skin in the neighbourhood of the tumour of the characteristic petroleum appearance.

Phosphorus.—Medullary cancer; ulcerated rapid-growing tumour, bleeding easily in persons of hæmophilic tendency.

Psorinum.—Rapid-growing tumours in young people; fungous granulations with exceedingly offensive secretion; tendency to hæmorrhage.

Radium Bromatum.—Cancer of the breast aggravated by the X-ray treatment; exceedingly painful gangrenous ulcers that bleed easily.

Ragaz Water.—Internally and in compresses it acts prominently on hard tumours; the water of "La Raillère" spring in Cauterets (Pyrenees) acts in the same way, the latter, however, must only be taken in 15 to 20 cgm. doses.

Sulphur Iodatum.—Acts principally when the tumour, having lost its malignancy, has come to a standstill.

Thuja.—Strong sycotic tendency; in open cancer the secretion is more abundant at night. In melano-carcinoma this is the leading remedy. Dark blue veins over the tumour or in the neighbourhood.

Thyreoidea.—In low potency it is efficacious in stout patients of the habitus of calcarea fluorica.

Canalizing Remedies *in sensu strictiore.*

Coccus Cacti.—Cancer of the breast in old arthritic people; spells of coughing like whooping-cough, with scant slimy urine; great drowsiness especially in the afternoon.

Condurango.—Scirrhus with the well-known condurango symptoms, viz., cracks in the corners of the lips. Like hydrastis it must be given for a long time.

Conium.—Scirrhus with itching, lancinating and stitching pains; scirrhus after a blow; scirrhus with pleural metastases causing dry, tickling cough and asthma; great sensitiveness to cold; during menstruation the breasts are painful; scirrhus accompanied by burning, acid leucorrhœa in old maids.

Cyclamen.—After menstruation the breasts begin to swell and to secrete; periods too early and too profuse; during the preceding days tendency to melancholy and disinclination to work.

Euphorbium.—Erysipelatous swelling, with shooting, burning, drawing pains; cancer "en cuirasse."

Hydrastis.—Scirrhus in cachectic patients with constipation; grey, yellow tinge; liver insufficiency; dyspeptic symptoms; the patient is emaciated and feels very weak.

Phytolacca.—Tumour in the breast in the superior median quadrant with swelling of the subclavicular and cervical glands; menses profuse and too early; constipation; hypertrophy of breast and womb; tumour of the breast with simultaneous affection of the pharynx; scirrhus in stout females with periodical crises in pharynx and tonsils; chronic eczema and rhagades of the mamilla; pains radiating from the mamilla to the neighbourhood.

In ulcerated cancer of the breast the use of the ordinary antiseptics should be avoided as much as possible, for they stimulate the cancer-tissue and have but little durable influence on the accompanying offensive large ulcerations. Besides the above mentioned remedies compresses of calendula, cardnus benedictus, conium, sabina, tusillago farfara, and thuja will be found very useful. Hæmorrhage is easily controlled by sanguisorba officinalis. If the ulcerated surface is not very extensive and the secretion not too abundant, the fourth decimal trituration of aurum arsenicosum applied locally is very efficacious. In hard ulcerated cancer Pattisson's chloride of zinc paste and the powdered root of hydrastis canadensis are excellent. As Pattisson's method is but little known I will transcribe from his work the chapter on the indications for the use of this paste.—*The British Homœopathic Journal*, April, 1915.

(To be concluded.)

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ON "MEMBRANOUS PERICOLITIS," OR "PERICOLIC MEMBRANES."

By C. Granville Hey, M.B., C.M.Edin.

Mr. President, Ladies and Gentlemen,—It is not always easy to find a subject which is interesting but not hackneyed, and still less easy to find a subject with the freshness of newness, which is at the same time of interest to the practitioner as well as the specialist, be he physician or surgeon. It seldom, therefore, falls to the lot of a member of this Society to bring before you a subject which has not been discussed here already in some form or another, but I believe the subject which I have chosen for my paper this evening rightly falls within that category.

In choosing a subject for my paper I was influenced by recent interesting experiences of some chronic abdominal conditions which apparently are not of *very* frequent occurrence (or if frequently met with, then not recognized) and, therefore, not very widely known, and which must for that reason be somewhat baffling when met with in practice.

This condition consists in the formation of a thin veil-like film or membrane, covering to a greater or less extent the cæcum and ascending colon, and in some cases it has been found extending to the transverse or even the descending colon. At least one case

is recorded where the membrane spread over several inches of small bowel. It was first described in America in 1908, and in this country in 1909, by Dr. Jabez N. Jackson of Kansas City, and designated by him *Membranous Pericolitis*, or "The Pericolic Membrane." Arbuthnot Lane had previously described similar adhesions under terms with which you, doubtless, are familiar, viz., "Lane's Band," and "Lane's Kink," but it was not until Jackson's paper appeared that serious attention was directed to this condition and recalled in the minds of surgeons many previously unrecognized cases where want of more precise knowledge had resulted in mistaken diagnosis and its corollary—failure to relieve the sufferings of the patient.

My attention was first directed to this subject by seeing an article which appeared in that valuable work the "Medical Annual," soon after operating on a patient whose case (my Case 1) admirably illustrated the mistakes which may be made in diagnosis, who had already suffered operation for supposed chronic pancreatitis and suppurating cholecystitis, and this failing to cure her symptoms, a nephropexy had been performed with the same result. I, in turn, diagnosed chronic appendicitis with adhesions and operated, and satisfied myself by removing the appendix and some of the adhesions, but as these were very extensive all up the right side, I decided that I had done sufficient to relieve the symptoms and that to remove all the supposed adhesions would unduly prolong the operation. I too failed, as my predecessors had done and for the same reason—I did not recognize the condition, which was membranous pericolitis.

In his introduction, Dr. Jackson falls into one lamentable error. He fails to recognize cause and effect when he says, "we have been wont to fall back on the all-embracing diagnosis 'neurasthenia.'" He does not recognize that the almost invariable effect of frequently recurring or long-continued, unalleviated pain is "neurasthenia," which no amount of skilful treatment can cure until the cause has been removed, viz., the cause of the persistent pain. (One of my cases was treated for a long time as neurasthenia.)

Clinical Description.

On opening the right side of an abdomen in which this condition exists, one is struck by the presence of a thin, transparent, vascular, veil-like membrane, spread out in varying positions in different cases. In one case it appears to come on to colon or cæcum, or both, from the lateral parietal wall and pass directly upwards to be lost under the liver on the superior layer of the transverse meso-colon; in another case it appears to have come in the reverse direction; and in another it appears to come as a lateral prolongation from the border of the great omentum. It has been seen to pass across the ascending colon and up to the transverse colon, and in one instance appeared to have drawn down the first part of the transverse colon and fixed it parallel with the ascending colon as low down as the cæcum, thus producing two sharp kinds and a mechanical gastroptosis with marked gastric symptoms. In some cases much more fibrous proliferation may be found over limited areas producing distinct band-like conditions. In one such case the membrane had lost its apparent vascularity and transparency and become a dense sheet of fibrous tissue, overlying and obscuring the ascending colon. When the membrane was divided and turned aside it exposed an apparently normal though contracted colon. In another case, the membrane passed from the inner side of the ascending colon over the posterior abdominal wall as far as and investing about 8 in. of the jejunum immediately below the transverse meso-colon. (The symptoms produced in this case so markedly simulated those of pyloric stenosis as to lead to that provisional diagnosis.) In the majority of Jackson's cases the cæcum was not involved in the membrane but was greatly distended and thinned, nor was the appendix involved except when it occupied an ascending position at the outside of the colon, when it was involved in the membrane extending from the lateral abdominal wall to the colon. This, however, does not agree with Pilcher's experience, for in several of his illustrations the appendix is involved whilst still in its normal position. Curiously enough, the appendix in most of the reported cases

was rather small and sclerotic. In early cases the membrane is so lax as to occasion little or no restriction of the colonic movement, whilst in advanced cases restriction is so marked as to produce obstruction by stricture or angulation.

Jackson asserts that this pericolic membrane never resembles our ordinary conception of an adhesion and that it is never adherent to the anterior abdominal wall nor to contiguous loops of small intestine.

Etiology.

The discovery of this condition as a clinical entity has given rise to much speculation as to its cause or origin, and several quite diverse theories which resolve themselves into three general theories, viz.:—

(1) That it is congenital in origin.

(2) That it is caused by mechanical conditions.

(3) That it is inflammatory in origin.

Let us look at these a little more closely for a few moments.

(1) *The Congenital or Developmental Theory.*—This is held by several observers, but they do not agree as to its exact anatomical derivation; rather do they differ to such an extent as to call forth the derison of embryologists. Clinically against this theory we have the fact that all recorded cases have been of adolescent or adult origin and that no such condition has been observed in infancy or childhood. Recently Flint, of "Johns Hopkins," claims to have found traces of the membrane in fœtuses.

(2) *The Mechanical Theory* is one of Arbuthnot Lane's productions. His American critics treat it very lightly and ask the very pertinent question—is it not much more likely that instead of intestinal stasis acting in some manner as a cause in the production of these bands or adhesions, the adhesions become the cause of the stasis? Certain it is that when they are removed the intestinal stasis and its attendant symptoms and discomforts are relieved. Moreover, have we not all seen most stubborn cases of constipation with no such pathological changes or other clinical symptoms? It is much more likely that these adhesions are not developed secondarily to visceroptosis as held by Lane, but have

much to do with the production of the condition as demonstrated by the skiagrams of Pilcher's cases.

(3) *The Inflammatory Theory.*—This theory involves two subsidiary theories, viz., one assuming a peritonitis spreading from a focus of infection outside the gut, and the other a reaction from infection derived from within the contiguous gut. In the former case (*i.e.* spread of peritonitis from a focus outside the gut) the chief sources of infection would be the appendix where the membrane is low down, and gall-bladder where the membrane is about the hepatic flexure: if this were so one might, and many would, expect the condition to disappear with the disappearance of the source of infection. This has been tried and failed but it does not negative the theory, because the membrane or adhesions once formed as the result of the original disease may persist, and themselves become the cause of a train of symptoms (as apparently illustrated in my case already referred to). The clinical history of these cases does not show sufficient evidences of a true peritonitis originating from a focus which would produce such broad results, for, as already mentioned, in most of the reported cases the appendix was small and sclerotic.

In the case of infection from within: Gerster concludes that the peritoneum reacts to the infectious processes ordinarily associated with chronic colitis by the formation of characteristic vascularized transparent membranes which take their origin along the external lateral aspects of the cæcum, ascending colon and hepatic flexure on the one side and the sigmoid flexure, descending colon and splenic flexure on the other. Pilcher, in a communication to the "Annals of Surgery," January, 1912, considers them to be the result of long continued or oft repeated mild infections of the peritoneal covering of the cæcum and appendix transmitted through the intestinal wall, but does not specifically presume a colitis as does Gerster. He adds "In the cases which form the chief basis of this communication, the history clearly indicated in each case that a pre-existing local infection was the cause of the films, which operation demonstrated to be present as a part of the morbid changes which had taken place."

After personal observation and consideration of a considerable number of operated cases, Jackson inclines to the belief that varied causes may be responsible for the production of this pericolic membrane. He is sure that in one case it was the sequence of an acute peritonitis of appendicular origin. One or two of his cases were better explained by the congenital theory and a few cases led him to suspect to coincident colitis. None of these theories suffice to explain every case.

Symptoms.

The symptoms which such pericolic membranes produce depend upon the degree of interference with the proper function and circulation in the part. The local symptoms are:—

(1) Discomfort and pain of varying intensity, diffused over the right side of the abdomen and often abrupt in onset.

(2) Diffuse tenderness over the right side of the abdomen, or even hyperæsthesia—but *without muscular rigidity*—points of greater tenderness being frequently found low down in the groin, at McBurney's point, or just beneath the costal margin.

(3) These are often accompanied by colicky cramps indicative of paroxysmal muscular efforts, more or less effectual, to pass on the bowel contents.

(4) Marked constipation, which may be relieved for a time by free purgation. In some instances the constipation has existed long before the pains began, in others there was no pre-existing constipation. Where it already exists it is definitely increased after the onset.

(5) Over-filling of the cæcum with gas, this often causing great distress.

(6) Mucous diarrhœa may be present and it may alternate with the constipation.

This film or membrane, as it develops, tends to contract and so thickens and produces constriction bands or kinks (angulations), resulting in limitation of the expansibility of the intestinal wall and of the peristalsis of the cæcum and colon, and may be of the terminal portion of the ileum, varying in intensity from more defective peristalsis to actual obstruction; fæcal stasis results

giving rise to a complex of general symptoms due to auto-intoxication such as lassitude, dulling of the mental faculties, headache, loss of appetite, recurring indigestion, nausea, vomiting distension after food, restlessness during the night, slightly swinging temperature, sallow complexion, enfeebled circulation, cold extremities, excessive sweating, loss of flesh, painful joints, muscular degeneration, enteroptosis, staining and wrinkling of the skin, neurasthenic symptoms, and, it is said, cystic degeneration of the mammæ. The patient complains that the amount of aperient medicine necessary to obtain satisfactory relief of the bowels has had to be steadily increased. The fæces are foul smelling and may contain a marked quantity of mucus, and even distinct mucous casts may be passed.

In cases where pericolic bands are present on the left side binding down the sigmoid and its mesentery to the iliac fossa just above the brim of the pelvis, visible peristalsis of the colon immediately above may be observed.

In these cases it is obvious that these chronic symptoms may at any time become more acute, that "indigestion" become more marked, and a periodic dragging or colicky pain may occur in from one to four hours after food. In extreme cases complete obstruction may occur and persist until relieved by operation, but such a development is almost inexcusable since the usually slow course of such cases allows ample time for diagnosis and treatment before the condition has progressed to this stage.

Differential Diagnosis.

Jackson maintains that a diagnosis can almost always be made by a careful study of the case under the analysis of the foregoing symptoms. X-ray examination several hours after a bismuth meal affords valuable confirmatory evidence, and in this connection two methods of procedure are recommended: first that the meal be given in the morning and the X-ray examination made in the evening, the patient maintaining the erect posture during the interval and at the examination, prior to which an enema of bismuth emulsion has been administered; second, that the bowels having been emptied during the day by a dose of castor oil, the

patient is given at 10 p.m. a mixture 2 to 4 oz. of bismuth subcarbonate (the amount to be determined by the size and weight of the patient), and 6 oz. of mucilage of acacia, and the quantity thus obtained made up to 16 oz. with top milk, which serves to disguise the insipid taste of the bismuth and the acid taste of the acacia; the patient visits the radiographer at 9 o'clock the next morning, by which time the bismuth emulsion will usually be found to have passed into and already filled the first part of the large gut. Subsequent exposures must be determined according to the degree to which the bismuth is found to have progressed along the bowel at the first examination. In many cases a supplemental enema of bismuth is administered through a short rectal tube, the emulsion thus administered being carried around to the cæcum within four or five minutes by retrograde peristalsis. By combining these two methods a good demonstration of the entire large intestine can be secured. The clear manner in which the colon can thus be outlined is extremely striking, the bismuth showing clearly the location and degree of a constriction, the presence of an angulation and the amount of ptosis if any.

As may be readily expected with such wide-spread symptoms, this condition has been frequently mistaken for other conditions from which it should be differentiated. Foremost of these is:—

(1) *Chronic Appendicitis.*—The differentiation here is not usually difficult, whereas the appendix being a small organ, when inflamed gives rise to a localized area of tenderness, in membranous pericolitis we have a diffuse area extending over the right side of the abdomen from the costal margin to Poupart's ligament, with, it may be, small areas of exaggerated tenderness. If as a result of an *acute* appendicitis with diffuse peritonitis you should have extensive adhesions formed, you may get pains and tenderness simulating those of membranous pericolitis, but in the latter there is never any history of a preceding acute inflammatory condition or of any prolonged acute illness. Again, in chronic appendicitis the pain is almost always referred to the epigastrium and only during an acute exacerbation do you get local signs of appendicitis, whereas in membranous pericolitis, pain is *never* referred to

the epigastrium, always to the right side of the abdomen. You may have gastric disturbances but never gastric pain. (Membranous pericolitis embracing the appendix may produce a kink and would then set up chronic appendicitis, but this must be distinguished from adhesions resulting from the previous infection.) Another noteworthy fact is that whereas you may, and often do, get muscular rigidity in chronic appendicitis, you do *not* get it with membranous pericolitis.

(2) *Gall-bladder Troubles.*—Membranous pericolitis has frequently been mistaken for these, but this is easily explained when one remembers the close relationship of the hepatic flexure to the gall-bladder, which is increased by the pulling down and inwards of the flexure in membranous pericolitis, and that kinking and angulation at this point is common in membranous pericolitis with resulting distension of the proximal portion of the gut and pain occasioned by the onward passage of fæces through the narrowed lumen. Here, again, you have in membranous pericolitis the diffuse pain as contrasted with the pain of gall-bladder troubles localized about the ninth right costal cartilage. Again, in membranous pericolitis you do not get the jaundice, or biliary colic, which usually accompany gall-bladder troubles (though these are, as we all know, by no means always present in gall-bladder conditions). Neither do we get the pain referred to the scapular region so common in the latter.

(3) *Gastric Ulcer.*—This is a diagnosis which has not infrequently been made in cases of membranous pericolitis because of the frequent occurrence of digestive troubles in membranous pericolitis, but here, again, the character, periodicity and distribution of the pains is so very different that they should not be mistaken. In the one you have the pain aggravated after almost every kind of food, and relieved by emptying the stomach, whereas in the other relief is only obtained by emptying the bowel and there is no regular aggravation after a meal. In gastric ulcer the pain is usually markedly epigastric, whereas in membranous pericolitis you have no epigastric pain.

(4) *Renal Calculus* and other renal conditions have been diagnosed in some of these cases, and the error only found out

after operating on that assumption. Here, again, the diagnosis was pardonable, for with a mechanical ptosis of the hepatic flexure and beginning of transverse colon, fæcal distension and pain in the efforts to force the fæces past the strangulation, pus and blood in the urine, and a history of more or less persistent pain in the right renal region, which of us would not have fallen into similar error? But in such a case with positive evidence of fæcal stasis, efforts should first be made to get rid of the latter (and, I venture to add as an outcome of my own experience, in all abdominal and pelvic conditions where intestinal stasis is present, get rid of it or relieve it before coming to a definite diagnosis. I have seen so many cases, and especially gynæcological ones, in which, when the intestinal difficulty was relieved, the pelvic symptoms vanished). In connection with kidney complications note that renal irritation and ultimately chronic nephritis may be a sequel to the long-standing fæcal stasis and should not be overlooked. Franke has demonstrated that the cæcum and ascending colon are connected by a train of lymphatics with the right kidney. He further states that bacteria are able to pass directly from the intestine into the lymph vessels if there is even a slight lesion of the intestinal wall. That there are produced by these micro-organisms inflammatory lesions of the wall severe enough to cause the production of a thickened tissue externally (membranous pericolitis) is evidence that such transmigrations of the bacilli through the wall and into the surrounding lymph spaces does take place not infrequently, and that some pathologic conditions of the kidney are directly consequent to precedent pathologic changes in the cæcum and ascending colon seems to be exemplified in some of the recorded cases.

(5) *Ovarian troubles* have been suggested by not a few cases, but removal of the supposed offender has failed to benefit the patient because the real offender, the distended cæcum, dragged down by adhesions, has been left. Here, again, the pain is more diffuse than is usual in ovarian cases with no definite localization and no association with menstrual function such as is common in the latter. Pelvic examination after thorough clearing out of the bowel should clear up these cases.

(6) *Chronic colitis* might be simulated somewhat by membranous pericolitis, but in true chronic colitis there is a much more definitely increased secretion of mucus with diarrhœa and abundance of mucus in the stools. In membranous pericolitis, on the other hand, diarrhœa is rare (hence I gave it as the last of the symptoms) and mucus in the stools is not the preponderating element, but is coated over the hard stools. Chronic colitis is, however, the chief causal agent of membranous pericolitis, according to Gerster, but Jackson inclines to the view that colitis may occur as a condition secondary to chronic retention in and irritation of the gut, which, again, is due to restriction of its action by the pericolic membrane.

(7) *Membranous pericolitis* may be confused with *Lane's Kink*, but where this occurs *per se* the signs are localized instead of being spread over the right abdomen and are more toward the mid-line; and here the X-rays after the bismuth meal usually differentiate clearly. It must be noted, however, that Lane's Kink may exist with or as a part of membranous pericolitis, in which case differential diagnosis is unnecessary, but it should always be *looked for* at the time of operation.

In spite of all this differentiation, cases may and will arise, in which an exploratory laparotomy is necessary to fully establish the diagnosis, and at the same time it will enable one to estimate the full extent of the condition if present, and if absent the nature of the condition which has been mistaken for it, and the procedure best fitted to overcome the conditions found.

Treatment.

In slight cases it is not too much to expect cure by non-surgical treatment, if we accept the view that a colitis or excessive absorption of irritant toxins or infective material in the colon is the primary cause of the condition; which view is the one most largely favoured by writers on this condition. Such non-surgical treatment would embrace (1) a correct dietary eliminating the factors of fermentation and irritation; (2) the sufficiently frequent and thorough evacuation of the bowels and (3) stimulation or awakening of the impaired muscular tone of the gut.

The second and third of these can be obtained by homœopathic treatment and this may be aided by correct massage or vibration and exercises.

Our allopathic friends further recommend direct medication of the colon with colonic lavage by the Plombières douche or through an appendicostomy, &c., but I cannot recommend these procedures to you, as I have not seen any successes, but many failures, where they have been tried. An external abdominal support to correct malpositions and obviate enteroptosis, &c., is of value in this connection, and I can recommend the one made by Walton and Curtis.

Beware of cathartics, for while they help to get evacuations they do not tend to restore the normal muscular tone either to the intestinal or abdominal walls, and are at their best only makeshifts.

Surgical Treatment.

Where medical (or non-surgical) treatment has had fair trial and not produced satisfactory results—and it is not conceivable to me that orthodox medication can possibly do much in these cases (as our friends of the old school seem to have recognized when they submit their patients to colectomy), though I would not venture to say the same of homœopathic treatment, for I feel that its limitations are not known—where, then, non-surgical treatment has failed and in spite of it the patient seems to get worse rather than better, surgical treatment should be had recourse to, and I would urge that this be not long delayed when it has become obvious that treatment is not producing the desired progressive amelioration of the symptoms. In an advanced case, such as some of the cases quoted by Pilcher, illustrations of which I will show you, it is evident that since the condition is maintained by mechanical causes, relief must come by mechanical, *i.e.*, operative means. Various procedures have been advised. Lane at first recommended ileocolostomy, or ileo-sigmoidostomy, short-circuiting the ileum into a healthy portion of the colon or into the sigmoid, and from this he derived much but not complete satisfaction, because reverse peristalsis still carried contents into

the excluded gut; to avoid this he supplemented ileo-sigmoidostomy by colectomy, removing large or small segments of the intervening colon according to the case; this procedure did not improve his results, instead it increased both the distress of the patients in many cases and the mortality, and it was not surprising that such radical methods met with little acceptance. He has now returned to his ileo-sigmoidostomy, but to prevent the reverse peristalsis carrying fæces back into the right colon, he endeavours to produce a new kink above his point of anastomosis. This procedure is too new to allow of scientific deductions being drawn as to its usefulness, but we have our opinions based on physiological considerations, *e.g.*, may it not result in diarrhœa instead of constipation, and then what of nutrition in thus cutting off the greater part of the absorbing colon?

Then there is the method of cæcostomy or its modification appendicostomy with its accompanying irrigation, &c. This method also is unsatisfactory, as in many cases it only relieves so long as the fistula is kept open.

Another method of dealing with the condition, which has given some satisfaction, is an anastomosis between the cæcum and sigmoid (cæcosigmoidostomy); but the method which commends itself most thoroughly is that of dividing and reflecting all constricting bands, or dissecting off the membrane entirely, covering raw areas as far as possible with the reflected membrane; relieving all kinks and restoring to the gut its normal position and freedom as far as possible. To this it may be objected that the raw surfaces left will give rise to further adhesions, but this is not the case, as the exposed surface seems to have an epithelial covering. If, as has been the case, the gut is so narrowed and atrophied that restoration of function is not sure of attainment, then a lateral anastomosis between the ascending and transverse colon, or the ileum and transverse colon, is called for, or an operation similar to a pyloroplasty may give the desired relief. Certainly colectomy becomes very rarely, if ever, necessary. If the cæcum is very dilated, plication may be resorted to (lateral or vertical stitches.)

The incision which best enables this procedure to be carried out is either a vertical incision through the right rectus abdominis as recommended by Jackson, or through the right lateral margin of the muscle as recommended by Pilcher.

Case 1.—Female, aged 42, single, nulliparous. First seen November 12, 1913. Complains of a constant dragging or drawing pain in right iliac region causing her to stoop when walking and to lie on back with knees drawn up; also a pain running up over right iliac crest into right lumbar region. Duration: years; never without consciousness of pain except when asleep. Previous history: Right nephropexy six or seven years ago, followed by laparotomy (because nephropexy did not cure her pain) with draining of the gall-bladder for "chronic pancreatitis." Patient improved greatly for a while, but pain in right hypochondrium, &c., persisted. Bowels constipated. Examination: No hernia; palpation difficult because of excessive tenderness of right lower quadrant of abdomen, both back and front, but nothing gross detectable on palpation except slight right renal ptosis; pain is along under side of nephropexy scar in loin and in appendix region in front. (Declines examination under anæsthetic.) January 7, 1914: Being nothing bettered as regards pain in spite of treatment, consented to examination under anæsthetic, which was made and revealed nothing definite, either per abdomen, per vaginam, or per rectum, but in the region of the cæcum some indefinite thickening. Operation advised and consented to. January 14: I operated and found "adhesions" around head of cæcum and spreading on to the ascending colon, with one thick band running down towards the right pelvis, and another adherent to the anterior abdominal wall at site of former operation. Appendix thickened. I removed the appendix, and as much as possible of the thick band; divided peritoneal adhesions to the inner side of the ascending colon. No trouble was detected in the gall-bladder or pelvic regions. The abdomen was closed in usual way. March 14: There was nothing unusual to note during her recovery from operation. Has been away a little. Now really feeling very much better in self. Still has much

pain though no longer hot and hard and restless with it. May 21: Bowels still constipated at times, at others loose stools, thinks looseness predominates. Can lie still and sleep with legs out, and can sleep on her sides a little, which she could not do before.

Case 2.—Female, aged 23 or 24, single, nulliparous. Came up to town to be under the care of Dr. Miller Neatby for (?) mucous colitis, for which she has been treated for some time by a provincial *confrère*. Showed many signs of neurasthenia and so was seen by Dr. Goldsbrough in consultation. Causes of neurasthenia believed to be some chronic abdominal condition for which my opinion was sought. I diagnosed membranous pericolitis or chronic appendicitis. On January 31, 1914, I operated through an incision in the right semi-lunar line and found the appendix to be fairly healthy, but spread over the cæcum and ascending colon was a well marked very vascular membrane (pericolic membrane), which I removed very carefully, revealing and releasing many folds in the gut which were before obscured and fixed by the membrane; minute bleeding points on the gut were secured with fine catgut. I removed a multiple follicular cyst from one of the ovaries. (The pathologist has since pronounced this non-malignant.) The abdomen closed in three layers. Healing was aseptic, perfect and uneventful. During convalescence in the nursing home I asked the patient to write out for me a list of her symptoms before operation and to compare them with her then present condition; the following is the result:—

Before Operation.	*After Operation.*
Constipation; frequently has to take liquid paraffin, &c.	Promises to be better.
Flatulence after every meal causing food to return.	Better. Still have a good deal of flatulence, but food does not return so much.
Pain on right side; at bad attacks accompanied by nausea and aching down right leg; when slight, a constant grumble as if some foreign body were probing place. Greatly increased by walking.	Gone, only a little aching from the wound.

Pain on left side, sometimes increasing when walking and before periods.	Still have it slightly.
Passing of mucus in large quantities.	?
Peculiar "glued" feeling all round.	Gone from right side, only very slight on left side.
Indigestion at times.	Still have a good deal.
Constant throbbing weariness (exactly the same feeling all over as one gets in one's feet after a very long walk in heavy boots), greatly increased by bad constipation attacks and when overtired.	Better a little, but still have it, especially when at all overtired.
Long intervals between periods.	Very short intervals.
Passing of fleshy, skinny substances at many periods (quite painlessly).	? (too soon to tell).

Subsequent progress: March 6, 1914, patient writes from Tunbridge Wells (whither she went to recuperate). A fortnight after the operation and whilst still in bed, felt better than had done for years, but now trying to get about, feels weak and tired. March 31, writes: Internally I still continue to be splendid, but am so very weak and cannot lose the weariness. June 3, writes: "On the whole things are very satisfactory; ever since they started (*i.e.*, twenty-three days after my operation) the bowels have acted regularly each day with no aid but that of paraffin, which for me is wonderful. Also I do not think I have passed mucus since the morning of my operation. I have had much less indigestion, and until the last fortnight scarcely any flatulence. The periods have been regular and very healthy." January 6, 1915 (nearly twelve months after operation), writes in reply to my request for a report up to date: "I am pleased to say that with regard to my internal troubles I can give a *most*

satisfactory report. I have no constipation now; the bowels act regularly every day. The pain also has been practically nil. I do just occasionally have a sort of stiff pain in the right side but never anything violent. I go for long walks each day, generally between 3 and 4 miles, and never get any internal pain through walking, whereas I used to get it after about ten minutes walking."

This case also illustrates some of the difficulties of diagnosis. So far it has been a splendid success, but many of the neurasthenic symptoms persist; these will doubtless disappear with continued treatment and care.

Case 3.—L. W., female, aged 32, single, nulliparous. Admitted to London Homœopathic Hospital August 12, 1914. Complaint: For last five years has had pain of varying severity, extending from waist to groin, and round to back on right side. In first instance pain came on suddenly, but was attributed by her doctor to nephroptosis. Soon after she developed a hernia in right groin; wore a truss for a time, but left it off, and has not been troubled with it till lately. Sometimes pain in side is so severe that she can hardly get about. Some weeks she is comparatively well. Has suffered from indigestion since the other trouble began. Often swells up on right side after a meal, and only obtains relief by vomiting. (Is a vegetarian because she does not care for meat.) Walking any distance makes pain worse. Character of pain is burning, throbbing, sometimes sharp, sometimes dull, aching. Previous health: pneumonia at 6 years; scarlatina at 8; ill for some weeks at puberty; since then no illness till present trouble began, five years ago. State on admission August 10, 1914: Abdomen—inspection—walls lax, and move freely with respiration; slight tumidity in umbilical region immediately to right of umbilicus (patient says right side is usually quite swollen up). Palpation: tenderness all over right hypochondriac, lumbar and iliac regions, and right half of umbilical region, tenderness most marked in the last; (?) slight weakness of abdominal wall in region of right external ring; no nephroptosis; per rectum nil. August 12: I operated through

incision in right semilunar line. The cæcum was perfectly healthy; the appendix was about 4 in. long, the last half inch recurved, forming a hook with an acute bend; it was therefore removed, though otherwise quite healthy. The ascending and transverse colon appeared to be inflamed, but closer inspection revealed a very vascular pericolic membrane, spreading over them and binding down the proximal portion of the transverse to the ascending colon, thus causing acute angling, but not sufficient to merit the term "kinking." The membrane was distinct from the great omentum and from the visceral peritoneum covering the bowel; it was very vascular, and attached to the bowel, chiefly by its margins, and at the longitudinal bands, and, when stripped, did not leave a raw surface, but points of attachment had to be ligated with fine catgut; it was also attached to the parietal peritoneum to the outer side of the ascending colon. Here and there thickened bands passed from the colon to surrounding structures; one such was attached to the lateral abdominal wall, and another passed right down to be attached near the symphysis pubis. These were ligated and divided. The colon thus freed from the bands and adventitious investing membrane was allowed to return to its normal position. There was no inguinal hernia present. The wound was closed in three layers, and the patient afterwards directed to maintain the left lateral position for some days, but she was obstinate, and persistently turned on to her back when left. August 21: Sutures removed; healing perfect; still complains of much pain. September 1: Very little pain; going out in a few days.

Discussion.

Dr. Wynne Thomas (in the Chair) thanked Mr. Hey for his interesting paper. The subject was quite a new one to him and as so far he had not come across a case of membranous pericolitis, he could not give any personal experiences, but he thought Mr. Hey was to be congratulated on the cases he had operated on and relieved.

Dr. Goldsbrough thought the most interesting thing in connection with the subject brought forward by Mr. Hey was the

differential diagnosis between chronic appendicitis and this condition of membranous pericolitis or membranous colitis. It has been usual to regard colitis probably as more associated with the descending colon. He considered that the colon system, including the appendix, must be regarded as one system. All parts are one system beyond the ileo-cæcal valve, so that one would expect there would be a relation between the appendix and the colon. Mr. Hey's cases reminded him (Dr. Goldsbrough) of a case he had in the hospital, a nurse, aged 38, who had had her appendix removed but her ailments were no better. She suffered from attacks of vomiting and headache fairly frequently and no cause could be discovered for it. The pain and trouble she had in the abdomen was such as to make all think her headaches had an abdominal origin. She was sent for vaccine treatment and Dr. Goldsbrough had an auto-vaccine prepared and gave it to her, but no effect arose from it. She thought that after a series of injections she was a little better, but the attacks recurred. She was sent back to Eastbourne and since then medical treatment had helped her to reduce the attacks. In this case removal of the appendix did not relieve what was evidently a more general abdominal condition. Dr. Goldsbrough also mentioned another case which was admitted as colitis, where the patient had no symptoms when she abstained from milk, but had well marked attacks of colitis when she took milk in diet. He did not know if there was anything in milk which affected the lower bowel. A good deal had been said lately with reference to the use of sour milk in constipation, and he thought it was worth while to consider the relation of milk diet in these cases. In these cases which were accompanied with neurasthenia Dr. Goldsbrough felt that neurasthenia was a purely secondary condition and not primary. Saville had put all neurasthenic conditions down to pyorrhœa, but they might be due to pericolitis, inflammation of the bowel and other things, but Dr. Goldsbrough was convinced that in neurasthenic conditions arising with colitis, neurasthenic is secondary to the abdominal state. It did not follow however, that the relief of the abdominal state cured the neurasthenia, because the neurasthenic habit is so ingrained into the patient

that unless you follow up with a course of treatment for the neurasthenic condition, you do not get all the relief you expect from removing the primary cause.

Dr. Stonham agreed with what had been said as to the association of neurasthenia with colitis. Nearly all the cases of neurasthenia he had seen also had colitis, and he agreed with Dr. Goldsbrough that in these cases neurasthenia must be considered to be a secondary condition, and also that relief of the abdominal condition does not always cure the neurasthenic condition; the nervous system seems to be so impressed with the neurasthenic condition that the patient could not get rid of it when the primary cause was removed.—*The British Homœopathic Journal*, May, 1915.

THE LANGUAGE OF SYMPTOMS.

By Benjamin C. Woodbury, Jr., M.D.

The anamnesis is generally understood to include all the patient's symptoms—that is, those experienced by him subjectively, those related by his attendants, and finally those observed in him by the physician. These, and these alone, should constitute the totality.

Obviously, if this be the case, many imperfectly taken cases do not constitute a true totality. Hence many so-called homœopathic prescriptions are not based upon the totality of the symptoms.

For instance, practitioners of nature cure, a method of natural healing embracing Osteopathy, Homœopathy hydrotherapy, massage, the natural diet, et cetera, make use of the method known as "The Diagnosis from the Eye." This method is based upon a work published in 1880 by its author and originator, Ignaz Peczely, a Hungarian; advocated by August Zoeppritz in his *Homœopatische Monatsblaetter* and later improved by Dr. Emil Schlegel of Tuebingen, and a Swedish homœopath, Nels Liljequist. The principles of this art of diagnosis have been reviewed, enlarged and embodied in a book

of 150 pages, entitled "The Diagnosis from the Eye," by H. E. Lane, M.D., of Chicago.

The basis of these teachings is to be found in the observation of Peczely, a layman, that "azure is the normal color of the eye of the Caucasian race; that allopathically treated diseases darken the color of the eyes." The origin of his method is said to have been his experience as a boy in noting the effects of an injury upon the eye of a captive owl.

In the process of capture the bird had suffered a broken leg; and as the boy looked into the clear iris of its eye he noted the rising of a black stripe in the lower part. As the bird remained in his garden for several years, subsequent observation showed that that part of the eye which had showed the black stripe now showed white and crooked lines.

The value of this observation lay in the fact that injury or inflammatory states in the body which at first show themselves in the iris of the eye as definite lesions, signifying their acute nature, are later found to have undergone marked changes coincident with the progress or cure of the disease. By this method of analysis, which Peczely afterward perfected, he was able to trace the whole history of the patient's disease, and show wherein and by what measures it had been treated and suppressed by allopathic drugging.

In accordance with these principles which are in agreement with the teachings of Hahnemann, chronic (psoric) diseases, and particularly those affecting the sympathetic nervous system are registered in the sensitive, radiating filaments of the iris of the eye. By the aid of charts the patient's disorders may be accurately diagnosed, even to stating his past inheritances, present encumbrances, his suppressed psora and medicinal diseases.

If this be true, as its advocates believe, we should most carefully investigate it in its relation to Homœopathy. In fact, it should be classed among other valuable methods for obtaining objective evidence of disease. That there should be any objection to it by homœpaths, except on the grounds of falsity, seems little short of absurd. In fact, truth should never be denied an

impartial hearing. By this means, which is as plausible as any heretofore advanced, Hahnemann's psora theory finds vindication. Many so-called homœopaths, however, prefer not to believe in this teaching, and would doubtless join the allopathists in denouncing this discovery of a layman, simple reason that by such means the suppressive methods of allopathy are best exposed.

Such intolerence has ever been manifest on the part of physicians toward many valuable discoveries of non-professional investigators. For instance, we are told by Dr. Gallavardin, in his interesting little monograph on the "Homœopathic Treatment of Alcoholism", that the discovery of Schlesinger of Lissa, in Prussian Poland (1830), of a means of curing asthenopia and other disorders of the eye by glasses of gradually diminishing numbers, led to a division among Berlin physicians "into two parties, the progressives, his partisans, and the conservatives, his adversaries." His discovery was rejected by the Institute and Academy of Medicine, in 1840, *owing to his having no medical degree.*

It is fortunate for the ultimate triumph of such practical and reformative measures that the medical profession is not altogether loath to take sides even in the defense of the non-professional advocate of such methods. In this connection it is well for us to bear in mind the generosity of Guizot, the minister of public instruction at the time of Hahnemann's removal to Paris.

"Hahnemann is a scholar of great merit", he said, "science must be free to all . . , the academy has the mission to forward science and to encourage its discoveries". Had it not been for the friendship and impartiality of this public official, the great climax of Hahnemann's career might not have been achieved.

However, the tenets of nature cure are classified, the law of cure, as enunciated by Hahnemann, runs through all its teachings.

Valuable as this method of diagnosis undoubtedly is, if well understood, does not the anamnesis really contain whatever can be learned by this or any other method of physical examination?

However this may be in theory, in actual practice it is difficult to observe carefully enough to obtain by any one method all the evidences of objective disease. Symptoms, to constitute the true totality, should include all the subjective evidences and all the objective manifestations of the dynamic disturbances of the organism Therefore, whatever this or any other method of physical examination of the patient may reveal, the homœopathist, as well as any other physician, is entitled to utilize. A few points, however, are worthy of consideration.

The basis of the "Diagnosis from the eye" is an objective materialism, whereas the patient's expression of his individual symptoms is a subjective vitalism, if we may use these terms.

That is to say, the one tends to be in a certain measure materialistic, the other dynamic, or vitalistic. So we may say that Homœopathy, correctly interpreted and practiced, contains all that is claimed in the practice and theory of nature cure, and in a general way the law of likes or the law of correspondences covers it all. Thus Homœopathy is broad enough for the theories of nature cure; whereas nature cure, unless it gives full credence to the discoveries and application of this law, is not in itself broad enough for Homœopathy—the broadest form of therapeutics. We must read into the anamnesis both the objective symptomatology and the suppressed and expressed subjective symptoms of the patient.

The advocate of progressive measures in politics, religion or science must continually wrestle with time-honored customs, fixed ideas and prejudices that would ever block the advancing wheels of progress. So at present the homœopathist must pass upon the tenets of nature cure, and find in it the application of the one fundamental law of similarity.

In order to cure diseases of dynamic origin, as taught by Hahnemann, we must apply only dynamic or virtual remedies capable of similarly exciting the reactions of the vital force; yet we must not forget that disease has its mechanics as well as its dynamics. Hence there are certain mechanical forms of disorder which must be carefully considered.

Disease manifests itself primarily in disordered vitality; secondarily in diseased organs or pathological changes. The alterations produced in the iris of the eye are part of the objective phenomena, and as such should be carefully noted and recorded by the physician. Such manifestations represent a part of the visible outward results of the disordered dynamis expressing themselves upon the delicate organ of vision. As soon as these lesions become outwardly visible their impress has already been made upon the inner dynamic plane of the organism.

Such changes in the eye must take place only coincidently with and in consequence of the internal derangements of the vital equilibrium which registers the visible manifestations of the subtlest of bodily actions and reactions.

It is upon these delicate regions that the carefully proven remedies of Homœopathy are capable of exciting reactions. When such actions and reactions are found to be identical with the symptoms of a given case, then (so long as the vital forces are capable of reacting to such drug forces) are diseases curable. When such reactions are no longer capable of being aroused, then the case is incurable. Only in this way can we explain the action of medicines in insanity—that is, that their action is upon the higher regions of the mind and soul.

Take a case of chronic disease—cancer, for instance, about which so little is known except by way of conjecture. What an interesting is a single case of this disease! Our cognizance of an object represents the sum of all our conscious or subconscious reactions to it, our impressions of its size, shape, color and general appearance. Suppose that object be the tumor growth known etiologically as cancer or carcinoma. If we consider it from this standpoint we are at once impressed with its form, weight, macroscopic and microscopic appearance. We consider it, first of all, from the pathological standpoint, from its general relationship to a class of diseases that is rapidly becoming more and more common; in fact, so much so that it may almost be looked upon as a racial disease. We then study the supposed causes that have been classified,—chief among which may perhaps be said to be

that of irritation,—and finally we begin to think of it as a form of malignant ulceration, with proliferation of cellular tissue, resulting in tumor growth.

We next consider its relation to the patient,—as to the intimacy with which it is associated with his or her bodily organization,—and finally, after our most exhaustive survey of it as a specific new growth, we are forced to conclude that it is, after all, not any longer cancer, but *a cancer*—in fact, the cancer—of a patient who has presented himself or herself with a well-defined and specific lesion.

Our pathological findings acquaint us with the fact that we are face to face with a definite pathological lesion, which has, as at least one of its chief characteristics, a bacteriological basis. Bacteriologically considered, the germ with which we are incidentally concerned must be a product or at least a concomitant of the disease.

Careful examination will disclose the fact that the cancer patient has disordered blood; he is anaemic; he has well marked cachexia, engrafted upon a scrofulous or, as Hahnemann called it, a *psoric* diathesis. He has chronic acidity of the bodily discharges, hence the irritation produced by contact on the skin or orifices of the mucous membranes. The patient's history includes eczeme, hemorrhoids, fissure ani or other hyperacid states. Such a train of symptoms is plainly the result of hereditary and acquired psora (ill habits, mental, moral and physical); furthermore, there may be a history of sexual excesses, some long-continued drain upon the system, suppressed skin eruption or foot sweats. These are but a small number of the various symptom-complexes that may be brought to light in the examination of a case of malignant disease.

To cure such a case—if we may venture to say that such a thing is ever possible—the physician must take down its structure brick by brick, razing it to the ground story by story, stone by stone. Each symptom group must pass before his observation in the inverted order; each symptom must follow in succession

its predecessor until all are uncovered and removed in the reverse order of their appearance.

Such process may perhaps be likened to the unwinding of the film of the cinematograph, each picture passing backward until all are unwound. So in every complicated case of disease we find a mixture of drug suppressions, the symptoms of progressive tissue changes, present symptoms, et cetera, representing potentially, and in many cases actually, a variety of forms of disorder piled one on top of another, like the stones in a column. Especially is this true of the aged. The case of apoplexy, with its array of atheroma, arterial hypertension, blood and lymphatic stasis, and the various interstitial changes, represents in toto the sum of every attack of acute or chronic catarrh, every physical or emotional shock, every mental or psychic trauma; in fact, every bodily lesion incurred in the sturdy struggle for bodily survival. It is only by looking upon disease in the perspective, or from its larger aspect, that we can hope to see revealed in a multiplicity of results the gradual sequence of fixed and gradually unfolding causes.

No student of morbid anatomy is so well fitted for this mastery of reasoning as is the trained homœopathist. He only learns to recognize in the gross pathology the deeper, more subtle dynamical pathology of Hahnemann. The advocates of mechanicotherapy, for instance, see, as did the allopath of old, the grosser, more material results of disease; and these they seek to remove, attacking the disorder for the most part purely upon the physical plane. The allopathist recognizes such materies morbi, and with the aid of his advanced scientific appliances is enabled to penetrate to the deeper realms of pathology; yet he still seeks to remove these "fancied causes" from the patient at whatever cost.

The homœopathist, on the other hand, works throughout the whole realm of cause and effect, directing his efforts toward the removal of the primary dynamic disorder from which the pathology has had its beginning. The methods he employs are directed deep within the hidden well-springs of being—to the vital

force, which alone, when disordered, results in the inharmony of health or disease. He therefore seeks to restore this dynamic equilibrium by the correction of bad hygiene, proper mechanical or surgical measures when indicated, and finally by the use of the attenuated homœopathic remedy, applied according to the principle of symptoms similarity.

Thus would we exemplify the therapeutic law promulgated by Samuel Hahnemann. What system of therapeutics has as yet been offered for consideration that can so simply and so safely restore the mental, moral and physical equilibrium of the bodily machine?

Surely in an age of ever changing cults and creeds there is no small measure of satisfaction, in allying ourselves with the constructive forces of Homœopathy.

Broad, comprehensive, progressive is the method of Hahnemann; fortunate are those who are numbered among its adherents. Fortunate are those who are privileged to carry forward the banner of Homœopathy.—*Medical Advance*, March, 1915.

EDITOR'S NOTES.

Heliotherapy in the Treatment of Wounds.

By L. Jaubert.

A report of the author's experiences with heliotherapy on the southern coast of France is given. Sunlight is credited with analgesic, antiseptic, healing, and eliminatory virtues. The treatment proved of value both in extensive superficial wounds of the soft parts and in wounds involving bones and joints, especially when the structure affected were relatively superficial. In all open wounds fetor of the discharges, when present, was caused to disappear after four or five sittings. Dead tissue is next eliminated, the pus becomes thinner and less in amount, and fleshy granulations appear. The efficacy of sunlight was shown in that in periods of bad weather or cloudiness, healing temporarily ceased. The resulting cicatrices were generally soft, flat, and devoid of keloid formations. In compound fractures requiring removal of fragments of dead bone, heliotherapy hastened regeneration of the bone tissue, diminished suppuration, and led to the discharge of small bits of dead bone overlooked at the operation. The general condition of the wounded was also favorably influenced. Good results were obtained from direct local heliotherapy and from exposure through glass. The treatments are gradually lengthened from eight or ten minutes to an hour or an hour and a quarter, in the course of eight or ten days. The wounds are carefully washed and dried before each exposure, and are kept under observation during the insolation, a discharge of pus or serous or seropurulent, secretion, which requires removal with an absorbent pledget being generally excited. After the exposure an oily or slightly moist dressing is applied, to prevent adhesion and the tearing off of fresh epithelium.—*The New York Medical Journal*, June, 1915.

A Pioneer of Naval Hygiene.

The name of James Lind, to whom beyond any one else we owe the abolition of scurvy, that terrible scourge of navies in the eighteenth century, is probably unknown to the medical profession of to-day except to a few students of history. This is all the more unfortunate since it was his fate in his lifetime to be a voice crying in the wilderness, and it was not till after his death that the Government took any steps to carry out the suggestions of one of its own

chief medical officers. The indifference with which Lind's suggestions for the prevention of scurvy were received by the Admiralty is used by Herbert Spencer in his *Study of Sociology* as an instance of the "amazing perversity of officialism" in resisting innovation of any kind. An interesting account of his career by Dr. H. D. Rolleston has appeared in the *Journal of the Royal Naval Medical Service* (vol. i, 1915). Lind was born in Scotland in 1716, and after serving some years as a surgeon in the navy he took the degree of Doctor of Medicine at the University of Edinburgh in 1748, becoming a Fellow of the College of Physicians of that city in 1750. While at sea he had seen much of "ship diseases," and in the preface to his *Treatise on the Scurvy*, published in 1754, he says of scurvy: "This disease alone during the last war proved a more destructive enemy and cut off more valuable lives than the united efforts of the French and Spanish armies." So terrible were the ravages of scurvy that again and again it crippled our fleets and threatened to undermine our sea power. Lind did not claim that the use of oranges and lemons as a preventive of the scourge was his own discovery; he quotes B. Ronsseus, the first writer on the subject, who, in a book published in 1564, said that "in all probability the Dutch sailors had by accident fallen on this remedy when affected with scurvy on their return from Spain loaded with these fruits, especially oranges." Dr. Rolleston gives instances of the successful use of lemon juice long before Lind was born, and refers to a definite recommendation of it as a remedy by Woodall, author of *The Surgeon's Mate*, published in 1636. A second edition of Lind's book appeared in 1757 and a third in 1772. It was translated into French and his teaching was accepted by leading physicians throughout Europe. This makes it all the more extraordinary that the naval authorities of his own country turned a deaf ear to his advice for more than forty years. He was elected an honorary member of medical societies in Paris and Copenhagen. He was appointed physician to Haslar in 1758, a position which he continued to hold till 1783, when he was succeeded by his son. He died at Gosport in 1794. Besides his work on scurvy he wrote other books, among them being an essay *On the Most Effectual Means of Preserving the Health of Seamen*, which first appeared in 1757; a second edition was published in 1762 by the Lords Commissioners of the Admiralty as an honour "upon account of the discovery I had then made by rendering sea-water perfectly fresh and wholesome by a

simple distillation." Here again Lind did not reap the reward of his labours, and in 1772 a grant of £5,000 was made by the House of Commons to Irving, a naval surgeon, for an inferior apparatus. Lind also wrote on fevers and infection (1763) and on the "Jail distemper" (1773). He showed that "hospital fever," "jail fever," and "simple fever" were simply typhus under different names; he taught that the infective agent was carried in filthy clothes and rags, and that it could be destroyed by great heat. These observations, as Dr. Rolleston points out, are quite compatible with the modern view that the infection is carried by lice. In 1765 he published an *Essay on Diseases Incidental to Europeans in Hot Climates*, which passed through five editions in his lifetime, reached a sixth in 1808, and was translated into French and German. He was thus a pioneer in tropical diseases as well as the "Father of Nautical Medicine," as his contemporary, Trotter, by no means an indiscriminate flatterer, calls him. Dr. Rolleston has done well to remind the profession of a forgotten worthy who did so much for the health of that service to whose silent but sleepless vigilance we are at the present moment indebted for preserving the country from the horrors of war.—*The British Medical Journal*, May 29, 1915.

The Healing Powers of Sunlight.

To return from a holiday with a well-tanned skin, whether it be from the seaside or from the mountain tops, has always been regarded as the outward and visible sign of sound health. Sunlight in each case, together with wind, has been the agency by which such hygienic perfection has been brought about. The application of this well-known fact to cases of disease, and particularly of tuberculous disease, has been slowly gaining ground of late years, and foremost among the advocates of sun-healing may be placed Dr. A. Rollier of Leysin, who has boldly applied the treatment on the wooded slopes 4,000 feet above sea-level with marked success. In a well-illustrated volume he has now recorded the results achieved during the last ten years, and they merit careful attention.

That the value of sunlight as a healing agency is no new idea is well shown in a preliminary historical chapter. In olden days the good or evil effects of the solar action were generally attributed to the gods, and no profane attempts to explain them were deemed necessary.

The Modern spirit of inquiry is not so easily satisfied, but it cannot as yet be maintained that anything like satisfaction has been arrived at. The influence of light and heat rays and waves of varying length upon the human body has been steadily under investigation for many years, but there is still much diversity of opinion amongst the most skilled investigators. Hence the therapeutic value of direct sunlight must still rest upon clinical evidence, and the cases that Dr. Rollier is able to bring forward in support of his teaching are certainly convincing.

When dealing with climatic conditions by the sea and in the altitudes, he points out that the composition respectively of the atmospheric air must be markedly different, the sea air being demonstrably laden with emanations from the water, such as are not to be traced in the air of inland mountainous regions. The effects of the sunlight may be modified by these differences, and he claims for the altitude sunshine a degree of stimulating power which is not noticed at the seaside stations.

The cases most suitable for the direct solar treatment are those which in former days were classed as "strumous." Tuberculous diseases of skin, glands, bones, joints, peritoneum, and other internal organs are included in the list of cases treated, and the patients were for the most part of tender age. By abundant use of illustrations, many of the plates being coloured, Dr. Rollier is able to show the mode of life which he permits his young patients to lead during their respective stages of disease, and the conditions observed before and after treatment. Boys and girls from 7 to 16 years of age are seen to be at work and at play with no greater protection to their naked bodies than can be afforded by waist-cloths and sun hats. Outdoor schools on the high snow slopes, presumably reached on the ski, to be seen piled up in the foreground, and haymaking parties in the summer time, are recorded by colour photography. The tinge of skin which appears to be acquired in every case is a rich mahogany brown, of a somewhat redder tint in some of the fairer complexions. It is this pigmentation which is said to render the skin insensitive to changes of temperature, and it has to be taken as a guide in the process of acclimatization of the individual patient when he is first given the sun baths. Extreme caution is necessary at first, and no child is allowed to arrive at the stage of complete exposure, except by very

slow degrees. Every case calls for special treatment, and the mechanical devices employed in dealing with spinal and joint cases are many and ingenious. The use of the ventral position in cases of Pott's disease of the spine has proved most efficacious in reducing curvature by the force of natural gravitation.

Among the many striking effects produced after prolonged sun baths may be noted the gradual production of movable joints in cases where partial ankylosis appeared to have taken place; the healing of local suppuration whether from superficial or deep lesions, and the steady improvement in general health which followed the continued exposure of the whole body to the sun's rays, all point to the conclusion that the influence of pathogenic microbes is thereby annulled. No adjuvant medication seems to have been used, and the results achieved must be regarded as due to the direct effect of the exposure of the bare skin to sunlight and pure air. Success is not claimed in every case, and it must be noted that very definite changes are apt to be induced in certain joint diseases. Pain, as a rule, is eased almost at once, but it may happen that swelling and tenderness of the inflamed joint may follow with rise of temperature, but such cases would seem to be exceptional.

Dr. Rollier's experience may be regarded as a definite landmark in the progress of a method of treatment which is already more than justified by its results.—*The British Medical Journal*, May 29, 1915.

Gleanings from Contemporary Literature.

THE DIAGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE KIDNEY.

By Leon T. Ashcraft, A.M. M.D., F.A.C.S.

Tuberculosis of the kidney is a condition that frequently exists; but, unfortunately, is rarely recognized until it is far advanced, in diagnosis often occurring on account of the fact that the early symptoms are mostly referable to the bladder. Practitioners, consequently, are misled into treating these cases as those of cystitis for a long time—of course, without result; and this makes the prognosis very grave. The object of this paper, then, is to emphasize the importance of a correct and early diagnosis, in order that surgical therapeusis, with appropriate after-treatment, may produce a cure.

The disease occurs about twice as frequently in males as in females, usually attacking young adults; although it is not uncommon to see it in those above the age of forty years, and it may be found in children.

Although the miliary form is usually bilateral, statistics show that in about sixty per cent of the cases examined postmortem, renal tuberculosis of the caseo-cavernous type, which is the only sort amenable to surgical treatment, is unilateral. The chances that both kidneys may be involved are twice as great in children as in adults. Statistics show that in twenty per cent of the postmortem cases, the lungs and other organs participate in the morbid process.

In some rare cases in which genital tuberculosis is primary in the epididymis, or in which a lesion of the prostate exists, the bladder may become secondarily involved by contiguity, and ascending infection through the ureters into one or both kidneys may occur. Usually, however, the infection is hematogenous; and it commonly gives rise to the caseous nodular type of the disease, in which cheesy foci find lodgment midway between the bases of the pyramids and the cortex of the kidney substance. These foci vary in size. Later they undergo softening and liquefaction, and break either toward the renal pelvis or into the kidney envelope. Not infrequently, tubercles are located above and beneath the true capsule, where they appear as fine nodules. Eventually, after these foci liquify, the kidney is converted into one large abscess or into many minute abscesses. If, however, the infection is an ascending one, the kidney pelvis, naturally, attacked first at the apices of the

pyramids, while if, as is sometimes the case, the infection is both hematogenous and ascending, one finds the varied foci of tuberculous deposit quickly becoming a large suppurating sac. This type of the disease is recognized as total caseous degeneration.

At operation, a kidney is occasionally found presenting numerous isolated nodules that have not yet undergone liquefaction. This variety, the fibrous nodular form, is indeed quite rare.

In acute miliary tuberculosis, either one or both kidneys may reveal a primary focus that is quite small. It may appear as a minute tubercle of grayish-white color (at first, pearly white; and later, dull and opaque); or there may be a circumscribed nodule surrounded by a hyperemic zone. The tubercles may be few in number and localized, or abundant and scattered throughout the organ. The cortical region seems to be the common seat of the infection.

The process in the chronic form commonly begins at one portion of the organ, usually the lower, and extends until the whole kidney becomes involved. At first, it appears as a small, grayish-white nodule. The tubercle enlarges, breaks down, and becomes caseous. The organ is frequently enlarged, but its shape is not altered. It feels soft, and gives a fluctuating sensation to the touch. The capsule is adherent. A cut section shows the kidney to be converted into a number of sacs, many of which communicate with the pelvis and extend up into the cortex. In advanced cases, the kidney substance may be almost totally destroyed, consisting only of a thin shell; or merely the capsule, enclosing caseous material, may remain.

In another variety, the kidney is studded with many firm, grayish-white nodules, varying from the size of a pin-head to that of a pea. These nodules may exhibit little or no tendency to necrosis. The capsule adheres; and when it is removed, the surface of the kidney shows small, elevated nodules.

The tissues about the kidney are frequently the site of chronic inflammation, converting the fat into connective tissue; or else a suppurative perinephritis is produced, owing to the extension of the liquefactive tuberculous process to the capsule by contiguity.

In primary tuberculosis of the kidney of long duration, the ureter invariably becomes diseased. Simple tuberculous inflammation is produced, with the result that the wall becomes thickened, causing stenosis of the canal and converting the ureter into a firm cord, which is adherent to the surrounding tissue. Often, in attempting to catheterize the diseased ureter, I have encountered

this condition. Of course, in the rare ascending form of kidney tuberculosis, the ureter is always involved before the pyramids and is the first to show the tuberculous changes.

As has already been remarked, the early symptoms of renal tuberculosis are entirely referable to the bladder. Urination is quite frequent, and the patient may void hourly, both by day and by night. Frequency and incontinence at night are, however, the most suggestive symptoms, being due to a reflex irritation from the kidney or to bladder involvement.

Previous to a rupture of the tubercles, the amount of urine is increased. It is clear and sparkling, with a low specific gravity and an acid reaction. Strangely enough, the urine is nearly always acid, being alkaline only when there is abundant pus, containing many micro-organisms. Some pyuria is usually present, varying with the extent of caseous degeneration and ureteral patency. It usually appears in the more advanced cases, as a thick, creamy mass, which rapidly sinks to the bottom of the beaker into which the urine is voided. In many instances, however, particularly in the earlier cases there are but slight traces of pus and albumen present.

Hematuria is found in varying amount, depending upon the extent of ulceration about the apices of the pyramids. It is rarely profuse, sometimes barely clouding the urine. Although not a constant symptom, it is a very suggestive one.

Micturition is not, at first, painful; but later, it becomes agonizing, as the result of rupture of the tubercles. This is especially true when the ureter and bladder are involved, the act then becoming a torturing vesical tenesmus. Owing to the frequency of urination, the patient's life becomes one of constant torment.

Renal tumor is not commonly perceptible at first but may be present later, varying in size with the amount of kidney degeneration.

The pain of renal tuberculosis, while almost constant, varies in intensity at different times. It is not usually acute, but of a dull aching character—particularly in women suffering from nephroptosis. Commonly it is worse at night. It varies with the degree of liquefaction of the tubercles and with the amount of pus present. It may simulate Dietl's crisis or, when blood-clots are passed, suggest renal colic. It is especially worse at the menstrual period. I have in mind the case of a colored girl with no involvement of the uterus or adnexa, and no disease other than tuberculosis of the right kidney, whose temperature and pulse were never more

than normal and who did not complain of renal pain except at the menstrual period.

The pain in this disease is usually referred to the lumbar region and to the side affected. It is some times felt along the course of the ureter, especially over the crest of the ilium; and sometimes suprapubically, when the vesical end of the ureter is involved.

The constitutional symptoms consist, at first, in a slight nervousness and malaise, a little elevation of temperature in the afternoon, and disorders of digestion. Chronic digestive symptoms are pronouncedly present in early renal tuberculosis. After the tubercles rupture, the temperature may rise to 101° F.; and in septic cases, to 104, the chart showing the temperature and pulse of sepsis. Loss of weight is also pronounced. Like tuberculosis in any other part of the body, renal tuberculosis is characterized by exacerbations and remissions of the symptoms.

As previously noted, the small amount of pus and albumin present in many cases of renal tuberculosis, particularly in the early stage, is very likely to mislead the practitioner into not giving due consideration to the possibility of the existence of that disease, in the belief that the condition present is merely vesical. Such mistakes in diagnosis would be prevented, if physicians would make it a rule never to begin the treatment of albuminuria, pyuria or cystitis until after having made careful chemical, microscopic and bacteriologic examinations of the catheterized urine. It is of no avail to examine merely the voided urine for the presence of tubercle bacilli, on account of the fact that the smegma bacillus will take the same stains as the tubercle bacillus, and the finding of smegma bacilli may lead to an erroneous diagnosis of tuberculosis. To avoid any error in diagnosis between other acid fast bacilli and tubercle bacilli it must be recalled that the tubercle bacilli is alcohol fast while the others are not. Not infrequently, also, colon bacilli are found in such cases, these organisms still persisting even in the presence of tubercle bacilli; and in advanced cases, one naturally finds many of the pus-producing cocci in conjunction with the tubercle bacilli.

Tuberculosis may, of course, exist without albuminuria; but the presence of albumin should suggest a search for the tubercle bacillus. Even when this organism is not discovered, intermittent albuminuria, in connection with the other signs suggestive of kidney turberculosis, is sufficient to confirm the diagnosis in many instances —particularly if the pathologist cannot succeed in making a culture of any other organism from the urine submitted to him. If, after

several microscopic examinations, he has found pus, but no micro-organisms, one may make, with almost complete certainty, a diagnosis of tuberculosis. Rovsing has been able to discover the tubercle bacillus in 80·7 per cent. of all his cases of tuberculosis of the uninary tract, by means of Forsell's method of examination, which consists in taking the lowest portion of the precipitate of the aggregate twenty-four hours' urine in a separator, treating this centrifugally, and examining under the microscope.

If the tubercle bacilli cannot be detected with the ordinary methods of culture, the sediment from the specimen of urine obtained by catheterization may be injected into a guinea pig. This test is of considerable value in the case of urines that contain no other bacteria although it has the disadvantage of slowness. When, however, other organisms than the tubercle bacillus are present, it is not satisfactory, on account of the fact that the animal is likely to succumb from the coincident infection before the test is complete. The catheterized urine is collected in a sterile container and centrifuged for two or three minutes, after which the sediment is washed several times with sterile water, in order to free it from any urinary salt. It is then mixed with one cubic centimetre of salt-solution or sterile water, and injected into the peritoneal cavity of the guinea-pig. The animal should be weighed before the injection, and each week subsequently, so as to see whether it has lost in weight. It is killed at the end of six weeks and examined for evidences of tuberculosis.

The urine should be examined for urea. Cathelin lays especial emphasis upon the quantitative study of the urea contained in the diseased kidney, which he obtains by segregation, and has formulated a number of rules concerning its elimination. He absolutely decries, from a diagnostic standpoint, any other test for the function of the kidney.

In order to determine the course, character and extent of the pathologic involvement, it is necessary to resort to cystoscopy and bilateral catheterization. To the expert cystoscopist, a careful inspection of the bladder, particularly in the region of the ureteric orifices, will convey a great deal of information. Fenwick describes four changes that are visible in the ureteric orifices in the course of urinary tuberculosis, as the result of descending infection; a golf-hole orifice; a displaced orifice; a choked orifice, and a massive edema of the orifice. These have an important bearing on the diagnosis and treatment. Catheterization of the ureters also detects

changes in them, such as inflammation and partial or complete stenosis.

I wish to emphasize the necessity of bilateral catheterization in these cases: because, in from ten to forty per cent. of them, both kidneys are tuberculous. It is of especial importance when one is considering the removing of a kidney. Although some object to this procedure, claiming that infection of the sound kidney may be produced by it, I believe that this objection is largely theoretical, as I have observed no untoward effects from it. Certainly, it seems absolutely imperative for us to inquire most carefully into the exact condition of both kidneys.

It is not within the purpose of this article, since it is not a technical one, to give a detailed description of the method of performing cystocopy and catheterization.

According to Wildholz, the most unimpeachable evidence of the presence of tuberculosis of the kidney consists in a deterioration in the function of the suspected organ. Various functional tests are now popular, such as the phenolsulphonephthalein test of Rowntree and Geraghty, the indigo-carmine test of Völker, cryoscopy and the phloridzin test. The one upon which I mainly rely is the phenolsulphonephthalein test, used in conjunction with the urea determination. When tubercle bacilli have been found in the mixed urine and one has been unable to localize the disease by means of cystoscopy and ureteral catheterization, a marked diminution in the output of phenolsulphonephthalein on one side points to disease in that kidney. For instance, if one kidney shows an output of from forty to sixty per cent. within the first hour after the administration of the drug, and the other kidney shows a diminution in its output below twenty per cent. it is a safe inference that disease exists in the latter organ. This finding likewise affords marked confirmatory evidence of the existence of renal tuberculosis.

It is my unvarying custom to make both the functional and the quantitative estimation by the phenosulphonephthalein test.

To rely upon it alone, would be a mistake; but when it is used in combination with the output of urea and the clinical signs, it is a valuable aid to both diagnosis and prognosis. It should always be employed before deciding to do a nephrectomy; and I am inclined to believe that the information thus obtained concerning the renal function will largely determine the advisability of the operation.

I am also in the habit of depending upon pyelography and roentgenography as valuable adjuncts to diagnosis. Some, while acknow-

lodging the occasional definite diagnostic value of this method, consider it entirely too risky in renal tuberculosis to be employed as a routine measure. As to its danger, I would state that although I have adopted it in many cases of tuberculosis, covering a period of several years, I have yet to see the first bad result from its use with a careful technic. In regard to its value, some additional light may be thrown upon the subject of the differential diagnosis from conditions that may simulate tuberculosis, such as stone and essential hematuria, by a picture of both the ureter and the pelvis of the kidney, as well as the kidney-substance. While I should hesitate to depend upon pyelography alone in making a diagnosis of tuberculosis of either the kidney or the ureter I consider this procedure of marked confirmatory value, permitting of an exact anatomic orientation of the destructive changes present.

Valuable evidence of the existence of renal tuberculosis that can be secured in no other way may often be obtained from the use of one milligram of tuberculin, which should be administered by the hypodermic method. Following its administration one not infrequently notices an increase in renal pain, slight temperaturize and pyuria.

The presence of pain, albumin, pus, occasional hematuria, and urinary frequency, added to the cystoscopic appearance of the ureters and a careful examination of the urine for bacteria, constitute, if no other organisms are discovered, a strong presumptive evidence of the existence of renal tuberculosis, even though no tubercle bacilli are found. One is then justified in making an exploratory incision on the affected side, with a view to finding some evidence of the character of the degeneration of the kidney cortex. It will be remembered that this is where the degeneration first starts.

Should it be absolutely impossible, by reason of stenosis of one or both ureters, to determine with accuracy the functional activity of the kidneys, a good deal of information may be obtained, in the male, by an examination of the epididymis and the prostate: and in either sex, by kidney palpation. Tenderness over the erector spinae, enlarged lymphatics or lung consolidation may be of added value.

The diagnosis of the ascending form of kidney tuberculosis is more readily made, by the history of a nonvenereal epididymitis or prostatitis, or of an unaccounted-for cystitis. In such cases, cystoscopy and a careful catheterization of the segments of the ureter may show a localization of the disease. It is my custom to examine the urine from every six centimeters of the ureter. As before stated, I have, in many instances, been able to detect changes in the ureter by means

of pyelography. In the advanced stages of renal tuberculosis, when tubercle bacilli are usually present in the urine, the diagnosis is more readily made. It is diagnosis in the early stages that puzzles one.

The outlook for the cure of tuberculosis of the urinary organs is favorable, when treatment is undertaken sufficiently early in its course, provided that there are no gross lesions of other organs; but if treatment is postponed until the later stages, the prognosis becomes very grave. Spontaneous cure is of very rare occurrence, and no cases showing healed tuberculous foci in the kidney have ever been demonstrated postmortem. Most so-called cases of spontaneous cure are due to obliteration of the ureter, thus walling off the tuberculous focus, or to total destruction of the kidney. In such circumstances, the danger that the other kidney may become infected is very great: for by the time such a condition has been produced, the other side is usually involved. Inasmuch as the changes in the kidney from tuberculosis are progressive, the liquefactive tuberculous process, involving the ureter, sets up an intolerable cystitis, which ascends into the other kidney. In addition to this, tuberculous deposits may be found in the lungs, genitalia and bones. Of course, the prognosis in such cases is grave in proportion to the extent of the involvement. Therefore, it is very unwise to delay treatment in the hope that a spontaneous cure may take place. This being the case, it becomes necessary to consider the method of treatment.

The object of any therapeutic measure must be to assist the functionating power of the cells that constitute the immunizing mechanism of the body. By excising tuberculous tissue, and thus extirpating a major focus of disease, one removes an obstacle to the action of this immunizing mechanism and enables the antibacterial substances contained in the blood to act more efficiently and perhaps to destroy any small remaining foci. Medical treatment with tuberculin and other remedies, aided by proper hygiene and dietetic, may then increase the energy of this immunizing mechanism and prevent the formation of new foci of disease; but most authorities are agreed that such treatment is of very little value until after the diseased kidney, together with the ureter, if necessary, has been excised.

Tuberculin alone has been supposed by some to be able to check the progress of the disease in the early stages, and Koersmæcker has reported in detail twelve most unfavorable cases in which treatment with it produced such an improvement as to cause the symptoms to disappear either nearly or entirely. He is of the

opinion that if a cure is not obtained by this means, it is either because the treatment has not been properly administered, or because the beginning of the tuberculin treatment. In spite of this favorable report, however, I am still of the opinion that it is usually better to postpone the use of tuberculin, as well as of other medical and hygienic treatment until a nephrectomy has been performed. All know that these cases often exhibit periods of freedom from symptoms when no effort whatever has been made to check them; and it is unreasonable to expect tuberculin to be able to raise the immunizing power of the blood sufficiently to make the antibacterial substance penetrate considerable masses of caseation and cause their obliteration. Nephrectomy should first be resorted to, and then the tuberculin treatment may be effective in preventing the further spread of the tuberculous process.

The surgical treatment of kidney tuberculosis may be expressed in one word,—nephrectomy. Renal tuberculosis of hematogenous origin, as has been remarked, is usually unilateral at the outset; and it may remain so for quite a length of time. Early operative removal is advisable, therefore, as it greatly lessens the probability of the other kidney's becoming involved. Ascending urogenital tuberculosis offers a more serious prognosis, because the disease is more likely to be bilateral from the start. If there is tuberculous involvment of the genitals, excision of the diseased area is the proper treatment, which should be combined with the operation upon the kidney, thus ridding the system of many tuberculous foci. It is not uncommon for the surgeon to remove one or both epididymes at one sitting, and to excise the kidney later.

As a rule, nephrectomy should be performed on the diseased side, and ureterostomy for the ascending tubercular ureteritis, thus preventing the migration of the tubercle bacilli to the opposite side. Mayo recommends that instead of removing the ureter, including a part of the bladder, for extensive disease, one should excise only the kidney, together with the upper end of the ureter, and treat the lower end of the ureter and the bladder with a five per cent. solution of carbolic acid.

Of course, there are contraindications for nephrectomy. In the acute miliary form of the disease, it is unjustifiable; and also when the lungs, bones or joints are greatly involved or if there is peritonitis. On the other hand, slight apiceal involvement, mild manifestations in other organs, quiescent epididymitis or slight periostitis should not contraindicate this operation. Indeed, it is

quite probable that the system may be benefited by this operative procedure. One should remember the words of the elder Keyes, who said that he doubted whether one is ever able, by means of a surgical procedure, to rid the economy entirely of tuberculosis. There are, however, varying degress of involvement, and it is not against the dictum of modern pathology and surgery to attempt the removal of a tuberculous focus in cases in which this appears to give the patient a better chance for life, enabling the antibacterial elements in the blood to reach the remaining tuberculous foci and destroy them, perhaps with the aid of tuberculin.

The mortality from the surgical treatment of tuberculosis of the kidney, which is from one to six per cent. for the immediate effect of the operation, and fifteen per cent. for the remote result, is not so much due to the nature or gravity of the disease itself as to the lateness and inaccuracy of the diagnosis and the ill-advised and untimely methods of treatment. It has been estimated that nephrectomy saves from death four-fifths of the patients having renal tuberculosis. The prognosis of operative interference is much better in women than in men, according to Vineberg; and nephrectomy is no bar to the bearing of children.

When one contemplates the removal of one kidney, one should endeavor to make certain that the remaining organ is sound. If its functional activity is found to be deficient, one may defer the surgical procedure until one has, by means of hygienic, dietetic and other medical treatment, restored to the slightly impaired kidney the ability to carry on properly its bodily function. It is my experience that patients get along much better with one sound kidney than they do with one diseased organ and one that is bound to become so eventually, if the affected kidney is allowed to remain. In bilateral involvement of the kidney and in cystitis, the renal function of the better side will determine the advisability of nephrectomy.

The question as to whether one should remove the ureter also or treat it by means of carbolic-acid solution is still *subjudice*. Broadly speaking, I think that it is well to remove the ureter when it is markedly involved, showing ulcerations about its orifice. If there is marked bladder involvement, it is, of course, imperative that the ureter be removed.

Nephrotomy, which is merely a palliative measure, is performed for the purpose of opening large abscesses. It is usually preparatory to a later nephrectomy, for which it cannot be considered as a substitute.

In cases in which both kidneys are involved, it is sometimes justifiable to attempt a conservative operation on one of them. If marked amelioration follows, the other kidney may be either treated in the same way or extirpated.

Inasmuch as this is not a technical article, I have refrained from describing the operative technic. My personal experience with renal tuberculosis has been fairly large, and I have usually been able to make the diagnosis by means of the methods herein mentioned. The cases in which I have performed nephrectomy early have shown the most gratifying results. A number of years have elapsed since the first of these nephrectomies for tuberculosis were performed, and most of the patients upon whom I then operated are still living and clinically well.

As renal tuberculosis is not usually a primary affection, one should consider patients who have been nephrectomized on account of the kidney as being subjects of latent tuberculosis, and should keep them under supervision and medical treatment. The therapeutic measures at one's disposal include irrigations of the bladder, urinary antiseptics, analgesics, sedatives, hygienic treatment and the use of tuberculin.

Treatment must be directed towards the bladder condition. Most of my cases receive a daily irrigation with bichloride of mercury, 1-50,000 commencing with 30 to 60 c. c. and at each subsequent treatment increasing the amount of fluid and the strength of the solution. Sometimes I employ a six per cent. carbolic-acid solution or a saturated solution of boracic acid. In all circumstances, I inject, after each irrigation, 10 c. c. of a twenty per cent. solution of carbonate of guaiacol and one per cent. iodoform in olive oil. It is remarkable what a beneficial effect this seems to exert on the bladder. By means of these methods, the capacity of the bladder is increased. The urine becomes quite free from pus, blood and debris; and the interval between the acts of micturition is prolonged from two and a half to three hours. This is true not only of those who have been nephrectomized, but also of those in whom the disease is too far advanced for operative interference. To be sure, the procedure in the latter case is merely palliative; but it is distinctly so. In the former, however, it serves to heal any local lesions that may exist in the bladder.

The local pain may be combated by means of opium suppositories. The yellow oil of sandalwood, potentized tuberculin and bacillinum are also of value. The hygienic treatment is that employed for

tuberculosis anywhere in the body. The tuberculin treatment, however, is of occasional value.

Either the method of Trudeau or that of Wright may be employed. In the former, a bouillon supplied from the Saranac Lake Laboratory is used. It is administered once a week, the initial dose being ·0005 mgm. This is gradually increased to 50 or ·100 mgm., the clinical signs of reaction, local, focal or constitutional, being closely observed. The method of Wright consists in giving an initial dose of bacillary substance varying from 1-50,000 to 1-20,000 mgm.; and in febrile cases, from 1-100,000 to 1-50 000 mgm The doses are given at weekly intervals, and gradually increased; so that at the end of six months or a year, the dosage may be from 1-1,000 to 1-5,000 mgm. When such symptoms as a slight rise in temperature, frequency of micturition, malaise, headache, nausea or chills occur, one should await spontaneous improvement before resuming the treatment with a considerably smaller dosage.

While this method is to be used principally in advanced cases in which a nephrectomy has been performed, it may produce some improvement in cases when operation has been declined or in which the disease is so far advanced as to make operation useless. In the light of the fact that there have been reported a few cases that have yielded to medical treatment, one has not performed one's entire duty until this treatment has been tried in such cases that are not treated surgically. In the more advanced cases of renal tuberculosis, in which one kidney is absolutely gone and the other shows some evidence of involvement, and in which the epididymes and prostate are also involved, it becomes very difficult to decide between the use of supportive dietetic and hygienic treatment, employing tuberculin, and a palliative operation, such as nephrotomy, with the possible prolongation of life that may result. I have sometimes drained the tuberculous areas in all the organs involved. This, at least, affords temporary relief; and I am not prepared to say that, in any sense, it hastens the end.—The *New England Medical Gazette*, April, 1915.

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OBSERVATIONS ON THE ETIOLOGY OF CANCER.

By Henry Mason, M.D., C.M.

The subject which I have the honour of introducing for discussion to-night is, I am sure you will agree with me, one of very great interest and importance. If we look back some twenty-five or thirty years to the changes and advances which have been made in medicine and surgery during that time, we cannot fail to be impressed with the fact that although great progress has been made in our knowledge of the causation and pathology of disease generally and that in consequence our treatment is more successful, there yet remains one disease, *viz.*, cancer which in spite of all the work done in hospitals, in private practice and in special research laboratories, is still ill understood and the treatment of which must be regarded as a black spot in the practice of medicine. I am sanguine that in the near future its nature will be elucidated and we shall find it as amenable to treatment as tuberculosis or syphilis. It is well to bring such a subject under discussion now and again, and I do so in the hope that many of you who know more about it than I do will be able from your experience to throw additional light upon it.

There can be little doubt, I think, that during the last two or three decades the mortality from cancer has undergone a

serious increase. Statistics show that this has been general throughout the country. In Leicester alone the death-rate from cancer is just about double what it was twenty years ago. In the last thirteen years of the nineteenth century 1888 to 1890, both inclusive, the average annual death-rate per 100,000 was 56·6. The first thirteen of the present century show a death-rate from cancer of 89·7. The figures are more remarkable if we take the two extremes. For the five years from 1888 to 1892 the death-rate averaged 48·2. For the three years 1911 to 1913 the average per 100,000 was 103·3. So far as I know there is no satisfactory explanation of this alarming increase. The census returns show that the longevity of the population is greater than it ever has been, and as cancer is specially prone to effect those approaching the autumn of life, the increase may be partly accounted for on this ground. But this reason alone is quite insufficient, and until we know more of the etiology of the disease it is not likely that we shall be able to explain it satisfactorily.

Our views on the nature of cancer have undergone considerable changes in the course of the last twenty or thirty years. Before the era of bacteriology it was regarded as essentially of constitutional origin, probably some morbid condition inherent in the tissues or blood. Then, when specific germs began to be discovered in various diseases, and in many of them conclusive proofs were given that these germs were the definite immediate cause of the disease, search was made for a germ or organism which could be known to bear the same relation to cancer. The search has been keen and unremitting and the bibliography produced by a very large number of workers is enormous. Many organisms have been found and described and grown in culture media, but I think it is generally agreed that hitherto there has not been sufficient proof that any of them bear a definite causative relation to cancer. Probably in consequence of the failure to discover the specific germ, supposing it to exist, the pendulum seems to be swinging back again to the older view of constitutional peculiarity but with important modifications. This constitutional peculiarity or idiosyncrasy is now known as

a condition of protein sensitization or anaphylaxis. In other words it means that state of the body which renders it more sensitive to the injection of substances of a protein nature producing in effect a weakening of the immunity reaction against cancer.

The researches of Dr. Basford and his colleagues are probably familiar to many of you and although, so far as I am aware, the experiments showing the influence of radium in cancer have been carried out chiefly on mice, the results obtained have been very remarkable. I will endeavour, as briefly and as fairly as I can, to summarize the views he has put forward. Dr. Bashford is not inclined to accept the existence of a parasite as the cause of cancer, his reasons being that the disease presents essential differences from those diseases which are known to be infectious, and also because he believes it to be improbable that a parasite could produce proliferation at one time in the epithelial or glandular cells, and at another in the connective tissue. His argument, which you will find elaborated in his address at the International Congress last July, rests partly upon definite observations made in the study of artificially propagated malignant tumours in mice, and partly upon an assumption, not verified by actual observation, the spontaneous occurrence in apparently healthy tissues of irregular cell-division, or heterotype mitosis, and subsequent nuclear fusion in tissues other than those concerned in normal reproduction. The cancer neoplasm is implanted in mice, and the growth transferred from one mouse to another is practically unlimited without altering its character. For considerable periods no hetero-type mitosis can be detected, but at recurring intervals they appear and then nuclear conjugations have been detected which are regarded as the starting point of a new generation of cancer cells. Heterotype mitosis is a terminal phase in the life-history of reproductive cells of animals, and it is suggested that it occurs in other tissues which are becoming senile and losing their power of cell reproduction. Then, by chance, nuclear fusions occur which carry on the growth and develop into malignant tumours. It will be noticed that there is a good deal in this which is

purely theoretical and unsupported by actual observation, and also some which is contrary to what are regarded as actual clinical facts of the disease. If the hetero-type mitosis happened as a spontaneous recurrence in apparently healthy tissues then one would assume that cancer would appear frequently as a generalized disease, breaking out simultaneously in numerous parts of the body. But this is very rarely, if ever, the case. Another factor has to be assumed to explain this, and the theory of local chronic irritation is brought forward to supply the missing link.

Whilst admitting the force of Dr. Bashford's statements, the logic of his deductions, and the respect which belongs to the opinions of one who has done such brilliant work in the study of the disease, I venture to submit that the older theory of germ of parasitic origin should not be discarded. Not only is it within the bounds of possibility, but it affords the most probable explanation of many facts in the development of the disease. There are many features about cancer which exhibit markedly the phenomena of parasitism and point strongly to the view that there is a special germ which originates the disease, which is able to take root and develop when the immunity reaction is below the normal. (1) The disease is always of local origin. Some may think this a debatable point, but all the known facts point strongly to this view. If you get the case sufficiently early, a radical removal results in complete cure. Every surgeon can point to many cases in support of this statement. (2) In the majority of cases, so far as we can ascertain, the patients are otherwise in perfect health. There is in all probability a diminished immunity reaction, but this at present we have no means at hand to diagnose. There are many conditions of the nervous and lymphatic systems and modifications of tissue metabolism which remain unexplored by the pathologist and clinical chemist, and this is one of them. Dr. Beddoe states that, in his opinion, cancer is most common in people who have a fairly healthy constitution in other respects. The only modification of this statement is that he thinks there is some reason for supposing cancer to be a

disease where development is favoured by civilization, comfort, and intellectual progress. (3) With scarcely any exception the growth at first is single, and secondary foci are subsequent developments. So far as I can see the only theory which can explain satisfactorily these facts is the germ theory. Some bacillus, or protozoon, or organism has been introduced from without and been able to implant itself in the tissues and produce the disease.

As I have already stated, I think we are forced to admit a preparation of the soil or diminution of the power of natural resistance. Dr. Bashford's experiments upon mice, showing the influence of radium upon these growths, are very suggestive. Although they did not show definitely that radium in small doses increases the power of resistance or the immunity reaction against cancer, yet it appears that whilst it is able to destroy the cancer cell it does not lessen the immunity reaction, but after large doses, after prolonged exposure not only is the cancer destroyed, but also the power of the immunity reaction is diminished. A comparison may be made with tuberculosis. We are exposed to, and probably are the unwilling hosts of, the tubercle bacillus every day, but so long as we keep fit and vigorous, and the invaders are not too numerous or too virulent, we are more or less immune and can defy them. In the case of cancer this condition of diminished immunity reacton or increased protein sensitization, or as it is usually called the precancerous stage, has been recognized by many of us. Dr. Galley Blackley wrote about it some years ago, making special reference to the influence which pecuniary anxiety had upon the development of cancer. The late Dr. Arthur Clifton described the type of ill-health which he thought preceded its development, and mentioned drugs with which to combat this. Personally, although attaching great weight to the opinions of those whom I have mentioned, the pre-cancerous stage is still to me an entirely unknown quantity. I cannot say that my experience leads me to suspect any special type or temperament of individual as more prone to the disease than another. Rich and poor, the sanguine and the morbid, the fair com-

plexioned and the swarthy, the fat and the lean seem all equally liable to fall victims. The only difference which I have observed is that people of sedentary habits seem rather more prone to the disease than those accustomed to active vigorous exercise. I mention this with some reserve, for I can recall a few exceptions to it. An explanation of it may be that as cancer is mainly a disease of the later years of life it occurs at a time when naturally people get less active and more sedentary.

But to return from this digression, interesting and important though it be, to the more immediate cause of cancer: Dr. Bashford, in the paper I have alluded to, reiterates the old-standing theory of chronic irritation. Cancer, he says, occurs in practically every phase of life and every species as an indirect result of chronic irritation, but what the direct or actual cause of the disease might be, he was not prepared to state. I feel much diffidence in venturing upon an opinion different from that of this eminent specialist, and differing from the view that has hitherto received general acceptance. Chronic irritation and strain have always been brought forward as a most important factor in inducing cancerous growth. They may be antecedent conditions in many cases of cancer, but it is altogether begging the question to state that they have anything to do with the actual development of cancer. Between the antecedent conditions and the actual development, there is an internal tissue change of which we may as well admit we know very little. Personally, I believe that chronic irritation and strain have nothing to do with the actual development of cancer. If they had we ought to find this disease exceedingly common in situations which are notoriously subject to chronic irritation, such as the feet and toes where corns and callositis persist for years, as the result of ill-fitting boots, also in the axillary folds in cripples as the result of wearing crutches, on the first and second fingers and thumbs in the case of clerks, on the bridge of the nose from wearing glasses, on the forehead from stiff hats; but cancer from these causes is almost unknown. The classical instances brought forward are those

on the tongue or lip from irritation of a tooth or pipe, on the breast from a blow, on the scrotum in chimney sweeps, on the skin from X-rays, on the glans penis from phimosis. In all of these cases another factor far more important than irritation is at work. This is sepsis, or to be more definite, exposure to this special germ or parasite of cancer. My attention was markedly directed to this by two cases of cancer of the alimentary canal—one of the rectum and the other of the sigmoid. In both of these an extremely septic condition in the mouth had been present, both wearing plates with artificial teeth which had never been removed for months, in one case for over two years. Instructions had been given by the so-called dentist that they were to be worn night and day. I found removal of them quite a difficult performance, and the fœtid conditions underneath were beyond words. It seemed to me that it was unnecessary to look much further afield to discover the cause in these cases. The natural immunity has gradually been weakened by the profound septic conditions present, and these cancer germs found a ready soil in which to take root.

Take the case of cancer of the tongue said to be caused by a carious tooth. It almost necessarily follows that where you have a carious tooth you have a septic cavity with its stinking contents always present. In cancer of the lip attributed to a pipe, you have a local irritant which may perhaps bring this into the category of cancers induced by the pathogenetic effects of some of the carbon derivatives, but even here the ideals of Listerism are seldom present. The pipe is generally carried in a pocket which at the same time may accommodate articles of every description from a dead rabbit to a golf ball. I have never yet heard of any one making a serious attempt to sterilize either the pocket or the pipe, and if the stem is wiped on a pair of dirty trousers before being carried to the mouth, it is quite as much as one would expect of the British workman. I relieve the clay pipe has a greater reputation for causing cancer, and this would probably be explained by its having a rougher and more porous absorbent surface than the smoother briar.

In mammary cancer attributed to blows on the breast, very little reliance can be placed on such a history. Probably few women escape such blows, accidental or otherwise, and the proportion in which disease follows must be so infinitesimal that no importance can be attributed to it. The question of sepsis here is more difficult. The most probable explanation would be the theory of ascending infection, which has been proved so conclusively in the cases of the urethra, the ureter, and the Fallopian tubes by Mr. Bond. I repeated the experiment by applying indigo ointment to the nipples a few days before a breast amputation, but obtained no macroscopic evidence in this case. Possibly I may get a positive result by another method. In any case it must be conceded that a living germ would have more motile power than dead particles of indigo. In cancer of the glans penis or prepuce in phimosis the septic conditions are far more likely to cause disease than the chronic irritation of retained secretion. Cancer of the scrotum in chimney sweeps opens up a very interesting problem. Sweeps are certainly not notorious for their cleanliness, but at the same time one would not expect soot to be a suitable medium for the growth of septic organisms or germs. It has always been regarded as destructive of the lower forms of animal life and of putrefactive organisms. It certainly seems as if some of the derivatives of coal possess pathogenetic properties of a very remarkable character. Pitch cancer, paraffin cancer, and cancer occurring in workmen engaged in the manufacture of patent fuel are probably due to the same cause which produces or predisposes the tissues to chimney-sweeps' cancer. Drs. Ross and Cropper of the John Howard McFadden Research Fund, consider that it is the auxetics in tar, pitch and soot which are the predisposing causes of cancer, and some of these have been isolated. The noxious ingredient is not pure anthracene oil, but some member of the amidine group, which comes off in distillation at about the same temperature as the oil. It is believed to be the product of decomposition of some vegetable organism of the carboniferous period in the coal. The name pseudo-cumidine has been given to one of these products. Paraffin cancer, Dr. Ros

believes to be caused by the auxetic principles which come over in the distillation of crude petroleum. Liquid paraffin is one of the late products of the distillation, whereas only the intermediate oil fractions seem to be responsible for cancer. He utters a note of warning against the indiscriminate use of common vaseline, liq. carbonis deterg., coal tar pills, &c., as possible predisposing causes. It is a point of much interest to us whether these carbon propucts are, like radium, able to enfeeble the immunity reaction against cancer, or whether, as some believe, to possess the actual pathogenetic power of producing the disease. In either case I would suggest that they be kept in mind as possible remedies for it.

Cancer following X-rays is usually, I believe, a late manifestation. It takes from three to fourteen years before it develops. We have seen that radium in excessive doses not only destroys the cancer, but also that the power of immunity reaction is diminished. X-rays have a very similar action, and it therefore seems probable that after long and frequent exposures the tissues become less immune, and provide a suitable soil for the reception and ingemination of the cancer germ.

It necessarily follows if you regard cancer as caused by a special germ, that the disease is conveyed by contagion or infection. Probably, like tuberculosis, there is no incubation period, and the germ implanted in tissues which have a proclivity, either inherited or acquired, is able to establish itself and grow with greater or lesser rapidity. The long periods which seem to elapse in the earliest phases might suggest some incubation, but it is more reasonable to suppose that its development and growth are continuous, varying in rapidity with the natural power of resistance, or the degree of the immunity reaction on the individual. I have seen three cases in which it seemed that contagion was probable. A stout man doveloped multiple growths, apparently sarcomata, after taking thyroid extract freely in order to reduce his obesity. Two years after his death his widow developed cancer of the vulva, and died with secondary deposits. Another man had cancer of the bowel in the sigmoid region four years after the death of his wife from cancer of the uterus.

Before he was taken ill, he had married again, and five years after his death his second wife died from cancer of the liver. We all naturally take precautions in dealing with cancer subjects and cancer swellings, but having so little definite knowledge of the cause and actual conditions of the development of the disease, it is impossible to lay down hard and fast rules for our guidance.

As regards the question of heredity there is a very great amount of evidence to show that as in tuberculosis, a tissue proclivity is inherited in many cases rendering descendants of cancer victims especially prone to the disease. A striking instance is quoted by Broca. A woman died, in 1788, of cancer of the breast: four daughters died of the same disease, and ten grandchildren and one great grandchild of the same complaint. Another instance is recorded by Dr. D. A. Crow, in *Brit. Med. Journ.* for February 21, 1914. A chimney-sweep died from cancer of the scrotum, aged 64. One son died at the age of 45, having had a cancer of the cheek for six years; he had been a sweep since boyhood. A second son died, aged 40, from cancer of the right cheek, of about five years' duration; he also had been a sweep since boyhood. A daughter died, aged about 60, having suffered from cancer of the right cheek in the same situation as her brothers. A third son, aged 57, developed cancer of the scrotum, and recovered after operation; he was a sweep. One of the father's sisters died of cancer of the liver at the age of 70, and a son of this woman died, aged 40, of cancer of the stomach. Another of the father's sisters also died of cancer, situation not known. Many similar instances are on record to confirm the view of hereditary transmission of tissue proclivity, but on the other hand, in the great majority of cases, no history of the kind is obtainable, and it would not be wise to attach too much importance to it.

Before concluding, I would like to mention an interesting comparison from plant life. We all know that it is very unsafe to apply to the human organism deductions from experiments upon the lower animals, and a fortiori still less from experiments upon plants. Certain bacteria, however, which produce disease in

plants seem to have much in common with some which produce in animals. The *Bacillus coli* is, I believe, identical with the bacillus producing dry rot in wood. I have had one case of pyelo-nephritis, apparently caused by the *Bacillus coli* in which dry rot was found very extensively in the floors and woodwork of the house. Smith and Townsend of Washington, "have clearly demonstrated a bacterial origin for the crown-gall of plants, and this is a pathological condition which has the very closest similarity to animal tumour growths, even as regards the occurrence of metastatic growths." I quote from Dr. Crow's article. "It was found that the organism is scarce in the tissues, that it takes a very long time to appear on a culture plate, but that when isolated, it very easily gives rise to new growths on inoculating the tissues of the plant. This suggests that the reason why the cancer organism has not been demonstrated in the tissues is because of the small number present. It also suggests that the causes which hitherto prevented the cultivation of the crown-gall organism may be the same causes which prevent the isolationn of the cancer organism."

There are many other important points in the etiology of cancer, such as the endemicity, the influence of drugs, as radium, arsenic, &c., in producing cancer, but I have transgressed unduly upon your patience, and will conclude with a reference to radium from the address of Dr. Lazarus-Barlow to the Medical Faculty of the University of Leeds, which has a special interest to members of this Society. "I see cancer," said Dr. Barlow, "as a protean manifestation of purposeless disorderly cell growths, brought into existence by the long continued action of a cell stimulant, and I see in radium and radiations an agency sufficient to produce cancer. But, just as in the case of diphtheria, the agent which produces the disease is also the agent whereby the specific cure for the disease is elaborated, so I am prepared to see cancer caused by radium and cancer cured by radium."—*The British Homœopathic Journal*, July, 1915.

A PROVING OF BELLIS PERENNIS.

By Albert E. Hinsdale, A.B., M.D.

Natural Order.—Compositæ.

Synonyms.—*English*, English Daisy, Garden Daisy, Hen and Chickens; *French*, La Paquerette; *German* Maslieben.

Description.—"A perennial herbaceous plant, stemless, scape naked, single headed. Leaves obovate, crenated. Flowers are white. Heads many flowered, radiate, the rays numerous and pistulate. Scales on the involucre herbaceous. Flowers March to August."—"Homœopathic Pharmacopœia of the United States," 1914.

Habitat.—Europe, mostly in Great Britain.

History.—*Bellis perennis* was first mentioned in homœopathic literature by Dr. Henry Thomas, *British Journal of Homœopathy*, Vol. 16. Other references to the drug are to be found in Allen's "Encyclopedia," *Homœopathic World*, Vol. 19; *Hahnemannian Monthly*, Vol. 19, and in a few other homœopathic journals of several years ago. *Bellis perennis* is described both as regards its symptomatology and therapeutic applications in Clark's "Dictionary of the Medica." This work quotes largely from Dr. Burnett, of London, who used the drug considerably. It is mentioned in Dewey's "Essentials of Homœopathic Materia Medica," and occasional reference to it as a medicine is to be found in the periodical literature of the homœopathic school.

Part Used.—The whole fresh plant. The tincture used in this proving was supplied by Boericke & Tafel.

Form in Which the Drug Was Given to the Provers.—*Bellis perennis* was taken by the provers, they being six in number, four men and two women, in the form of the tincture only. No attempt was made to obtain symptoms by giving any of the different attenuations of the remedy; this at first sight might appear to render the proving incomplete, but in view of the fact that *Bellis* is not a very active medicine, and that symptoms were only obtainable from large doses of the

tincture, renders it very probable that no symptoms would have been obtained from any of the dilutions had they been given.

PHYSICAL CONDITION AND OTHER FACTORS CONCERNING THE PROVERS PREVIOUS TO THE ADMINISTRATION OF THE DRUG.—The following is an outline of the examination to which each prover was subjected:

Age.
Blood pressure.
Blood by Wright's stain.
Hemoglobin.
Urine:
  Total amount for 24 hours.
  Color.
  Specific gravity.
  Albumin.
  Sugar.
  Urea.
  Reaction.
Condition of the heart.
Condition of the lungs.
Condition of the liver.
Condition of the skin.
Habits:
  Is the prover a smoker?
  Does the prover drink coffee?
  Does the prover drink tea?
  Conditions of pulse.
  Temperature.
  Is there a craving for any particular article of diet?
  Is there an aversion to any particular article of diet?
Condition of sleep.
Is the prover subject to headache?
Is the prover subject to dreams?
Temperament.
Condition of bowels.

The ages of the provers were 29, 24, 22, 22, 22 and 43 years, respectively; the first three ages being those of the men. Every

prover was found to be practically normal both in regard to his physical condition and activity of his organs. A very few physical and functional defects were noted, but their deviation from the normal was almost within the limits of physiological variation. It would be difficult to select six better specimens of physical and functional development than were the provers.

SYMPTOMATOLOGY.

SKIN.—(The number given after any symptom represents the number of the provers who experienced the symptom.) Itching on the back and along the flexor surfaces of the thighs (3); this symptom made its appearance on the seventh day of the proving and lasted until the drug was discontinued, and it was unattended by an eruption. The modality of this symptom was worse from hot bath and from the warmth of the bed, and relief from cold (3). A previous acne became worse (1).

Itching around hairy margin of scalp and over the back, not noticed in the day time; worse from hot bath and warmth of the bed and relief from cold (1). One prover experienced absolutely no symptoms at all, either upon the skin or elsewhere.

Four or five boils appeared on the face on the twelfth day and lasted one week (2).

STOOL.—Five provers experienced intestinal symptoms characterized by diarrhœa, as follows: Yellow (5), foul odored (5), watery (3), semi-solid (2), painless (5), and attended by little urging (2), or no urging (3), some gas expelled with the stools (2), and worse at night (5).

SEXUAL ORGANS.—(The following symptoms were shown by one of the women provers; the other prover had a hysterectomy performed some years ago and consequently no symptoms peculiar to disturbances of the sexual organs or menses could be obtained): Started taking the drug the day before menstruation and the proving ran over two menstrual periods. The uterus seemed sore as if squeezed; this symptom was more or less constant through the entire menstrual period each time. No change in the character of the flow could be detected. Accompanying symptoms were dizziness and vertigo, worse upon rising and relieved

by lying down. Pain down the anterior surface of the thighs was noticed each time of the menses.

Extremities.—Owing to the variety of the rheumatic symptoms elicited, each prover's symptoms are recorded separately.

Prover No. 1.—Soreness in both elbow joints, which felt as though hit with a club; this symptom lasted two days after which both knees and right ankles were similarly affected. There was a deep soreness with strained feeling which lasted until the proving was completed (23 days), No modalities.

Prover No. 2.—Soreness of left knee joint with a feeling as though the tendons were drawn; worse from motion. Both thumb joints also affected. Soreness over region of the ribs and axillary space on both sides with a sensation of squeezing, which was worse at night.

Prover No. 3.—Stitching pains in the right hip and shoulder, intermittent in type, lasting about two minutes; worse at night with no modality as to motion.

Prover No. 4.—Rheumatic pains all over the body, worse in the morning and better from motion. Soreness in the muscles.

Provers Nos. 5 and 6 experienced no symptoms in the extremities.

Doses Employed.—All doses were taken three times daily and no symptoms were obtained until a half drachm was taken at a dose, this being on the seventh day of the proving. The dose was gradually increased until one drachm was taken. The proving lasted over a period of 23 days.

New Symptoms and Therapeutic Applications as Deduced from the Proving.—What is supposed to be a reliable symptomatology of this drug (and it is not the intention here to assume that such record is not reliable) gives no mention of any diarrhœic symptoms. In this respect the symptomatology of *Bellis perennis* has been amplified. Neither have any female symptoms of this drug been recorded with the writer's knowledge. Owing to the fact that female symptoms were elicited from any one woman prover, as stated before, it was impossible to obtain

female symptoms in the other female prover (because of a previous operation) too great dependence should not be placed upon the findings in this particular case. The findings are suggestive, however, of what might be obtained in case the drug was proved by several women.

It thus appears that *Bellis* should be a useful remedy in diarrhœas of a yellow color, painless, of a foul odor and worse at night. In this respect the drug resembles somewhat *Podophyllum, China* and *Phosphoric acid,* yet there are decided points of differentiation between *Bellis* and these drugs, and it appears that the remedy may come to occupy a very distinct place in the therapeutics of diarrhœic conditions.

In disease peculiar to women *Bellis perennis* may prove to be of service in certain uterine affections characterized by squeezing pains in the uterus; pains down the anterior surface of the thighs accompanied by dizziness. Some of these symptoms are seen under *Lilium tigrinum, Cactus* and *Xanthoxylum.*

Some new skin symptoms were developed in this proving which have not appeared in any former pathogenesis. Dermal irritations characterized by itching, without an eruption, especially upon the flexor surfaces of the thighs, aggravated by heat and relieved by cold, will probably be benefited by the remedy. In some respects these symptoms of *Bellis* resemble the skin symptoms of *Dolichos.*

Verifications Which This Proving Has Furnished of the Former Symptomatology of the Drug.—A former symptomatology credits the remedy with producing boils. Boils were produced in this proving, consequently it is reasonable to believe that the power of the drug to produce this condition is firmly established

Former records of the effects of *Bellis* show that a variety of rheumatic symptoms are produced by it. These effects have also received verification by this proving. In general, the therapeutic range of *Bellis* in rheumatic conditions is as follows: Soreness of the joints; strained, bruised feeling characterized by no especial modality; generalized muscular soreness. The writer has

frequently and successfully used this remedy in the treatment of such conditions with the most gratifying results. In so-called rheumatic cases, lacking the modalities of *Bryonia* and *Rhus tox.*, *Bellis* is indicated. In general, the drug may be classed as a vulnerary, and its external application, in the form of the tincture, might with increased benefit accompany its internal administration. For bruised conditions, muscular soreness, resulting either from exposure or from too vigorous physical exercise the herb with which this test has been made is very useful and, in the opinion of the writer, who has given the remedy many trials in these conditions, it far surpasses *Arnica*

Bellis perennis does not appear to vitiate the secretions of the body nor does it cause pathological tissue change. The remedy is not therefore a "deep acting" drug and it is important to note that the dose may be as high as a half drachm of the tincture and still be sub-physiological, therefore, Homœopathic.—*The Homœopathic Recorder*, June 15, 1915.

OUR NINETY-FOURTH STEP ALONG THE RACE-TRACK THAT LEADS TO THE CENTURY MARK.

J. M. Peebles, M. D.

To-day the twenty-third of March, 1915, wrapped in shadowy memories and meditations, I bid farewell to ninety-three years of storms, mental cyclones, moral struggles, and victories. And these mental struggles lighted with the sunbeams of faith and purpose, inspired me to strenuously continue the climb towards the distant mountain of the ideal. Every shadow demonstrates a causative substance and every night prophesies of a brighter morning. No real pilgrim lingers by the way nor drops his staff in early life.

At high noon on the twenty-third of this month, afire with energy, I start off briskly on a persistent climb for the century mark, and probably beyond that conservative, old-time thought of our ancestors. Why not make the ideal in the flesh, two

hundred years instead of one? This is a beautiful planet for mortal residence, with its bright and cheerful homes of millions.

Real life begins at death. With others, I stand philosophically in the centre of eternity. Involution and Evolution are the links that bind the universe in oneness. Suns of progress are rising before me; the future is golden, and joyful are my yearly footsteps towards the realm of immortality.

According to my mother's Bible, I descended into earthly mortality in 1822; and why the descent? Undoubtedly it was for observations, for diverse experiences, for mastery over the material and other reasons, to attain the wisdom necessary to help other up the steeps of the ages. Help and be helped, is among the great spiritual laws of the universe. Right here I am reminded of the Poet Tennyson's words:—

"I dipt into the future, far as human eyes could see,
Saw the vision of the world and all the wonder that would be;
Saw the heavens fill with commerce, argosies of magic sails,
Pilots of the purple twilight, dropping down with costly bales.

Whether in my native land or journeying afar in Europe or Asia, I have been astonished at the folly of missionaries, the stale sermons of preachers and the poisonous prescription of conservative drug-inspired physicians. Among the the wildest statements of physicians was that of Dr. Wm. Osler of the John Hopkin's University, Baltimore, Md. It was this: "Men above forty years of age are useless"; then he added, "history bears out the fact that the work of the world is done between the ages of twenty-five and forty. It would be of incalculable benefit for men at this period to stop work." And to intensify and make more practical his theory, he quoted these words from the noted Anthony Trollope: "Persons between forty and sixty should retire from labor for a year or more's contemplation before a peaceful departure by chloroform."

Ignoring the spirit of egotism, I most graciously state that were Dr. Osler in Los Angeles to-day, I would challenge him for a foot race around a city block, or for the writing of an

essay of 2,000 words or more for a magazine, upon any subjet except party politics.

In justice to the industrious in this city of 600,000, I beg to state that there are hundreds of persons over four score years toiling diligently in the varied business marts of life. Personally and proudly, I know several virile and active persons over four score years, toiling continuously, who, if they cannot bind the Pleiades or loosen the bands of Orion, can engage in daily office labors, attend public meetings, vigorously support reform work, cultivate their lovely vineyards, their orange-groves and beautiful gardens. Should such men be chloroformed?

There is in this city, half hidden from the frivolous masses, a club of the wise, whose ages range from 85 to nearly 95; these are hale in spirit vigorously abreast of the times. They have been named: The Twelve Wise Men. Their "hoary heads," using a bible phrase, are worthy of honor, because as persistent leaders, gathering the best thoughts of the age they crystallized them into those great reformatory principles that have made the world more radiant. Their life work has proven that Science and Religion are twin brothers; and personally speaking, I have never taught men to prepare to die, but to prepare to live—live aright—and death to me is but the changing from the old to the new coat and passing into another room of the heavenly father's mansion.

It should be remembered that man's immortality is sealed from the fact that he is a spark from the eternal fire—a segment from the eternal circle of Being—a finite God on his way up and onward to the celestial heavens.

"The longer I live and the more I see
Of the struggle of souls toward the heights above;
The stronger this truth comes home to me,
That the universe rests on the shoulders of love;
A love so limitless, deep and broad,
That men have renamed it and called it—God."

Considering the world, oriental and occidental, as the great commonwealth of God, I regard every man as my brother, every woman as my sister, whatever the climate or the color of the skin; and towards each human being, I cherish only the emotional feelings of kindness and love.

Beyond the cannon's mad roar in Europe or Mexico hear in the far future, the music of peace on earth and good will among men. Seen from the vision of the highest wisdom, blessed by confusion, misfortune and trials—all lessons that strengthen and uplift the soul to a glorious self-poise and trust that God reigns. One of our American poets sang in these words:

"For I doubt not through the ages,
One increasing purpose runs;
And the thoughts of men are widened
With the process of the suns,
When the schemes and all the systems,
Kingdoms and republics fall,
Comes something kindlier, higher, holier—
All for each and each for all."

Being asked a while since by a thoughtful youth, if I would not like to be "young" again, my prompt reply was, No—a thousand times No! As well ask the acorn-burdened oak if it would like to be a puny sapling again, or the bright-winged butterfly if it would go back to the Chrysalis stage of life again.

Grand is that period of time when the grayed hairs appear and when the curves and furrows are chiseled upon the facial features. They symbolize experiences, studies and wisdom. Candidly I seek no backward voyage across the sea of life. My sails are set for another harbor—another city—that city immortal, whose builder and maker, using the apostolic language, is God.

Sincerely do I admire thy lengthened years. I love its aspirations and its persisting resolutions. I revel in its feats of bygone valor; its present industries; its discussions and its unfolding revelations. I rejoice in its many benefactions to

my fellowmen, especially to the poor, to the peasant, rather than the prince. I believe in progress—believe that the future will be infinitely superior to the past. And while the snows of many winters are upon my head, a charming spring-time of faith and hope is in my heart. Victor Hugo pronounced the white hairs of the aged, "The stainless down that angels dropt upon the storm-beaten heads of life's heroes."

Seen from the optimistic standpoint, this is really a beautiful world, rainbowed with thousand promises. Whirlwinds, earhquakes, volcanoes and wars are nature's and nation's processes of progress. The wildest winds that howl, purify the air; the rains that rust the grains, revive the grasses. It is the frictioned steel that shines the brightest.

For but a few years preceding these nonogenarian years, my activities have been exceedingly stormy. Often misunderstood, often misrepresnted, sometimes in the homes of "false brethren," using Paul's words; frequently walking on thorn-piercing pavements; unjustly criticized, and yet I halted not by the wayside to bemoan the rough pathway, but travelled on and on, heaven-inspired and angel-guarded. I never witnessed a starless night. If cloud intervened above, I knew that the morning sun would herald the dawn of a new day.

Oh there is a moral grandeur, a glory unspeakable in longevity. It is God's command through nature. As an instance of my unceasing activities, I have during the past year, been made the President-Founder of the Peebles College of Science and Philosophy. And by the way, this College in all its educational aims, will be as progressive as my own life. It will seek to develop the whole man, physically mentally, morally and spiritually, embracing in its curriculum all those up-to-date systems, sciences and philosophies that the world's conservative colleges and universities at present ignore. The age calls for more such institutions to teach spiritual and psychic sciences, philosophies, drugless healing system and those higher principles of truth that relate to man's spiritual nature and destiny.

Death, an incident in the economy of nature, instead of being the sunset, is the morning sunrise of eternal life; it is not the place for morning apparel, nor heart-rending farewells; but of immortal greetings. It is the blessed reuniting of earth's purest friendships. Though draped with thorns of mystery to the masses, death is really the masked angel of life who opens the gates of pearl that lead into the many-mansioned house of the Father; and where each, when entering within, ascend or descend in accordance with the thoughts and deeds of this mortal life. God's love spans all worlds and no word pictures can express the grandeur and the glory of those immortalized hosts who delight to descend to bless and uplift suffering humanity.

This world is not a "vale of tears" but rather a strenuous training school or a prophetic doorway to an incoming utopia or a prelude to Bulwer Lytton's "Coming Race"; wherein Walt Whitman's "Cosmic Consciousness" becoming a pratical conviction, will widen and beautify that royal road which leads up to that sun-crowned temple of fame—unfading fame—over the entrance to which is inscribed in letters of light: Happiness is found only in doing good to others.

Having no enemies to punish, I go forth on the quivering wings of faith and good will, the wide world over, bearing in my heart, sentences of sympathy and love gifts of encouragement and comfort to all.

I see in every human soul a future saint or seer; and I would twine around that soul's neck a wreath of flowers; I would festoon the whole form with rosebuds and lilies and flowering forget-me-nots and I would cheer and brighten every home on earth with the sweet heart music of these words:

In the beauty of the lilies Christ was born across the sea,
With a glory in his bosom that transfigured you and me.

Though not wishing to shirk from work or any duty to be done, I would rather be ninety four years of age than seventy or eighty-four; and I feel to unite with other nonogenarians in singing,

"One sweetly solemn thought
Comes to me o'er and o'er
I am nearer my father's home to-day
Than e'er I've been before."

Each individual should seek to benefit and beautify the world. Each should mentally and morally unfold like the springtime flowers and each should grow old in years gracefully, ripening like the apple and the orange, ready for the harvest.

The aged have a quiet charm of their own, a serene memory of good works done; a calm, rich experience of benevolent offerings, of noble purpose accomplished and of magnificent victories won.

Oh it is grand and glorious to be aged in years and all-all comparable to that sanctity of spirit, devotion to principles and those homes of harmony and hearts of love that tell in tones of tenderness, such as angels use, of God, Heaven and Immortality.—The *Hindu Spiritual Magazine*, June, 1915.

EDITOR'S NOTES.

The Progress of Medicine in China.

The rapid advance recently made in the progress of medicine in China has been strikingly illustrated at the triennial meeting of the Chinese Medical Missionary Association held at Shanghai. The association has nearly 500 members, whilst many Western-trained Chinese and "foreign" practitioners are in relation with it. Work done by the association includes the organisation of a pure drug-supply, a compaign against tuberculosis (which is said to account for 2,000,000 deaths annually in China), investigations into the distribution of intestinal parasites, and the study of Chinese form of malaria, and the bacteriology of tropical ulcer. The modern treatment of cholera and dysentery has also been tested and reported on. The association is seeking to promote, through its missisonary societies, the further development of medical schools for the Chinese, already carried on with excellent results at Peking and elsewhere in the Empire. It is also translating medical and surgical text-books, and for this purpose is producing a medical terminology in Chinese—a task of peculiar difficulty.—*The Lancet*, July 3, 1915.

Hot Air Treatment of Diabetic Gangrene.

Dupeyrace (*Presse medicale*, July 11, 1914), directed attention to the efficiency of this form of treatment, which consists in desiccation and sterilization of gangrenous tissues by the application of hot air at a temperature of about 700 C., followed by preparation of suitable flaps when the danger of septic infection has been overcome. In a case reported by Dupeyrace, the gangrenous foot was easily removed after hot air applications and the treatment continued until the gangrene had progressed to the middle of the leg. The temperature dropped from 39·5 C. to normal and a line of demarcation formed, but the patient later succumbed to pulmonary edema and myocarditis. In a case referred to by De Brignoles in which the three last toes were gangrenous, the foot edematous, and the entire leg infiltrated hot air treatment proved so effectual that only the last two toes had to be amputated. Imbert stated that air heated to high temperatures, applied to the gangrenous tissues under general anesthesia, acted sufficiently deeply to effect an actual sterilization of the tissues. The measure should not be applied, however, until after demarcation of the dead parts has taken place, lest repeated and excessive sacrifices of tissue become necessary. The use of hot air, indeed, is advantageous precisely in permitting long delay before intervention. Two definite indications for operation should, however, be recognized: 1. Evidences of very pronounced infection; 2. Intense pain.—*New York Medical Journal*, July 24, 1915.

Something of a Poser.

The following is quoted from a recent paper published in a good homœopathic journal:

"Inspected—Hogs."
"Protected—Forests."
"Neglected—Children."

It seems rather forcible at first, but a little reflection puts another phase on the matter. Hogs are inspected, it may be assumed, but to what avail? The last epidemic of foot and mouth disease that has cost the country millions started, it is said, from serum presumably used by the inspectors. In the matter of forests good work has been done—excellent work. What about "Neglected—Children?" Would you like to have an inspector to enter your house willy-nilly? Would you like to have one of them bossing

the families under your care? If nothing better came of the inspector's inspection of neglected children than came of the inspection of hogs, we rather incline to the old, out-of-date care of the mother, father and family physician. Really there is considerable bunk in this world masquerading as a Lofty Thing.—The *Homœopathic Recorder*, June 15, 1915.

Etiology.

Among the editorial notes of the *Southern California Medical Journal* is this one:

The Canadian troops in training for the European war at Salisbury Plain, England, are suffering from a terrible epidemic of cerebro-spinal meningitis with a very high mortality. The naval forces in barracks at the Crystal Palace, London, are also suffering from a malignant type of the same disease.

As no army, even under much worse conditions, ever suffered so before, and as no army before ever was subjected to so many inoculations as this one has undergone, the question was asked in Parliament as to whether it might not be due to the inoculations, but the question was smothered in words, but not answered. If typhoid, plus small-pox, plus therapeutic and prophylactic inoculations, vaccinations, injections and hypodermics prevail there is small doubt but that "anaphylaxis" must follow. "Anaphylaxis" is a polite word for the deviltry caused by these modern methods of monkeying with the sick.—The *Homœopathic Recorder*, June 15, 1915.

The Destruction of Fly Larvæ.

We have received from Mr. H. L. Harris, of New York, a copy of the *Bulletin* (No. 118) issued by the United States Department of Agriculture last summer, which contains a valuable account of some official experiments made on the destruction of fly larvæ in horse manure and other garbage. As was pointed out in our issue of June 5th, the best work to have been done in this direction is, of course, to attack the breeding places. It was found that by far the most effective, economical, and practical of the substances tried for larvicidal purposes was commercial borax. About 0·62 lb. of borax is applied to 8 bushels of manure immediately on its removal from the barn. The

salt is applied particularly around the outer edges of the pile with a flour-sifter or fine sieve, and 2 or 3 gallons of water are sprinkled over the borax-treated manure. The reason for applying the borax to the fresh manure immediately after its removal from the stable is, that the flies lay their eggs on the fresh manure and borax when it comes in contact with the eggs prevents their hatching. As the maggots congregate at the outer edges of the pile most of the borax should be applied there. The treatment should be repeated with each addition of fresh manure, but when the manure is kept in closed boxes less frequent applications will serve. In addition to the application of borax to horse manure to kill fly larvæ it may be applied in the same proportion, it is stated, to other manures, as well as to refuse and garbage. Borax may also be applied to floors and crevices in barns, stables, and paved market-places, as well as to street sweepings, and water should be added as in the treatment of horse manure. If the quantities of borax just enjoined are adhered to, the manure so treated has no harmful effect upon vegetation, but the possibility of its cumulative effects has not been investigated. These hints are valuable and should be widely known.—*The Lancet*, July 24, 1915.

Drainage in Empyema.

R. de Bovis Compares the different methods in vogue for draining after evacuation of empyema, his conclusion being that there is no need to dread the entrance of air as such a serious matter as some claim. Drains and syphons and rubber-bulbs and all air-tight procedures can be dispensed with as a rule in treating simple benign empyema. By leaving the low wound open, without tubes or tampons, pus and false membranes escape and the absence of any foreign body leaves a free field to nature to heal unmolested. This in itself is the best of all protections against ascending infection. The indispensable condition for this, however, is that the opening for evacuation of the empyema has been ample enough, and that it was made at the exact point where gravity will prove most effectual to drain the pleura. To ensure these conditions it is necessary to resect a rib and to make the opening for the spontaneous draining at the lowest point of the slope, bearing in mind the patient's position in bed after the operation and during convalescence, and whether the empyema is partial or total. He does not hesitate to close the incision and make a new one lower

down if the first does not answer the purpose perfectly. He emphasizes further that the mobilisation of the chest wall by the resection of a rib permits it to fall in under the pressure of the air so that outside of the period of inspiration, it shuts down air-tight over the convexity of the diaphragm and restricts, if it does not prevent altogether, the inflow of air. Air and microbes are also filtered and kept out more or less efficiently by the dressings. As an operation for empyema is generally an emergency operation, the simplification of the procedure and of the after-care is a great gain. The author does not believe that such large openings are necessary as Brinkmann advocates, and his experience with aspiration drainage has shown numerous disadvantages from it. He has applied the technique mentioned above in three cases, and has been impressed with the prompt and complete recovery in from three to five weeks (except in the one case of tuberculous origin).—*The Homœopathic World*, July 1, 1915.

Plumbism due to the use of a cosmetic.

Dr. L. R. Sante has reported, in the *Journal of the American Medical Association*, two cases of plumbism due to an unusual cause —the use of a cosmetic. A single woman, aged 21 years, was admitted into hospital with the history that she had been in perfect health until four years ago, when she was seized with abdominal pains while at business, and for three weeks she was confined to bed with griping pains, followed by cramps in the legs. She returned to work, but a week later had a similar attack. She became jaundiced, with pain localised in the right hypochondriac region, and was sent to hospital for operation, which she declined at the last moment. No gall-stones were ever passed. From this time she had periods of illness and operations were proposed for gall-stones, appendicitis, and exploration of the abdomen A year after the first attack she noticed pain and tingling in the extremities and loss of power in the hands and wrists. She grew worse with succeeding attacks until the fingers were so retracted into the palms as to render extension impossible. She finally could not walk. On examination she was poorly nourished and very anæmic and the extremities were very tender. There was a marked "blue line" over three teeth. The muscles of the upper limbs, especially in the forearms and hands, were markedly atrophied. Extension of the wrists was impossible and the reaction of degeneration was present. There was considerable atrophy of the muscles of

the thighs, but the knee and ankle-jerks were present. Peripheral neuritis from lead was diagnosed and the patient was questioned as to possible sources. She finally admitted that she had used "flake-white" as a face powder. It was mixed with glycerine and applied so as to make a smooth velvety covering. The anæmia was so profound that the red corpuscles were reduced to 2,730,000, and stippled cells were present. The urine contain a little albumin and casts. She ceased to use the powder, and after seven days all the stippled cells had disappeared from the blood. In six months she gained 30 lb., the red corpuscles rose to 4,000,000, and the wrist-drop disappeared. In the second case the patient was a woman, aged 50 years, who had used flake-white" for 10 years. For three years she had numerous attacks of abdominal pain with cramps in the muscles, and at times was jaundiced. She was operated on for gall-stones, and several were removed, but there was no decided improvement, and the attacks of colicky pain continued. Eleven months later the nerve trunks of the limbs were very tender, and she had lost power in the forearms and hands. On examination she was confined to bed, ill-nourished, very anæmic, and slightly jaundiced. A "blue line" was present on both the upper and lower gums. There was extreme atrophy of the muscles of the forearms with wrist-drop. The lower limbs were atrophied, but the knee and ankle-jerks were present. The face powder was discontinued, and in seven months nearly 100 lb. were gained in weight, the anæmia diminished, and the wrist-drop disappeared. "Flake-white" is carbonate of lead. Dr. Sante points out the frequency with which toxic effects due to this face powder must be overlooked. "Out of the thousands of girls who use it" (to use the words of one of the patients), there must be many on whom it has untoward effects which do not amount to characteristic plumbism. No doubt many obscure conditions for which no cause can be found are thus produced. In the first case 17 different diagnoses had been made and laparotomy proposed four times. Dr. Sante rightly says that such a dangerous preparation should not be sold as a face powder, especially without a poison label. As far as we know, no face powder containing lead is used in this country. The usual ingredients are starch, carbonate of bismuth, and oxide of zinc.—*The Lancet*, July 31, 1915.

Teeth-Grinding and Adenoids.

Both in the East Indies and Utrecht Dr. Benjamins has noted the frequency with which the presence of adenoid vegetations in children is associated with the habit of grinding the teeth during sleep at night. In each locality he has dealt with 250 cases of adenoids, and he gives the following figures, based on the 500 cases, representing the percentages of the patients exhibiting the following signs of adenoids: —

Snoring	...	60 per cent.
Catarrh	...	46 „
Deafness	...	41 „
Teeth-grinding	...	34 „
Aprosexia	...	33 „
Enuresis	...	32 „
Enlarged tonsil	...	25 „

Out of 525 of the cases 47 per cent. were mouth-breathers and 43 per cent. spoke with nasal voices. Among all his patients Dr. Benjamins counted 20 instances of epistaxis, 11 of bronchial asthma, and 8 of stammering. Operations for the removal of adenoids were performed on 55 patients with teeth-grinding, and 42 were cured of the habit, 8 improved, and only 5 continued to grind their teeth as before. The habit may be acquired, as he points out, very early in life. Two of his teeth-grinding patients were aged 10 and 12 months respectively, each having four teeth in each jaw; the oldest patient was 21 years of age. The larger the adenoid growths in any case the greater is the probability that the patient will grind his teeth; the enlargement of the tonsils, contrariwise, seems to be of little influence here, as it occurred in only 42 out of 172 teeth-grinding patients. The ages of Dr. Benjamins's patients were as follows: 11 were under 3 years of age, 106 were aged 3 to 5 years, 219 were 6 to 10, 130 were 11 to 15, 26 were 16 to 20, and 9 were 21 years or more. He believed that patients with adenoid vegetations exhibit an increased reflex irritability, and that it is this, rather than anything in the nature of CO_2 poisoning, that makes them liable to nocturnal enuresis, teeth-grinding, and the like. In the case of teeth-grinding he assumes that the receptive field, or point of departure, of the reflex lies in the mucous membrane of the naso-

pharynx. The afferent path is through the glosso-pharyngeal nerve or the pharyngeal branches of the spheno-palatine ganglion. Neurons in the mid-brain presumably act as connecting links to set in action the motor nerve cells of the trigeminal nerve, particularly those supplying the pterygoid muscles.—*The Lancet*, July 31, 1915.

Municipal Control of the Milk-Supply.

The professor of hygiene at the University of Parma, Dr. E. Bartarelli, has recently occupied himself with the problem of preventing disease dissemination by impure milk, and asks what can be effected in this respect, due consideration being given to the economic conditions and mental attitude of the public towards it. Large communities that have studied the question and endeavoured to find a practical solution have been faced with the difficulty of applying it without incurring grave inconveniences or economic damage sufficiently great to be prejudicial when dealing with such an indispensable article of diet as milk. The problem has to be considered with regard to the various sources of infecting organisms in milk, which may come from the animal furnishing it, the milker, utensils and receptacles, or by flies after collection. While it must be admitted that logically preventive measures should begin at the cow and at the stall, this is the very part that is most difficult of attainment. The only logical method, according to Professor Bertarelli, is to preclude all animals that show a tuberculin reaction from furnishing milk. This would raise the price of the commodity to a considerable extent, and in order to be effective should be followed either by the slaughter of these animals, or at least by putting an indelible mark on them, for if they were moved to another locality there is great probabilily they would no longer give a positive reaction when tested with tuberculin. But to undertake systematic slaughter when from 20 to 30 per cent. of animals were affected with tubercle is a procedure that would make any State hesitate. Nor could the indelible mark be imposed without indemnifying the owner, otherwise the milk trade would diminish and the product thereby increase in price. For this reason many municipalities have abandoned all idea of applying hygienic methods to the milk-supply at its origin, and consider the commodity when received from the producer as material which is dirty and contami-

nated but easily remediable. Therefore they exact that the milk must be collected, filtered, pasteurised, cooled, and distributed in vessels to the consumer. Such milk, it is urged, should content the most exacting hygienist, and if it cost a fraction of a penny more would be considered money well spent. With the poor, who deal with small quantities, this increse of price of perhaps a halfpenny a quart constitutes a grave objection, to say nothing of the difficulty in organising the sale of milk under such conditions. There remains a minimum programme which may be summed up as follows. Educative propaganda, enjoining on the producer the necessity of hygienic collection and transport, and teaching the consumer how to deal with the milk at home; municipal model dairy farms; supervision of all milk brought to the towns; and compulsion with regard to keeping milk in refrigerators and selling it in closed vessels. But the fact remains that all precautions adopted to secure a purified milk are frustrated by the necessity of trading in small quantities.—*The Lancet*, July 24, 1915.

Prohibition in England.

In an editorial on the subject the *Lancet*, 4-10, among other things, says that "experience goes to show that complete prohibition cannot be made a reality without the support of united public opinion; and when it is not a reality it means, as a rule, an increased use of the stronger and more injurious alcoholic liquors, and the development of an illegal traffic which corrupts public morality." From this one might reason that where the public is united against liquor there is no need of prohibition, while where it is not the law "corrupts public morality." Apropos of this the Indian Letter in the same issue says that though the Government prohibited the importation of cocaine and its sale to the public the stuff came in just the same, profits were bigger, and, of course, unlawful. If a man is not morally clean laws will not make him so; if he is of such a nature that his passions drive him hellward *via* the physical gratification route laws won't change his nature which will find a way for gratifying the lust that is in him.—The *Homœopathic Recorder*, June 15, 1915.

Prostitution at the Front.

Many comments on recent events in Europe have shown that there exists a considerable and increasing movement against drink and prostitution. The Germans have expressly warned soldiers against these evils. The intercourse between the sexes is the subject of moral, even stern sermonizing. Nothing shows more clearly the importance of efficiency and power in German eyes. A warning is sent on a little card to every soldier; the language is of pedantic fervor, which must raise a smile in American military circles, yet what a lesson it teaches? We give a free rendering of this document as it appears in *Medizische Klinik*, 606, 1915. It runs: "Cofirades, it is time to speak summarily of the risks you run as men. Gonorrhea and syphilis are malignant diseases, which not only make you unfit for fighting, but which you may bring home to your families and children, nay, these diseases may be with you for months and years in the madhouse. In this time of mortal need, you must summon all your will to resist women. Avoid drink and its promptings of the blood, which unseat judgment and pervert

good manners." The subject is delicate, but all nations are learning to digest this lesson. —*New York Medical Journal*, July 24, 1915.

More Trouble.

At a meeting to consider the affairs of the New York Homœopathic Medical College, reported in the *Chironian*, Dean Copeland, among other things, said: "They," the A. M. A., "are about to increase the demands along clinical lines. The A. M. A. is about to demand that any college to be in good standing must have 200 beds available for clinical material." As the A. M. A. has no governmental power, no more than the A. I. H. or the I. H. A., how is it that they can dictate in things over which they have no legal jurisdiction? They have "raised" the standard until a man must be brave indeed to study a profession that carries him well on to middle age before, hat in hand, he comes up before a board of examiners to learn from them whether the best part of his life had been wasted. If the A. M. A.'s "raising" taught men how to cure disease better there could be no kick, but it doesn't, it merely leads to medical nihilism.

A man who had taken in the full university course and then a subsequent course at a certain medical Mecca told us that while there the great man would look over a patient remark, for instance. "That is a beautiful case of typical malaria." When our informant asked the great one what to do for it he was told to put it to bed and give some gentian tincture to make the sick man believe there was something being done for him. By what method is it that these nihilists have acquired so much dictatorial power? They have banned the old word "cure;" they cannot cure, and, to the limit of their power, shoulder out all those who can. They are great on diagnosis, as post-mortems show that they hit it in about half their cases. Some day this country will have to follow the lead of Germany, which some years ago swept away the foolish tangle of medical laws and gave the people back their freedom, and, behold, no disaster followed, nor was the death-rate raised.

If the men who go through the cumbersome educational mill of the A. M. A. can prove by deeds that they can cure human ills better than others the world will make a path to their door, but they cannot make that path themselves and force the people to travel it by a tangle of laws.—The *Homœopathic Recorder*, June 15, 1915.

Gleanings from Contemporary Literature.

CASES OF NERVOUS AND MENTAL SHOCK.

Observed in the Case Hospitals in France.

By William Aldren Turner, M.D., F.R.C.P.

Cases of nervous and mental shock may be counted among the more interesting and uncommon clinical products of the present war. Cases of this character began to arrive in England shortly after the commencement of hostilities in which British troops were engaged, and have continued to be met with in our base hospitals at home with varying degrees of frequency up till the present time. It was recognized that one type of case was due to the explosion of big shells in the immediate vicinity of the patient, who did not himself receive any detectable physical injury or bodily wound. Intermingled with the cases of this nature, cases of a general neurasthenic character were found whose symptoms were attributable to exhaustion of the nervous system induced by physical strain, sleeplessness, and other stressful conditions associated with the campaign.

It has been my privilege to have been able to study the early symptoms of nervous and mental shock, from whatever cause, during a period of three months at the base hospitals in France. I have thought, therefore, that it would be of general interest if a short account were given of the various clinical manifestations of nervous shock, observed in patients upon admission to these hospitals, before they were transferred to the special institutions at home which have been provided for their reception and subsequent treatment.

In a general way the frequency of these "shock" cases depends upon the intensity and character of the fighting at the front. The severe fighting in Flanders and around Ypres in the latter part of October resulted in a large number of such cases being sent down to the base. The numbers of the cases subsequently diminished, and during the earlier months of this year were relatively small, with occasional accessions, the outcome of such engagements as took place on January 25th and 26th and March 10th to 12th. One of the features of the early fighting was the heavy shelling to which our troops were subjected, and which to a large extent accounted for the prevalence of nervous shock at that time. In addition to the "shock" cases, as such, other forms of functional nervous mental disorder were observed and studied. These cases are of general interest as showing the effects of "wear and tear" upon the nervous system under the conditions of the present campaign.

If one studies the cases of nervous and mental stock, it will be seen that the symptoms are widely distributed throughout the nervous system. In the first group, there is a definite type of mental shock in which the symptoms are essentially of a psychical character. In the second group there is a spinal type characterized by a limitation of the symptoms to the extremities, and usually to the lower limbs. In a third group the symptoms are referred more particularly to the special senses. In this class the remarkable cases of blindness or amblyopia, deafness and deaf-mutism have been included. More specialized symptoms, such as stammering or hesitation of speech, local palsies and tic-like movements, have been included in a fourth group.

It should be borne in mind that whatever the special symptoms may be, the patients have been subjected in most instances to prolonged and often serious general nervous strain.

Psychical Shock: Mental Stupor.

From time to time cases are sent down from the Casualty Clearing Stations in a state of mental stupor. Some of these cases are unaccompanied by any history or statement which would throw light upon the cause or method of onset of the symptoms. Other cases of a similar though less profound type of stupor, on recovery from the acuter phases, are able to give some account of the nature of the psychical shock through which they have passed.

The symptoms exhibited by these cases of stupor are interesting and create a clinical picture of a striking character. In the more severe class of cases the patient is entirely unconscious of his surroundings. All the usual tests applied with the object of arresting attention—such as throwing a bright light on to the eyes, pinching the skin, or clapping the hands close to the ears—fail to provoke a response. The deep reflexes, however, are normal or brisk, and the plantar response is of the flexor type. The pupillary light reflex is frequently impaired or lost. Urine is passed normally; swallowing is carried out usually without difficulty.

In some cases the patient would appear to be living again through an experience of the past, probably associated with the time of onset of the symptoms. In a very striking instance the patient lay curled up under the bedclothes. From time to time he would look out, as if peering over the parapet of a trench, stare wildly around him, and then hide under the clothes. These actions were often repeated and lasted for several days with gradually diminishing frequency. In another case of a somewhat similar character the paient would

suddenly start and sit up in bed and look around him, crying out. "He's gone, he's gone." It was subsequently ascertained that this patient's brother had been killed when fighting beside him in the trench. Many of these cases present a scared or startled appearance. When approached they shrink and hide under the bedclothes. Others are dull lethergic, and apathetic, taking no interest in what is going on around them.

A closer examination reveals a marked degree of rigidity of the limbs in most of the cases. As a rule all the extremities are affected; the thighs are tightly flexed upon the abdomen and the fingers clenched in the hands. In one case there was a decided tendency to catatonic rigidity. In another case of genuine shock the rigidity had a hemiplegic distribution affecting the left arm and leg. In this case the deep reflexes upon the left side were exaggerated and the plantar response was abolished.

In the milder type of case the stupor is less profound. These patients may carry out simple actions, such as putting out the tongue when requested to do so, but in a slow, apathetic, and hesitating way. They present a dazed appearance, are readily startled when spoken to, and take little or no notice of what is going on around them. Even in the slightest cases some rigidity of the limbs may be detected, which gradually passes off as the mental condition improves.

A consideration of these cases shows that the patient is probably in a state comparable to what is observed in the "hysterical stupor" or hypnoidal state of civil practice. The evidence seem to show that he is living through some past experience of a terrifying kind. When information has been obtained upon the possible cause or origin of the symptoms it has been found to be of a psychical character, such as seeing a friend or relative killed by his side.

On the other hand, there were cases of a severe type in which no history was obtained. It is permissible to assume that they may have resulted from shell explosion, or from repeated and continuous shelling. These symptoms are found mainly in young soldiers; in no case has the patient been over 28 years of age, the majority being about 22 or 23.

The duration of the stupor varies. In some cases the intensity of the shock has passed off before admission to the base hospital. In those admitted in stupor the symptom persisted for several days and then suddenly passed away, the patient having no recollection of what had taken place in the interval. In other cases a more gradual

recovery ensued, the patient being sent home before complete recovery had taken place. The general outlook for recovery is decidedly favourable. Rest, quiet surroundings, and ample nourishment are the main points of treatment.

Loss of Memory.

Comparable in many ways to the cases of stupor just described are those cases of loss of memory, or transitory amnesia, which are admitted to the base hospitals for further observation. Prolonged fatigue and exhaustion, coupled with continuous shelling, seem to be the primary causes of these mental breakdowns. The history furnishes evidence that the patient had been found wandering, and was unable to give a satisfactory account of his movements. On inquiry of the patient himself as to what had happened to him, one is told that he had been under heavy shelling for a time just previous to his "losing consciousness," as he says. One such patient said that in the stress of the engagement he had "lost his head" and became unconscious.

The loss of memory may extend over a period of several days. The patient has no knowledge or recollection of what has happened to him during this interval. Attempts to bring back the memory by suggesting possible events or circumstances have not met with success. In one patient, however, the memory was partly restored by a striking association. When lying in hospital, he saw a number of men being prepared for inoculation against enteric fever. This recalled to his mind that he himself had been inoculated a few days before the loss of memory came on. From this clue he was able to give some account of himself, although his memory for a period of three or four days had not returned by the time he was sent home. Attempts to recall the memory by the use of "word associations" were not tried.

In addition to the loss of memory, the patients complain of headache, and sometimes of a feeling of strangeness and discomfort in the head; the head, they say, is muddled. Sleep is disturbed at first. The reflexes are normal, although the pupillary light reflex may be impaired. Recovery takes place satisfactorily with rest in bed and ample feeding.

Deafness and Deaf-Mutism.

Deafness of a transient character is not an uncommon symptom resulting from the explosion of big shells in close proximity to the patient. In addition to the deafness the effects of the explosion are

a stunning or dazing of the mental faculties and sometimes temporary loss of consciousness. In other cases the patient is "blown away" or forcibly precipitated on to the ground by the violence of the explosion. On recovery from these immediate effects the patient discovers that he is deaf in either one or both ears. If all cases are eliminated in which the tympanic membrane has been ruptured, or in which signs of previous or old-standing middle-ear disease were observed, a number of cases remains in which an examination reveals a nervous type of deafness. The watch may not be heard except on contact, and Rinne's test is positive; in one-sided cases submitted to Weber's test, the tuning-fork is lateralized to the hearing ear. This form of deafness is not of long duration. It may pass away in a few hours, or at most in a few days. The general symptoms of neurasthenia may persist for a longer period.

Deaf-mutism is another effect of the explosion of big shells, and provides one of the clinical surprises of the war. In all the cases observed this cause was given by the patient in explanation of his symptoms, although in one case the patient appears to have been buried as well. As the patient is able to write an account of the incidents which led to the onset of his symptoms, the following statements are given as characteristic of all the cases. "We had been in the trenches for thirty-two hours and we were being shelled. The front of the trench was blown down in three places. One shell exploded right over my head and buried me. I do not remember anything until about a quarter of an hour later, when I found I could not speak or hear, and I was shaking all over. In about twenty-eight hours my hearing came back, but I have not been able to speak since." Another patient wrote: "I was coming out of a ditch to go to the store for ammunition when a shell burst right over my head and knocked me down. When I recovered consciousness I was lying in a reserve trench occupied by some of our men, two of whom had come along the ditch and found me lying there. One of them spoke to me, and it was then that I discovered that I could not hear or speak." The examination of the sense of hearing reveals deafness of the nervous type. The distance at which the watch can be heard is either *nil* or very greatly reduced, and the Rinne reactions are positive. Should the ears not be equally affected the tuning-fork when placed on the forehead is lateralized to the better ear. Tinnitus, giddiness, and staggering gait are not present. I have never observed nystagmus. The mutism may be complete, though in less profound cases the patient may speak in a whispered voice. Attempts at

phonation may be accompanied by movements of the lips and facial muscles.

In the early stages deaf-mutism may be accompanied by general symptoms of shock, such as headache, tremors, twitching movements of the limbs, and insomnia. In the later stages it is the only symptom present, the patients being frequently bright and very sensitive of their disabilities. The deep reflexes are normal, but I have found the palatal reflex abolished and the plantar responses often difficult to elicit. The cases of deaf-mutism would appear to be more persistent than those of simple deafness. One case which was examined three weeks after the onset was still completely deaf and dumb.

Blindness and Impairment of Vision.

In comparison with the cases of deaf-mutism just described, blindness or impairment of vision following the explosion of shells is relatively infrequent. There would appear to be two types of case in which blindness is complained of in consequence of shell explosions.

In the first class quite a number of soldiers suffering from the symptoms of a general mild neurasthenia following prolonged fatigue, complain of being blind. An examination of these cases shows that they are not really blind, but are suffering from photophobia and tonic spasm of the eyelids (blepharospasm). Further investigation into the origin of the symptoms reveals that at the time of the explosion, sand, dust, or mud was blown into the eyes, and had given rise to conjunctivitis, hyper-sensitiveness to light, and spasm of the eyelids. Recovery takes place quickly under suitable local applications and rest.

In the second class the patients suffer from a temporary blindness or impairment of vision. In the cases of this character which were examined, consciousness was stated to have been abolished temporarily at the outset. In addition to the loss of vision, the eyeballs are tender to pressure in the early stages. The pupillary light reflex is normal. An ophthalmoscopic examination shows no structural change in the media, retina, or optic discs. In one case in which the blindness was unilateral, an associated partial ptosis of the upper lid on the same side was present. In another case the examination revealed a large patch of opaque nerve fibres. In a third case Colonel Lister found a slight peripheral contraction of the visual fields. Most cases show some error of refraction. Recovery is said to be complete eventually, although I have myself not been able to observe a case sufficiently long to ascertain the duration of visual impairment.

Stammering.

Hesitation of speech has been observed in several cases in consequence of shell explosions. As in the previous cases of shock, the impediment may or may not be preceded by a temporary loss of consciousness. The onset of the symptoms is favoured by previous conditions of fatigue, sleeplessness, and exposure. Most of the patients were suffering from an associated neurasthenia. The Symptom itself corresponds in every way with that seen in civil life. The organs and muscles of articulation are of normal character and development, but co-ordination in their movements is defective. The outlook for recovery is good, although the symptom may persist for several weeks.

Local Palsies and Spasms.

These cases are not common, and the symptoms are confined to the eyelids. Those examined have been ptosis and spasm of the orbicularis palpebrarum. The ptosis may be unilateral or bilateral, and present all the features of a functional palsy. The spasm is associated usually with local irritation and conjunctivitis. There was one case of "blinking tic" seen in consultation with Colonel Lister. The case was not a true one of nervous shock, as the symptoms had commenced when the patient was at his work before joining the army. The onset was attributed to some chips of iron being forced into his eyes. A fall upon his forehead when on service had greatly increased the blinking.

Spinal Shock: Paraplegia.

The outstanding symptom of spinal shock is loss of power in the legs. This is brought about by shell or mine explosion in the immediate vicinity of the patient, with or without an accompanying burial of the patient in the trench or resulting débris. It has been found also as a result of a fall, the patient being knocked over and striking his back against the wall or parapet of the trench and injuring his back indirectly in this way.

In a characteristic case the symptoms and signs are somewhat as follows: The paralysis comes on suddenly, the onset being accompanied by a temporary stunning or dazing of the mental faculties. In other cases temporary loss of consciousness follows the shock, and on recovery from this the patient finds that he is unable to move his legs. In those cases which have been buried with or without an associated loss of consciousness, the paraplegia is discovered as soon as the patient is dug out. There may or may not be a transient retention of urine. If it is present it lasts for about twenty-four hours, and requires the use of the catheter; this retention is succeeded by a

difficulty in passing urine for two or three days. An examination the legs reveals a more or less complete motor paralysis, the muscles in some cases, showing a slight degree of spasticity or hypertonus. The deep reflexes are either brisk or of normal intensity. The plantar responses are in all cases of the flexor type, although one or both may be lost or impaired if the case is seen in a very early stage. The abdominal reflexes usually are present. An examination of the sensory functions reveals a complete or partial sensory loss both to painful and tactile sensibilities of the "stocking" type. The joint sense of the feet and toes may or may not be impaired. An examination of the back fails to show outward or visible evidence of bruising or injury. Percussion of the spinal column may be accompanied by some degree of localized tenderness, and the patient experiences difficulty in turning in bed owing to the pain or discomfort which accompanies this movement. In this class of case the outlook for recovery is good; movements begin to return in the legs within a short period, and the patient is able to walk about in three or four weeks, or less.

There would appear, however, to be a graver type of paraplegia, in which the symptoms suggest an organic disturbance of the spinal cord or its nerve roots. Dr. T. R. Elliott has described cases of transient paraplegia following shell explosions, especially in those who have been buried in the trench. The symptoms of this form are complete paralysis of the legs characterized by a lowering of the muscle tone or hypotonus, and a depressed state of the reflexes. There is generally a band of hyperalgesia at the upper limit of the area of numbness, and the spine is acutely tender over a localized area. The sphincters are rarely affected except in the severer forms. The plantar reflexes never show an extensor response.

Taking into consideration the fact that the cause and method of onset are similar in both types of case, the relatively slight clinical differences scarcely warrant the assumption that the first type of paraplegia is "functional" and the second organic. Moreover, it is clear that the men who have been buried under a mass of clay, or who have received a definite injury to the lower dorsal or lumbar portion of the vertebral column have been submitted to a local trauma of the back which shell explosion cases have escaped. In the only case of Dr. Elliott's in which *post-mortem* examination was made, it was noted that the spinal cord was normal, although the muscles of the back were bruised and infiltrated with blood as far down as the sacral spines. It is conceivable, therefore, that the slight difference

in symptomatology may merely indicate different degrees of general and of spinal shock. The duration of the symptoms in the latter type is stated to be longer than in the former, but the outlook for recovery is good, the patient being able to walk about within a few weeks.

Although the legs bear the brunt of the shock, paralysis is not invariably confined to the lower extremities. Cases were observed in which one or both arms may be similarly affected, although to a less degree, and others have been seen in which deafness or even impairment of vision have been accompaniments of the paraplegia.

NEURASTHENIA.

The cases of neurasthenia which are met with in the base hospitals resemble in essential features those seen in civil practice. A history, as given by the patient, is that after he has been abroad for several weeks or months he begins to sleep badly, loses appetite, and feels "run down." Often the breakdown goes no further, and a short rest relieves the symptoms, and the patient is able to return to duty. On the other hand, to these symptoms may be added feelings that he is incapable of doing his duty properly, he loses confidence in himself, and begins to worry about his health. In more severe cases the patient loses weight and complains of flatulence, constipation, and dyspeptic symptoms.

In this type of case the cause is found usually in the exacting conditions under which the patient is living. In many instances he may persevere with his work until a severe psychical shock—such as seeing one of his friends killed beside him, severe shelling, an upsetting experience, or bad news from home—unsteadies him, and precipitates a definite attack of neurasthenia, requiring rest and treatment at home. An inquiry into the history of these cases will reveal usually either a previous attack of neurasthenia or occasional sleeplessness.

On the other hand, there is observed a form of temporary "nervous breakdown" scarcely justifying the name of neurasthenia, which would seem to be characteristic of the present war. This occurs in those who have been strong and well, and is ascribed to a sudden or alarming psychical cause, such as witnessing a ghastly sight or undergoing a harassing experience. As the result of such a shock the patient becomes "nervy," unduly emotional and shaky, and most typical of all, his sleep is disturbed by bad dreams. The dreams are of experiences through which he has passed, of shells bursting, of duels between aero-planes, or of the many harassing sights of the war in the trenches. Even the waking hours may be distressful from the

acute recollection of these events revolving in his memory. Headache, slight mental depression, and fine tremor may be accompaniments of these symptoms. There is usually an entire absence of objective signs; the deep reflexes are normal, the pupils respond to light, the tongue is clean, and the pulse of normal frequency. Recovery is satisfactory, especially if the patient is sent home for a complete rest.

Various modifications of the usual type of neurasthenia, as just described, are observed. For example, there is a type characterized by *anxiety* as the main feature. This may take the form of fear or apprehension as to his ability to do his duty, or fear of being left alone, or of having made a serious mistake in his work. In one case the patient conceived the idea that he was unable to hold his rifle. Should the anxiety be concentrated upon his health the patient develops symptoms of a definitely *hypochondriacal* character.

Other cases, again, are accompanied by excessive *motor agitation*, in which tremulousness of the face, tongue, and limbs is associated with a nervous and agitated manner. Cases of generalized tremor are found also, although they are less common and more persistent than the types already described. In the cases of this sort which were examined the tremor was mainly in the head and neck, althougth the limbs did not entirely escape.

Passing from the comparatively simple types of neurasthenia, we meet next with those of a more aggravated kind.

Acute insomnia may be included under this heading. This symptom would seem to be more common in those whose duty confines them to an office, especially where responsibility weighs heavily upon the individual. It has been found also in consequence of prolonged strain and continuous shelling. Other forms assume a more depressed character and merge into *melancholia*. Other aggravated forms have the features of the *exhaustion psychoses*, and develop symptoms of mental confusion and maniacal excitement.

In conclusion, it may be stated that a form of neurasthenic breakdown may be found in cases admitted for medical disorders, especially of the gastro-intestinal tract, such as gastritis, enteritis, and colitis. It happens occasionally also that patients suffering from surgical wounds of the head show acute neurasthenic or psychical symptoms, which may persist after the wound has healed; these cases do not come within the scope of this paper.—*The British Medical Journal*, May 15, 1915.

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DISTINCTIVE METHODS OF CANCER RESEARCH.

By H. W. Nowell, M.D.

I have devoted my study to but one type of malignant disease and that is the carcinomatous type, and I shall endeavor to place before you the distinctive methods of carcinoma research only. You will note that I have a broad field in which to roam about. Active research has been going on in all parts of the world since the disease was first named, and up to the present time who is able to judge whether the efforts have been worth while? Evidence shows us that growths of this character are on the increase in civilized lands. The reason for this seems to be a mystery. Many writers are of the opinion that bacterial life is responsible; others that modern food is responsible, and a few that heredity plays an important role. The nerve element in relation to the possibility of being the basic causative factor has been written upon but little.

In previous papers I have referred to the numerous theories of cancer causation; it seems hardly necessary to review the same at this time. I shall, however, discuss my theory as to the cause of carcinoma, for the positive determination of an etiological factor in carcinoma is essential to the solution of the major problem. The theory to be propounded does not deal with the

problem in its entirety, but only with one or more phases of the mechanism of cancer production. We know that carcinoma is on the increase; to what extent do the modern methods of living influence this increase?—a question which requires a great deal of thought.

Let us consider the human body as a whole, and the demands that are placed upon it. We are composed entirely of cells; these cells vary in different parts, but the combined co-ordination produces the normal harmony of the healthy body. We know that with one exception there is a constant change in cellular formation, new cells being constantly produced, the older cells breaking down to form waste products, and as such eliminated. These changes are fairly constant, varying only in degree, during the different stages of life. The greatest change takes place in early life, gradually diminishing with advancing years. Ross claims that cell proliferation is due chiefly, if not entirely, to the action of chemical compounds upon the cell body. Probably these chemical compounds are the result of cell death. In middle life there is a grater death of cells, this being in excess of cell production; hence the greater chemical reaction and also the greater demand upon the eliminative organs. This, together with the modern methods of living (food, social and business duties) increases the demands upon the body, especially the brain, the source of all nerve supply, by overtaxing the eliminative organs to such a degree that there is an excess of waste material in the body constantly. This waste is a toxin which seems to have direct action upon the nerve centers (the blood being the carrier); the toxin being constantly on the increase if not corrected. Now the exception, the brain cells remain constant; they increase in action only as they are called upon to perform certain kinds of work; in other words, they are trained to do their work. I will repeat, combined co-ordination produces the normal harmony of the healthy body. It is impossible for impulses to be normally received and transmitted from the brain when excess of toxin is present. The human body protects itself against foreign invasion of toxins in every form.

The nature of this protective substance must vary with the character of the toxin. It has been definitely shown that bacterial toxins stimulate the increase production of a protective agent which destroys bacteria; hence there is reason that if the toxin can be isolated from the cells of carcinoma and shown to be specific, it should have a beneficial influence toward producing a protective substance when injected into the human body. It is the concensus of opinion that irritation is a factor in the causation of malignant tumors, but only so far as lowering the resistance of the local area is concerned. My work is based on the well-founded theory that abnormal metabolic conditions obtain during the development of malignant neoplasms, and that the deleterious influence of carcinoma upon the organism is due at least in part to the toxic products of such altered metabolism. I have reasoned that the foci of morbid cellular activity should contain the toxin substances responsible for their continued growth and propagation.

A brief review of the distinctive methods of carcinoma research by the different men is permissible at this point: During the many years of research it is found that a greater number of the workers have spent their time studying cancer therapy, neglecting the first and most important step: etiology.

The majority of the various theories may be divided into two groups; namely, that assigning the cause to bacterial or parasitic origin, and that based upon biological or chemical consideration. To the first class belong the long series of attempts to isolate some specific micro-organisms, whether bacteria or protozoans, attempts which up to the present, at least, have failed to demonstrate conclusively any specific connection between the numerous organisms exhibited and the establishment of the morbid process. The results of the searching investigation of Doyen's "micrococcus neoformans" would seem to show his contentions to be wholly without foundation. From time to time we hear that someone has isolated a specific parasite, the most recent announcement being made by Schmidt. Judgment must be suspended, however, until we have more definite information.

Dr. Peyton Rous in his recent work at the Rockefeller Institute for Medical Research has shown that the filtrate of a malignant sarcoma of the hen was capable, by subcutaneous injection, of establishing similar tumors in hens of the same species. While this work is most noteworthy, and may possibly place the parasite as the cause of sarcoma, it would also demonstrate the fact that the cause of carcinoma is from an entirely different source, since up to the present time there is no report of similar results obtained with tumors of the carcinomatous type. The assumption of the existence of an ultra-microscopic and hence at present not-demonstrable organism would seem to have a dialectic rather than scientific warrant in carcinoma at least.

Dr. J. Walter Vaughn has devoted considerable time to the study of specific cancer therapy, and has obtained definite facts of scientific interest. His work is based on the theory that through altered chemical nature the normal tissue cell changes into the malignant cell. This being so he claims the chemical difference in the cell's protein content from a normal tissue cell should make it possible to sensitize an animal to one protein and not the other. The administration of the sensitized serum was discontinued, since in over 50 per cent. of the cases in which it was tried, the serum complications rendered it impracticable. His next step was to ascertain whether the specific ferment could be obtained free from the undesirable serum proteins. This he claims to have isolated from the mononuclear leucocytes. The final product was given the name of anticancer globulins. He also uses a cancer cell vaccine.

Morton says of chemistry of the cancer tissue: "This hope is the more justified when we take into account the chemical constitution of cancer tissue. Without entering into details it may be said that there is some reason to believe that the cancer cell actually represents the antipodes of the normal somatic cell. It contains a heterolytic enzyme. It apparently draws its nourishment from the somatic cell, lives at its expense, and eventually destroys it. Neglecting the unquestioned fact of its remarkable facility of proliferation, there still remains this more

remarkable quality of being able actually to tear down the albumins of the body cell—in fact, devour them. In this way at least we can best account for the inroads of malignant tissue into normal tissue. Mere displacement by abundant cell division affords an inadequate explanation. A number of observers in recent years have shown that the cancer proteins exhibit a high content of glutaminic acid, alamin, phenyladanin, diamino acids, and aspartic acid. This fact, as well also as the susceptibility of the tumor tissue to trypsin digestion, and its insusceptibility to pepsin digestion, has been cited as evidence that the tumor is of a specific character.

"According to Petry, the cancer cell has a ferment, acting in an acid medium. The reaction of cancer tissue is apparently acid, while that of the normal tissue is alkaline. In short, it would seem that the chemical composition of the cancer cell differs radically from that of the body cell."

It hardly seems necessary to consider the older theories of Ribbert, von Hansemann, Adami, Oertel, and Marchand, and many of the so-called parasitic theories. While these have proved of great value to the more recent research workers, they have failed to bring us any nearer the etiological factor. Some of the more recent work supporting the micro-organism theory has been done by Walker, of Buffalo, by which he believes that he has demonstrated that cancer is produced by a parasite of the earth-worm; and Fibiger, of Copenhagen, who reports that he has induced cancer in rats by feeding with parasites of cock-roaches. Such varied reports received from the many workers would seem to be the greatest argument against the parasitic theory.

Bristol says: "All theories associated with strict morphology, biology or bacteriology have, up to the present, fail to explain the cause or causes of cancer and other growths. It would seem, then, that the problem should be studied from a different viewpoint."

Of the older theories, Marchand's may have came nearer to the solution of the problem than any of the others. Ringer and

Loeb discovered that certain inorganic salts are absolutely essential for the proper metabolism, development and reproduction of the sales of the body, and that these constituents must exist in the blood, lymph and tissues in a constant proportion if cell activity and reproduction are to be maintained.

Based upon the above theory many of the advocates of the cause being due to the absence of these salts as the result of modern food, have published many articles advising the use of foods containing the proper amounts of these salts as one of the best means to overcome the cancer problem.

As a result of some interesting and valuable experiments done by Carrell of New York on the cultivation and development of certain body tissues in suitable media outside the body, the following conclusions have been reached: 'Normal blood plasma is not the best or "optimum" medium for the growth of tissue or organs, each of which probably has its own optimum medium not attained in the body under normal conditions. Slight modifications of the tension, the alkalinity or the addition of certain inorganic salts to normal plasma increases the rate of growth of tissues.'

If this is true of tissues, must it not be true of the individual cells of tissues? Thus we must assume that an individual epithelial cell or connective tissue cell is in a medium, the blood plasma or lymph, which under normal conditions is not influencing the rapidity of growth of such a cell as much as it really has the power of doing when the surrounding plasma or lymph has been even slightly changed in tension, reaction, and inorganic salt content. May not tumor cells be an 'optimum local growth' of cells because of an 'optimum local chemical medium' in which they exist? If there is a parasite which causes cancer, or any other tumor, it would seem that the *individual cancer, or tumor, cell is the parasite,* and that an influence is brought to bear on a normal cell which causes it to take on a parasitical existence. As suggested above, this is possibly a *chemical* influence from the neighbourhood, or local medium in which the cell exists, and it acts by markedly changing the molecular structure and entire

nature and metabolism of the cell itself, a change which is transmitted possibly to the 'daughter' cells.

Abdorhalden, who has done such excellent and important work in the field of physiological chemistry, has the following to say on the chemical constituents of the cell and its surrounding medium in relation to cell growth and character: 'It is possible that a body cell may contain its individual nature only with difficulty if for any reason its chemical nature and function become seriously altered, and the progeny of such a cell will possess the characteristics of the mother cell so that gradually a whole cell complex will develop which is of a nature foreign to the entire organism and to its metabolism, and in fact the metabolic end products of this new cell complex may exert a disturbing influence upon the metabolism of the remaining cells of the body.'

Apparently there is a connection between these cells and the mother soil—we refer especially to sarcoma and carcinoma—for it has been frequently doubted whether such cells can be successfully transmitted to organisms of a different species. We are, in making these suggestions, very far from explaining the formation of these peculiar, atypical tissues. We only wish to bring forth the fact that with the further development of physiological chemical knowledge new tasks will be set, and that even problems of purely morphological investigations will, in the course of time become closely allied to those of physiological chemistry. If it is once found possible to compare the metabolism of the cells of a cancer, or other malignant growth, with normal cells, we may certainly expect to obtain a more accurate insight into the nature of such mysterious processes.

In Bristol's summary he has suggested that "The changes in local chemical environment may influence the growth of neighboring cells by causing them to take on increased permeability, absorptive powers, and oxidations, and lead to accelerated activity and growth, even to malignancy." His paper entitled "Newer Ideas Concerning the Problem of Cancer Etiology" is well worth consideration and careful reading by all those interested in solving the problem of cancer etiology.

My theory was formulated during the early part of 1908. I then regarded that when normal cells are excited to pernicious activity, it is due to the presence of an abnormal chemical substance within the cell which has direct action upon the nerve centres, regulating cell growth. If this theory of the origin of carcinoma be correct, then the tissues undergoing these pernicious changes should contain the toxic substances responsible for their continued growth and propagation. My original method of procedure was somewhat unique, but based upon scientific principles.

Working from my theory already stated, I attempted to isolate the toxic substance which it seemed the cell must contain. By various extractive procedures, in previous papers detailed, I obtained a highly poisonous end product from carcinomate which has been found capable of causing in rabbits, neoplasma closely simulating those from which the poisonous substance was derived. From observation it would seem that the poisonous residuum exhibited antigenic properties, resembling those of the true or soluble toxins, since by repeated injections of sub-lethal doses into rabbits, there was obtained an "immune" serum which served effectually to protect normal animals, when injected with lethal doses of the carcinoma "toxin."

During the summer of 1914, dogs were used for experimental work. The solution given intravenously instead of subcutaneously as with the rabbits, the lethal dose was found to act the same but much more slowly than when injected subcutaneously. As a result of this work it was found that dogs could be made immune to lethal doses of the toxin. Further work will be carried out upon these animals.

The problem of passive and active immunization of the human carcinomatous patient was attacked and a brief preliminary report offered. It has been found that a solution of the carcinoma toxin, each c.cm. containing ·00002 gms. of the actual substance, when administered hypodermatically at intervals of from five to ten days, depending upon the patient, for five successive doses, has produced evidence of an active immunization. This can be definitely proven only by a lapse of several years, or by a blood

test, using the Abderhalden method, which no doubt will be made possible in a short time.

It is evident that this substance isolated by my method of procedure does have a specific action in carcinomatous cases, and further necessary work to determine the dosage and method of administration to receive the best results must be by clinical observation.

Let us weigh carefully the many theories advanced and consider the results of the research work, using these theories as a working hypothesis, and I believe we shall find that the above theory, as suggested by me, will have the balance in its favor, and that it will prove to be the most valuable working hypothesis for future research workers in solving the problem of cancer etiology, which will be the first step in preventive medicine in relation to this disease.—The *New England Medical Gazette*, July, 1915.

DIET IN RELATION TO CANCER.

By Dr. JOHN P. SUTHERLAND.

Our President was slightly in error in saying that I would read you a paper upon the subject, "Diet in Relation to Cancer." I did promise to speak on it, but I have not had opportunity to reduce my thoughts to manuscript form:—the subject is altogether too big and I do not expect to do more than to touch on a few of the important points in considering the subject. If we were to discuss it as it ought to be discussed it would take more than one paper, and the papers would not be short at that.

I would like to say that this subject has been on my mind rather continuously for several years past, for it has been my experience to come into contact with a good many cases of cancer. I suppose I have frequently had at one time more cases of carcinoma under observation than of any other one disease, or any two or three common diseases combined, such as diabetes, Bright's disease, pneumonia and tuberculosis, for instance. We hav heard also a good deal about it in Society meetings and have seen

many references to it in professional and lay literature. At the present time we can take up scarcely a medical or popular lay journal without coming across some article relating to the cause or causes of cancer and to its treatment or possible cure.

As to the frequency of cancer:—I was very much interested, in looking over the reports of our own Massachusetts Homœopathic Hospital, where over six thousand patients are treated in the course of a year, to note that in 1913 as published in the annual report there had been on the medical side twelve cases unequivocally diagnosed as cancer, and on the surgical side two hundred and twenty four cases. There had been in the services of the specialists a series of thirty one cases that were diagnosed as "malignant tumors of the face and neck." I have not examined the records to find out exactly the pathological characteristics of these cases, but it seems only fair to include them in the total. Without these thirty one cases there were treated during 1913 in the hospital, among four thousand medical and surgical cases, two hundred and thirty six cases of cancer. Including the thirty one cases, the total would be two hundred and sixty-seven, which is a rather large percentage of the medical and surgical cases treated.

During about a month in my own private practice recently I have had three fatal cases of carcinoma, and I have seen two or three more in consultation; and I now have under treatment in my private work quite a number of cases of inoperable cancer or cases that have refused operation.

During the past summer, while attending the Clinical Congress of Surgeons in London, I was struck by the fact of the large number of cancer cases presented in the clinics. There was scarcely a clinic without at least one cancer case, and there were several papers read upon that subject. Naturally, therefore, circumstances and experiences have forced the general subject of cancer upon my mind.

One point has attracted my attention during recent years, and that is the fact that cancer seems to make its appearance earlier in life than was the case twenty five or thirty years ago. I was

medically brought up to think that cancer might make its appearance after sixty years of age; it was not very long, however, before cases were found in the fifties, and after a while in the forties. It is now not at all uncommon to find cases fatal in the thirties. I had, only a year ago, three cases at the ages of forty-two and fifty-three. These people were not senile; they had scarcely reached middle life.

As to the causes of cancer:—Research workers are still hunting after the cause. As you know they have been giving a good deal of attention to this matter. They are still hunting for germs and parasites; some are considering trauma; some, hypernutrition; some, heredity; some, influence of embryology; and lately, I am very glad to say, the cause has been taken up from the end of chemistry, and it seems to me that this is the most promising field of research in regard to the cause We ought to bear in mind, however, that there are two causative factors. We must remember that there is in all probability an exciting cause—trauma, a parasite or germ, or chemical irritant—but as an underlying and most essential cause there must be a predisposition, or susceptibility, or lack of resistance on the part of the tissues that has not received sufficient attention at the hands of our research workers. It is to this that I am especially at this time anxious to direct your attention.

There is no need of describing cancer in any of its manifestations, or of outlining its treatment, as these do not concern us at the present time. But I am desirous that you should think of diet in relation to cancer;—to its possible causative relationship.

Now then what is diet? I may use the term carelessly perhaps; I do not use it in its strictly technical sense but simply as a synonym for food. Diet may seem to some a more euphonious word. My idea in using this word "diet" is not to refer to any prescribed method of feeding people, but just to refer to food itself. I might change the question and ask—what is food? What are we to understand by food or by diet in the sense in which I wish to use it to-night? I should say that food or diet is the material, elementary or compound, organic or inorganic,

from which vital force may construct protoplasm and maintain its efficiency. I think that covers the ground. Food, then, or diet, is simply the material, no matter what, simple or compound, which when taken into the living structure, may be converted into that structure's own protoplasm and may maintain the efficiency of that protoplasm.

From this standpoint all living things need food. This is true of the simplest form of life, as it is of the most complex. A moment's consideration will convince one that the very lowest forms of life, germs and micro-organisms, for instance, need food. Some get along with very simple forms of diet, while others require more complicated forms. The protococcus pluvialis subsists and is well nourished, performs all its work and reproduces on such a simple diet as rain water with the dust and carbon dioxide it contains, such as is found in old buckets, rain barrels or cisterns. Other forms slightly more complicated require something in the nature of carbohydrates. The torula cerevisiae, a modest form of life, gets along very well on a starchy substance or a sugary substance, preference being given to the latter. The same is true of the popular Bulgarian lactic acid bacillus. These live, perform their functions, reproduce, do the various things that it is possible for protoplasm to do, on this very simple sort of diet. Still other forms of micro-organisms require something more complicated than carbohydrates. There are germs that we are familiar with in pathological laboratories that do not live very well unless they have blood serum. The malarial plasmodium is rather fastidious because it can live only on blood discs and that sort of thing. Reference might be made to orchids, which get along very nicely on food taken into their organisms from the air. We find that plants (multi-cellular organisms) require certain definite forms of food, but simple forms. It is known, thanks to our agricultural colleges and kindred influences, that certain plants require certain kinds of food, and will not do well on other varieties, that is on other soil. The alfalfa, for instance, will grow on a very definite kind of soil, but will not grow on others. The agricultural population knows something about this sort of

thing. They are learning more and more every year, and are taking more kindly than a generation ago to the fact, that in order to secure satisfactory crops the soil must contain certain kinds of food. You may call it fertilizer, if you wish. At all events the soil must contain something which when taken into the multiplying plant cells may be converted into the protoplasm of these cells and help them to reproduce each after its kind.

If we pass for the moment from vegetable forms of life to insect life, we know that the different forms of insects require different varieties of food. Not all can live on the same kind. We are familiar with the elm beetle, the mosquito, the potato bug, and many forms of insectivorous pests, and know how fastidious these forms of life are. It is easy to demonstrate that they prefer certain kinds of food, and do not prosper at all well on others, although when they are hard pressed they will take, and manage to live on, other varieties.

When we come to the higher forms of life, to the reptiles, fishes, birds, mammals, we shall find that the same principle holds in each case. These different forms of life require as food something that may be converted into each particular kind of protoplasm and help it to perform all its varied functions, terminating in reproduction. Among the mammalia, for instance, we find animals having good, clean blood, strong bones, and effective muscles. They have strength and endurance, and they have also certain mental and psychic qualities which are enviable. More particularly the herbivora. They live and perform their life work on food that is composed of certain definite proportions and qualities of elementary substances. One other point I wish to emphasize in this connection:—namely, that all these forms of life, no matter what they are, *have their food provided for them by a wise and generous Nature.*

So we can go on through all forms of life until we get to the mammal, Man, and when it comes to the human animal, where are we in regard to this subject of diet? We certainly do not find that the human animal thinks it can get along on a very simple diet. It wants the whole world; it wants everything.

Variety seems to be truly the spice of life. Whether the craved variety is necessary or not is another matter. I think our knowledge and experience may convince us that even the highest form of mammal, man, can live and live happily and have a strong, vigorous body on a simple form of food, very different from what the modern civilized man is in the habit of getting. Naturally, however, that food must contain certain elementary substances in different proportions and quantity.

It is pertinent to ask right here—is man's food provided for him by Nature as the food for animals is provided for them? I think if we carefully consider the question, we shall have to answer, yes!

Now it seems to me a very curious thing considering the tremendous importance of this subject of food, that there should be prevalent such contradictory views. I do not know of anything, in politics or religion or anything else, that will bring forth so many contradictory views as the subject of diet. The moment that is thrown into a company you are going to get many opinions and not two alike. That is interesting and suggestive, because whenever we get a variety of contradictory views I think we are justified in saying that no one knows very much about the subject. In physics we do not get the same contradiction of views on many things. There is marked unanimity of opinion. The same is true in chemistry, in anatomy, in all sorts of sciences. Fundamental principles are agreed upon rather unanimously. Why is it then that, considering the importance of this subject of food, there should be such contradictory, and often, diametrically opposed views? My solution is that we don't know much about it, and that, I think, is no credit to us as representatives of the highest type of life on the face of the earth. There are opinions enough, but there seems to be a pathetic lack of definite knowledge. We have had in medicine within a few years certain authorities, who have attempted to tell us something about food. We have had Haig, the uric acid man; Salisbury, the raw beef man; Chittenden, the low protein advocate; Kellogg, the cereal and salt-free diet man of Battle Creek; Fletcher, the

advocate of intensive mastication; McFadden, of physical culture and vegetarian notoriety; Dr. Wiley, of pure food fame (although by the way it is a very simple matter to prove that a person may kill himself with pure food); and Dr. Alfred McCann, whose views on the whole seem to me more sane and more rational than the views advanced by most of the so-called authorities on the subject. We hear of "vegetarian diet," of "non-flesh diet," and of various forms of diet. It is enough simply to mention them to prove the point that there are altogether too many views on the subject, and that, once more I think, establishes the fact that we don't know much about it;—and that is nothing for the medical profession to be proud of.

What are some of the faults of our civilization as far as this question of food is concerned? The aim of people at the present time is apparently to furnish something in the form of a luxury, a delicacy. They seem to feel that in order to show hospitality it is necessary to give something extra, something out of the ordinary. The idea seems to be to get a concoction, so mixed that it is impossibe to recognize any one thing definitely. And it is strange, also, that among mankind the idea of hospitality should show itself most prominently in the matter of eating. We feel, at least some do, if we meet a friend, the proper way to show our regard for him is to ask him to take some "liquid refreshment." If possibly he comes to the house, we must get up a dinner for him. If some prominent man from a distance comes to us, we feel that we must get up a banquet to testify to our regard for him. I feel in thinking the matter over that mankind ought to have advanced far enough to have methods to testifying to loyalty and affection and respect other than that of feeding our friends. I rather feel that we make a mistake in confining our hospitality to the low place upon which the bodies themselves live.

As far as food itself is concerned, we should always keep in mind the purposes to be subserved by food, and these are something more than satisfying the appetite or pandering to a depraved palate, or than the common idea of nutrition. People

think that in order to be well nourished one must be plump or even fat. They say to a person who is light weight, "You're not well, are you? Aren't you losing flesh?" People have an idea that rotundity of figure, even obesity, is a sign of being well nourished. We overlook the chief function of food when we think that The idea of nutrition should include something more than the production of weight That is simply one element. We should think that nutrition means the development of energy, of vigor, of real vitality, of efficiency, all-around efficiency, of endurance, and of resistance against malign influences of all sorts, and this part of nutrition is not sufficiently considered.

Are there any grounds for thinking that what we call food will produce untoward effects? We shall answer that in the affirmative because everybody knows, even the laity, that some things taken as food are capable of producing indigestion, flatulence, nausea, constipation, diarrhea, scorbutus, and different varieties of diseases. These things are well known and somewhat suggestive. There are some conditions, some well known diseases, that are unquestionably due to taking as food something that is not food in the highest sense. One may take an unbalanced ration, or may eat a good deal too much of some things and not enough of others, and therefore certain disease conditions are developed. This is easily proven, for instance, in infants. Infant feeding is well known to be a very important thing, and it is well known that a variation of a fraction of a percent of protein or fat or sugar will show itself very quickly indeed in some sign of ill health, in pain or suffering of some sort. The subject of rickets can never be fully considered without thinking of the dietetic end of it. Diabetes may be produced by the over-use of sugar or sweets or sweet-producing food. That is, diabetes may be in some instances a result of an unbalanced ration. The disease beri-beri is a familiar illustration of a disease that is produced by an unbalanced ration. We know that this affection is a peculiar organic disease of the nervous system. It is very common and has been from pre-

historic times. Millions of lives have been lost through it. It is common among those people who eat an excess of polished rice, a fact which is acknowledged by all research workers. It is doubtless due to the removal of the mineral matter from the rice in the polishing. It is to me a particularly significant fact that people may eat a pure food, rice, and yet if they allow it to predominate in their diet they find it capable of producing an organic disease of the nervous system. From forty to sixty per cent. of the cases are fatal. This instance of a fatal organic disease being produced by what is called food has not been, I think, sufficiently appreciated. We simply hear of it, and think of it as a curiosity and then immediately forget all about it.

The prevalence of bad teeth in children is another point worthy a moment's consideration. It is known that millions of children in this country are suffering from defective teeth. This results in imperfect mastication, imperfect salivation and is the starting point of indigestion. Digestion being interfered with, development is retarded or imperfect, strength is below par and the child is handicapped in many ways. This undesirable state of things is the result unquestionably, I think, of the sort of food that the majority of children have. Not long ago I was passing near one of our large public schools when the children were out for recess and taking their lunch, and I was interested to find that the food their lunch boxes contained consisted of white bread—every box had some of it—jam, jelly, preserves, cake with white frosting and yellow frosting and chocolate frosting, and doughnuts. That is all I say. I didn't see any rye or black or brown bread, any lettuce, eggs, cheese, anything that represented proteins or minerals. That is the kind of stuff those children were eating on that day and in all probability every day of their lives and that is why they have defective teeth. And that also is why on our Fenway we have the Forsyth Dental Infirmary for children, an institution founded by generous hearted men to meet a need that should never have existed. They put a lot of money into this building and its equipment, and it will cost a lot of money to run it, but

I wish to emphasize the claim that the necessity for such a charity should never have existed. Children eat sweets and starches in endless combination, and however clever Nature may be and however wonderful the human body may be, Nature through the human body never was, is not, and to all time never will be able to transform starch into phosphate of lime or transform sugar into iron or potassium or manganese or any of the minerals that are absolutely necessary for an efficient human body.

Everybody who is interested in medicine is willing to acknowledge that there is a therapeutic value to diet. The cure of tuberculosis is due to a truly nourishing course of diet plus an abundance of fresh air. Rheumatism and gout cannot be treated successfully without modifying the vicious diet. Diabetes can never be cured without modifying the diet which helped to produce it, and so with many forms of kidney troubles, arteriosclerosis and many other forms of disease. Almost all forms of disease are now treated partly on dietetic lines. That means something; it means that some kinds of food are positively injurious, and these kinds of food should not be taken.

Let us ask then—what sort of diet furnishes the things that really are needed to establish health, to make a strong, vigorous, efficient body? Starch, sugar, fat—no doubt about that—but also protein so-called, and mineral salts are needed. It is claimed that in the human body there may be found sodium, potassium, iron, manganese, magnesium, phosphoric acid, traces of chlorine, fluorine, lithia, and even arsenic. All sorts of things that are found in the mineral kingdom are needed in the body, and the vital question is, what kinds of food will furnish these things and furnish them in an assimilable form? I think we find everything that is needed to produce strong, efficient, healthy protoplasm among the grains, the so-called "cereals," of which we have a large variety; wheat, oats, rye, barley, corn (yellow and white), rice cultivated and wild. These things have been furnished by a bountiful Nature in large quantities. They contain starch, fat, some a little sugar, and protein as well as different kinds and quantities of mineral matter.

Fruits, berries, vegetables, and nuts—these things also are given to us abundantly by a Nature that evidently, through some prevision knew exactly what would be necessary to maintain life. We have to acknowledge, I believe, if we thoughtfully consider the matter that Nature has made provision for maintaining life in an effective form and healthy condition in accordance with the original plan.

Included in the ordinary diet we find milk, butter, eggs, cheese, meats, fish, and things of that sort in unending combination. How many of these things are really necessary and wholesome, and in what form and quantity they should be taken have not to my knowledge been definitely decided.

To consider for a moment the cereals enumerated;—The ease with which they can be preserved is worthy of notice—no pickling, no salt, no cold storage, etc., are needed. They hold on to the vital principle for generations. It is a well known fact that some of these varieties of grains have been put away with mummies two, three and four thousand years ago and in the course of time have been taken out and planted and have reproduced after their own kind. For years and years they have held on to the vital principle. I think this means something.

The chemical constituents of the grains are numerous. They contain in fact everything needed to maintain life with the simple exception of water. They are up-building and constructive and devoid of chemical wastes. Not all these things are true of meats, milk, eggs, etc., and some inference may be drawn from these facts.

[The speaker then exhibited samples of whole wheat, oats, rye, barley, corn and rice; and samples of whole wheat meal, oat, rye, barley and corn meal ground by himself as standards for comparison. These are the things he claimed that were intended for food and that should be used as the chief foods for humanity. By contrast, he exhibited samples of the unfortunately universally used white flour; the so-called and he relieves illegally and falsely called "whole wheat flour"; rye and barley flours, corn starch, pearled barley and polished rice, all of which

he heartily condemned as totally unsuitable for universal consumption as food capable of sustaining life in an efficient, vigorous, enduring condition.

He concluded :—]

Man's body is multi-cellular.

Each cell needs and must have for its sustenance and work those chemical elements and compounds which characterize the special variety of protoplasm and the special work of the particular cells.

Man does not know the composition of the body as a whole or the individual cells of which it is composed.

By analogy, Nature, which has amply provided food for other forms of life, has provided for man.

Man's interference with natural foods by his art has unquestionably resulted in the production of bad teeth, obesity, constipation, indigestion, rickets, gout, diabetes, etc.

Man's interference with Nature's food, as in demineralizing rice, has brought about an organic fatal disease of the nervous system,—Beri-beri. Why is it not reasonable to claim that demineralizing wheat, corn, etc., and eating the product as exclusively as it is eaten by civilized man should be the *cause of the feeble resistance which is the foundation of cancer*, without which cancer could not exist?

Of course, I cannot and do not claim that the eating of white flour and its many attractive and pernicious products is the cause of cancer, but I know it is demineralized wheat and therefore an unbalanced ration, and I am strongly convinced that it is an injurious thing to eat continuously as a staple article of diet. It simply cannot furnish to the body the elements necessary to build sound and healthy tissues, any more than polished rice can. And I contend that as eating much polished (demineralized) rice is capable of producing Beri-beri, so eating demineralized wheat (white flour) corn and vegetables (potato for instance) is a violation of Nature's laws and is sure to produce evil consequences, among which may be the lack of resis-

tance, or the susceptibility, or the predisposition to malignant disease.

That such a thing as disease should arise and afflict humanity is nothing more or less in my opinion than a development due to humanity's own ignorances, mistakes and perversions,—the result of wrong living.—*The New England Medical Gazette*, July, 1915.

EDITOR'S NOTES.

The De Novo Origin of Living Organisms.

The recently published number of the Proceedings of the Royal Society of Medicine contains an illustrated communication from Dr. H. Charlton Bastian, F R S, entitled "The Importance of Tyrosine as an Aid in the Demonstration of the Present-day *de novo* Origin of Living Organisms," in which he deals with the effects produced by small quantities of a dilute solution of this synthetic compound when sterilised and added, with all necessary precautions, to tubes containing saline solutions of five different kinds (whose composition is given) which 5–10 months previously had been enclosed in hermetically sealed tubes and then sterilised by boiling for 20 minutes on three successive days Tyrosine is one of the most powerful of the auxetics whose influence in producing multiplication of cells and of minute amœbæ has been noted by some of the workers for the McFadden Research Fund It was recommended to Dr Bastian for use in two ways firstly, as an addition to tubes whose contents were ripe for examination, and, secondly, as an addition to the original saline solutions previous to their enclosure within the tubes, in the hope of thereby possibly shortening the long period of probation generally needed before recognisable living organisms could be found within the tubes. The first mode of testing its influence was carried out on a large number of tubes ripe for examination by adding a few drops of the freshly sterilized tyrosine solution to each tube when it was opened. The tubes were then immediately reclosed and replaced in the incubator for three to four weeks When the contents of these tubes were re-examined after such an interval a very considerable growth and multiplication of organisms was found to have taken place—thus tending, Dr Bastian maintains, to disprove the two principal objections which had been urged against the original experiments—namely, (1) that what were found were simulacra or pseudo-organisms; or, as others believed, (2) were dead organisms pre-existing in the solutions In order to test the second possible influence of tyrosine similar small quantities of the solution were added to a large number of tubes containing some of the same five sets of solutions, freshly prepared, with which other tubes were charged, sealed, and sterilized. After these tubes had been in the incubator three to four months many of them were examined, but no organisms could be

found, and the small deposits were also more or less altered in character. This initial use of the tyrosine, far from acting as it was hoped, seems therefore to have been actually injurious and to prevent the formation of organisms. But the same materials were used in the preparation of the solutions, the tubes were treated in the same way, and their contents were examined in the same manner, so that objections urged by previous critics of Dr Bastian's work must be, he considers, invalidated. The argument is that the absence of organisms now tended strongly to show that the organisms found in the first series were not likely to have come "from an impure pipette or to have dropped from the atmosphere on to the microscope slip before the cover-glass had been applied," these being the surmises hitherto adduced by critics.—*The Lancet*, July 3, 1915

Pernicious Anæmia and its Neuropathology.

It is known that some nervous symptoms are by no means infrequent in pernicious anæmia. Tingling in the hands and feet is not uncommon, and sometimes there are various pains in the arms, shoulders, legs, or back Physical examination has shown in some cases a loss of knee-jerk or exaggeration, and occasionally an extensor plantar response The pathological changes in the spinal cord have on these accounts been carefully examined, and in many cases definite changes have been found It is usual to find a patchy, irregular degeneration and sclerosis in the posterior columns and also in the lateral tracts It is important to note also that in those cases in which psychical changes have been observed during life there are similar changes in the cortical neurons. These changes are said by Dr. J. A. F. Pfeiffer (*Journal of Nervous and Mental Diseases*, February, 1915) to be similar to those in psychoses of toxæmic origin. This view is significant since many theories have been offered to explain the nervous changes. It was suggested, in the first place, that the sclerosis was due to a coalescence of multiple small hæmorrhages; but these are often not found in cases in which they would be expected, nor is their distribution compatible with such a possibility. Secondly, it was thought that thickening of the blood-vessels might induce secondary changes in the nerve tissue, but sclerotic areas are found independent of the blood-vessels. Thirdly, thrombosis of smaller vessels was suggested, but the distribution of the

degeneration in pernicious anæmia favours the cervical and upper thoracic regions of the cord, whereas the most deficient vascular supply, and thus the most likely zone for thrombosis to occur in, is in the mid-dorsal, lumbar, and even the sacral regions. Finally, in many cases the vascular changes have been found to be relatively insignificant, and could not be regarded as bearing any etiological significance to the degeneration in the spinal cord. It has been noted that the lymphatic spaces of the vessels may be distended and filled with the detritus of the products of degeneration, but this is to be regarded as merely their participation in the disposition of waste products. A common toxin must be regarded as the cause of all the changes, and this acts simultaneously upon both grey and white matter. The distribution of the chief degenerative areas is due to the fact that all parts of the nervous system are not equally vulnerable. This toxic theory of the changes in pernicious anæmia finds support from the evidence that combined tract degeneration has been observed in a number of toxic, cachectic, or anæmic conditons, such as leukæmia, arsenic poisoning, and chronic alcoholism.—*The Lancet*, July 3, 1915

Prevention and Treatment of Septic Wounds.

Of special interest in connection with the war is an article contributed by F. W. Summer, B.A., M.B., (Cantab.), Civil Surgeon at Saharanpore, U. P., to the Indian Medical Gazette. It is an exposition of autotherapy and gives full credit to Dr. Duncan. The author points out the simplicity of the method, and relates some illustrative cases. He lays down the following six rules of procedure and suggests that the first four could be printed on cards and distributed to the soldiers for their guidance if wounded :

1. No antiseptics to be placed on the wound.

2. Where possible the wound to be placed at once in the mouth and sucked for five minutes every two hours, or oftener, for three days. Any foreign body to be taken out of the wound (bits of clothing, etc.,) placed in the mouth and well chewed for five minutes. The saliva, juices, etc., from the wound or foreign body to be swallowed; the foreign body to be spat out.

3. Where the mouth of the wound is small and tends to close up, retaining the discharges, it must be kept open by inserting a few strands of cotton, thread, bit of bandage, etc., to act as a drain.

4. Where the wound is so situated that it cannot be placed in the mouth, take a piece of clean rag, dip in clean drinking water, squeeze out as much water as possible, and apply this to the wound to soak up the discharges, after two hours place this rag, after wiping up the wound with it, in the mouth, chew well for five minutes as above described; put on a similar piece of rag and repeat the process every two hours being especially careful, where the wound is small to take out the drain each time and chew it with the rag, and to put in a fresh drain at each dressing.

5. Another equally efficacious method is to take off the dressing morning and evening only, place each dressing in one ounce of saline solution (sterile), allow to stand for twelve hours shaking occasionally, filter through a Pasteur-Chamberland or Berkefeld filter candle, and inject subcutaneously 4 c.c. of the filtrate at once, *i.e.*, two injections freshly prepared daily.

6. Nothing but boiled water may be used to clean the wound at each dressing.—*The North American Journal of Homœopathy*, September, 1915.

Soldier's Heart.

During the first months of the war the German medical press devoted itself mainly to wounds and their treatment, infectious diseases, and the hygienic measures necessary for their suppression. Early in 1915 many writers published their observations on the effects of the war on the soldiers heart, and it would appear that the constant strain of active service has provided an unexpectedly large number of cardiac casualties. Magnus-Levy was struck by the frequency with which healthy-looking, well-built young men among the wounded complained of palpitation of the heart, a sense of pressure in the cardiac region, and slight dyspnea on exertion. The pulse was 80 to 100, the apex beat was in the fifth space, in or to the left of the nipple line, and the cardiac dullness was increased. The cardiac sounds, were muffed, and systolic or presystolic murmurs were audible, particularly after exertion. The second sound was loud, notably after exertion, which quickly increased the pulse-rate to as much as 120. Only in a few cases could it be proved that the patients had already suffered from slight cardiac symptoms before the outbreak of the war, and in the majority of cases the strenuous life of the soldier was apparently alone responsible for the faulty action of the heart. Rheumatic endocarditis could be excluded in most cases in the absence of articular disease. In the overwhelming majority of cases the dilatation of the heart and the rapid pulse were traced to over-exertion and fatigue; and the slight rises of temperature sometimes observed among unwounded soldiers suffering from cardiac symptoms were regarded, not as a sign of infectious endocarditis, but as a result of instability of the body temperature due to fatigue. Fischer was also struck by the frequency with which the wounded complained of cardiac symptoms. Among 131 wounded he found cardiac anomalies in 51, or nearly 39 per cent. In most cases there were adventitious sounds over the apex or base of the heart, which, in 13 cases, was dilated. Discussing the prognosis in these cases Munter considered the outlook bright, provided over-exertion could be avoided in the future. He found treatment with digitalis of no use, and he admitted that rest in bed was unsatisfactory, as the patients became restless and were subject to attacks of palpitation at night. Mirtl's prognosis was more cautious, and he pointed out that, though the symptoms might disappear with rest, a complete recovery could not, as the *x*-rays

have proved, be anticipated. His experience of the Balkan wars of 1912 and 1913 had shown him that the soldier's heart was associated with persistent hypertrophy, which, though of a moderate degree, was often the cause of discomfort. When such cases were neglected, arterio-sclerosis was apt to supervene.—The *British Medical Journal*, July 17, 1915.

Rupture of the Intestine by Compressed Air.

Stauff records the case of a lad, aged 15, who was cleaning a machine with compressed air when, unintentionally, he blew dust into the eyes of his companion. In a passion his companion forced the nozzle, through which the compressed air was escaping under a pressure of 6 to 8 atmospheres, into the lad's anus. This happened between 10 and 11 a.m. At 2 p.m. the lad was admitted to hospital much cyanosed and with an anxious expression. Respiration was laboured and superficial and the whole body was bathed in sweat. The lungs were displaced upwards, the action of the heart was regular, its sounds were normal, and the pulse was small and 120. The abdomen was distended like a drum, and was everywhere tympanitic. There was some blood about the anus, but a rectal examination was negative. The temperature was 37.2° C. and the urine was normal. The patient was perfectly conscious and complained of severe abdominal pain. The history of the case and the condition of the patient indicated rupture of the intestine. Laparotomy was therefore performed under general anaesthesia, an incision being made in the middle line between the umbilicus and the symphysis. When the peritoneum was divided offensive gas escaped with a loud hissing sound and the abdomen collapsed. The intestines and peritoneum were inflamed and masses of blood were found in the pelvis. Fæcal peritonitis was diagnosed and the abdominal wound was enlarged upwards to ensure a better view. Between the pelvic colon and the splenic flexure fifteen ruptures of the serosa were found and sutured. The serosa of the transverse colon was completely torn longitudinally and, just below the hepatic flexure, there was a longitudinal rupture extending for about 6 cm. Through this rupture fæces had escaped into the abdominal cavity. The caecum and the colon were resected almost as far as to the middle of the pelvic colon, with which the ileum was connected by a termino-lateral anastomosis. The abdo-

minal cavity was cleaned, a Mikulicz tampon was inserted, and the wound partially closed. The patient rallied after the operation, but next day fever, vomiting, and hiccup came on and he died at 3 p.m. —The *British Medical Journal*, July 31, 1915.

Evolution and Disease.

In his Chandwick lectures on the Evolution of Epidemics in 1913 Dr. J. T. C. Nash attempted "to deal philosophically with the problems of epidemics in a semi-historical manner." He has now published a little work based on these lectures in which, after some introductory chapters on the historical records of famine and plague in the Middle Ages, the main point of the argument is set forth in Chapter IV—namely, that "it is possible that some diseases, which can now be differentiated as distinct diseases, may at one time have been less clearly distinct"; and that "though there is little evidence in this direction, it is conceivable that a saprophytic organism, under varying environment (in the way of season and light), or of pabulum (semi-putrid flesh or vegetable), may be capable of transformation into, e.g., the lepra bacillus (or streptothrix) on the one hand, or into the, as yet unknown, organism of pellagra on the other." Although Dr. Nash follows this up immediately with the admission that "it is equally likely that the somewhat similar symptoms of leprosy and pellagara may be the results of interaction between the the same susceptible tissues and two distinct organisms," the general trend of his argument is that evolution of specific pathogenic properties does exist in disease-causing organisms, and that there does not exist the same (apparent) permanence of characters and properties in bacteria as in animals and plants of more highly developed organisation. That this is an eminently reasonable proposition is suggested by the fact that it has been more or less explicitly stated by many previous writers—Dr. W. B. Carpenter, Sir William Aitken, Sir W. J. Collins, Mr. K. W. Millican, Lieutenant-Colonel A. M. Davies, and others not mentioned by Dr. Nash. Dr. Nash well works it out in the succeeding chapters. In Chapter XII, will be found the most important evidential facts and arguments derived from (1) field-work epidemiology and clinical observation; (2) bacteriological investigations; and (3) philosophical induction. Dr. Nash rightly insists

that insanitary conditions "may serve no inconsiderable part in communicating pathogenic properties to ordinary saprophytic organisms, or in lowering the resistive power of individuals to infection." The evolution of a diphtheria outbreak and the occurrence of cases of what appeared, in the words of Sir Richard Thorne, "to be nothing more than a simple inflammation of the throat, which yet led, by transmission through other persons, to cases of well-marked and severe diphtheria," furnish one example, and the close relationship between typhoid and paratyphoid organisms furnishes another, of the difficulty in conceiving either of these diseases as immutable entities, or of their causes as absolutely fixed in biological character. If such were the case, it would be contrary to the fundamental principles of evolution. Dr. Nash states (p. 55) that variability among bacteria first forced itself upon him in 1900, when, on making an early microscopical examination of a young subculture of *Actinomyces streptothrix*, he found the early forms indistinguishable from streptococci. The same idea has, no doubt, presented itself to many bacteriologists and pathologists, perhaps many years earlier than the date mentioned; it is an eminently reasonable one, and in all probability will eventually come to be recognised and adopted, to the exclusion of the theory of absolute and immutable specificity, as expressed by Liebermeister: "No matter how well a field is manured, wheat will not grow unless wheat has been sown." This is true, and yet one may believe that there was a time when neither wheat, nor oats, nor barley existed, but a grain having some of the characters of each and from which the existing species have evolved. What has occurred during thousands of years in a cereal development may be brought about more rapidly in a bacterial evolution.—*The Lancet*, July 17, 1915.

Skin Reaction to Croton Oil in Tuberculosis.

The Medical Record calls attention to a new prognostic sign serving as an index of the strength of a patient's natural defences.

In normal individuals the inunction of the skin of the arm with a 10 per cent. ointment of croton oil with petrolatum as a base produces a well-marked erythema with the formation of papules and pustules of various sizes and accompanied by itching and sometimes by pain. With the subsidence of the local reaction there are left copper-colored

spots that persist for several month. In tuberculosis patients there are different degrees of reaction. This is termed negative if there are only a momentary redness and a slight itching. The reaction is slightly positive (+) if there is a pronounced erythema with a few pustules. The reaction is positive (++) if there are many pustules which reappear with each subsequent application of the salve. A highly positive reaction (+++) occurs with a marked swelling of and pain in the arm which, however, do not last longer than a day.

If the croton-oil reaction is intense and diffuse, one may anticipate a favorable outcome in any given cases of tuberculosis. If, on the other hand, the reaction is negative a rapid evolution of the disease and a fatal termination may be predicted. The significance of the intermediate reactions is difficult to interpret. These suggest an unfavorable rather than a favorable outcome.—*The North American Journal of Homœopathy*, September, 1915.

Racial Admixture in Egypt.

The history of mankind at least during the last sixty centuries, has been one of racial admixture and the development of culture by the contact of peoples from different regions. This principle was placed at the fore-front of the address on the races of Egypt which Professor Elliott Smith, F.R.S., delivered before the Eugenics Education Society on June 4th He pointed out that the valley of the Nile afforded a rare opportunity of studying this principle of anthropology not merely because the evidence had been so well preserved, but also because Egypt in past millenniums had been the home of three distinct racial types which met and intermingled at a time when each of them was in a state of comparative purity. The land of Egypt resembled a tube, open at one end to the Mediterranean, at the other to negro (Soudanese) Africa, and insulated at the sides by the Libyan and Arabian deserts. The first of the three races was the proto-Egyptian, whose skulls were characterized by a certain amount of bulging at the back, a low-bridged nose, and a feeble jaw. Then, reaching the Nile valley by way of the north about 3,400 B.C., came broad-headed and assertive-jawed alien elements from western Asia; and, finally, a negro element came filtering up from the south. The ascendancy of one or other of these factors determined the

physical and cultural history of Egypt. The Egyptian head of the pyramid-building epoch was of a much more pronounced character than that of the Egyptian aboriginal, and, as the lecturer showed by exhibiting casts of the interior of skulls, the brain of the Egyptian at this period was not dissimilar in mass and contour from that of such a modern as Dean Swift. His conclusion was that the Asiatic people who came into Egypt from the north, while possibly they introduced no specific element into Egyptian culture, and contributed no particular art or craft, were yet so vigorous and large of brain as to stimulate the striking development of civilization which coincided with their entrance upon the scene. In his prominent nose and obtrusive characteristics the ruler who was supposed to be the Pharaoh of the Exodus bore a striking facial resemblance to the race which had infiltrated Egypt from Syria and western Asia, whereas his feeble successors tended to conform to the purely Egyptian features. From 600 B.C. to the present time Egyptian skulls resembled those of the proto-Egyptians more than anything else. It was not so much case of reversion to type as of the disappearance or subordination of many of the alien elements which had disguised the type. The truth seemed to be that when the power of the stimulating northern race began to wane in Egypt, the influence of the negro from the south became more and more manifest; originality was numbed, earlier traits reappeared, and now the modern Egyptian, with his effeminate features, was probably even less distinguished for initiative than was the aborigine of Egypt before the first alien immigration began. In the course of the subsequent discussion an evolutionist complained of having been cut off from his bearings; but Major Leonard Darwin, who presided, agreed that in all eugenic studies the idea of the mixing of races must be kept prominent; indeed, the science of eugenics was largely concerned with the sifting out of good strains from bad.—The *British Medical Journal*, June 12, 1915.

CLINICAL RECORD.

CLINICAL CASES.

By DANIEL E. S. COLEMAN, Ph. B., M.D.

The cases treated in a year's practice are such that only a small number can be mentioned in a limited article. The majority comprises those in which both patient and doctor expect certain oft-verified results. For example, I have treated a number of typhoids this spring, but they were regular, ordinary cases with well marked indications for usual remedies. This is true in other diseases.

A few cases slightly out of the ordinary, or in which Homœopathy shows its superior curative powers, may be of interest I have chosen ten such for illustration.

CASE 1. Male, 39 years old. History of long continued nervous strain Impaired vision, could not see print with right eye, and distant objects appeared as if covered by a dense fog. Left eye was also affected, but could read with difficulty. A well-known homœopathic oculist made a diagnosis of hysterical amblyopia. I prescribed a small fraction of a drop of *Gelseminum* four times daily upon the following symptoms: Great lassitude, difficulty in holding urine, drowsiness, could hardly keep the eyes open, occasional tremor, desire for absolute quiet on account of nervous exhaustion, occipital headache and fog before the eyes.

Immediate improvement and complete cure in about two months.

CASE 2. Miss A., age 36. Missionary to China. In September, 1911, following nervous strain and small-pox, she noticed that her eye-sight began to fail until she could not read, and distant objects became scarcely discernible. A bad prognosis was given by an "old school" oculist. I diagnosed her case as hysterical amblyopia, and prescribed *Gelseminum* as in case 1. The prominent characteristics leading to its choice were great nervous exhaustion and local eye symptoms. Complete cure in a few months.

In both these cases the remedy was discontinued when improvement was marked and resumed when it ceased.

Case 3. Mrs. B., aged 46. December 26th, 1912. Lump in left breast, half the size of an egg, and of stony hardness. ℞. *Conium* 3, *q. 2 h.* Cured in one week.

Case 4. Mrs. D., age 37. March 28th, 1912. Troubled with a lump, the size of a marble, under the left arm for eight months. ℞. *Phytolacca* 3*x.* followed by *Conium* 3*x.* in repeated doses resulted in a complete cure in about six months.

Case 5. Mrs. C., age 82. June 2nd, 1913. Otitis media chronica with marked tinnitis aurium. Hearing greatly impaired. ℞. *Kali mur.* 6*x.* one tablet four times daily. June 14th, hearing improved and tinnitis aurium entirely disappeared. ℞. *Kali mur.* 6*x.* continued June 23rd, hearing greatly improved; no return of tinnitis aurium.

Case 6. Male, age 41. Tinnitis aurium resulting from severe cold lasting several years. ℞. *Carboneum sulph.* θ on No. 40 pills. Several doses of three pills given. Prompt results and no return to date. The prescription was made a number of months ago.

Case 7. Miss C., large unsightly scar on neck, about five inches long and two inches wide, resulting from repeated operations on abscesses and existing a number of years. ℞. *Graphites* 6*x,* two tablets four times daily, to be taken and discontinued on alternate weeks. To-day there is a marked decrease in scar tissue so much so that it no longer attracts attention.

Case 8. Dental fistula existing many years. Thin discharge and at times great pain, < by touch or change of temperature. Just before prescription pain was so intense that extraction was contemplated. ℞. *Silicea* 30*x.* Several doses cured the pain and greatly benefitted the discharge. Now, many months after, there has been no return of the pain and only a slight return of the discharge.

Case 9. Mr. X., May 21st, 1912. Protruding blind hæmorrhoid about the size of the tip of the index fingure, very hard and

painful to touch. ℞. *Æsculus* 2, *q.* 2 *h.* *Æsculus* cerate externally. May 24th slightly improved. ℞. *Æsculus* 3, *q*, 1 *h.* cerate externally. June 10th, hæmorrhoid one-third original size; no pain. ℞. *Æsculus* θ gtt. vi., in half glass of water ʒi. *q.* 3 *h.* Entirely cured in one month from beginning of treatment, and it has not returned in over a year.

CASE 10, Mr. D., aged 63. Diabetes and enlarged prostate gland. Weak, tired, nervous, dull, frontal headache, constant desire to pass urine; sometimes every hour during the day, and several times at night; has to wait a long time before urine comes, and then only passes a small amount. Pain above pubes, soreness on urination. Urinary examination: S.G., 1032; albumen, slight trace; sugar, 7 per cent. April 16th, ℞. *Syzygium* tincture, gtt. 1, *q.* 3 *h.* June 4th did not take medicine regularly, and has discontinued it for a week. Urinary examination: S.G., 1022; sugar, 2 per cent.

Please note that I made no change in diet whatsoever; he ate as much starch and sugar as he liked. I wished to give the remedy a fair test. Some of his symptoms still remained. He felt weak and nervous, he had desire to pass urine with inability to pass more than a few drops at each attempt and accompanied with great pain, < after breakfast, lunch and dinner. Burning of feet at night in bed. ℞. *Sulph.* 12, four times daily. June 17th, felt better in ten or twelve hours after taking *Sulph.* At present is without symptoms, and only rises once at night to urinate, sometimes not at all. He said: "Doctor, I feel so well that I do not know why I came to see you."—*The Homœopathic World*, June 1, 1915.

Gleanings from Contemporary Literature.

THE DEEPER CONCEPTION OF LIFE NEEDED.

By Dean John P. Sutherland, M.D.

"Nevertheless, without the favour and influence of the Supreme Deity, from whom, as from the only Fountain and Highest Sun of Wisdom, all truths flow down as rays into our understandings, vain would be our inquiry; wherefore, let us with adoration supplicate His presence and His favour." Thus wrote Swedenborg in his Introduction to "The Worship and Love of God," and it was in the humble spirit here manifested that he attempted to solve the problem of the origin of the earth and many of the things related thereto. Doubtless it would be vastly to our advantage if in attempting dispassionately and justly to discuss the subject before us we should follow the example of humility and of dependence on the only Source of Wisdom any Truth set us by Swedenborg. To approach any subject in such an attitude must surely clarify one's vision, permit one to rise above prejudices, and thereby leave one's judgment in freedom to draw reasonable, logical and just conclusions.

The great difficulty with the world to-day is not the devastating and horrible war that is being waged by its most highly civilized nations, but the deplorable mental and spiritual attitude of humanity which preceded and eventually led up to the strife, and even now persists. The war itself, with its attendant destruction of property, inevitable destitution, pitiable suffering of wounded, and sacrifice of life, is simply an "objective symptom," an outward manifestation of an internal disorder or disease. It is the inner life of the civilized world that has gone wrong, and it has gone so far wrong that all the nations of the world are now participating to a greater or lesser extent in a deadly struggle. None are wholly exempt, for even those nations that are not on the fighting line are suffering great restrictions in financial, commercial, and manufacturing enterprises and relationships, and have lost much of the helpfulness and stimulation that are connected with wide international friendships. Evidently there must be something wrong with man's conceptions of life in order to permit the plunging of the world into its present distress and suffering. Evidently man, in the unrestricted freedom of choice and action which has been given him, is attempting to solve the problems of individual life and to guide the destinies of the nations for himself and in accordance with his own policies and

judgment and desires. The condition of the world to day does not support the idea that rulers of men who are humanly responsible for the present crisis in the world's history have been governed in their actions by the deepest conceptions of life, or that they have seriously and earnestly sought guidance from Him who said, "Blessed are the meek; for they shall inherit the earth"; "Blessed are the merciful; for they shall obtain mercy"; "Blessed are the peacemakers; for they shall be called the children of God."

It is purposed here to call attention to certain possible causes of the Great War now being waged in the heart of the most cultured and civilized countries in Europe, for such causes must be recognised in order to be avoided; and to suggest tentatively some conceptions of life which, if widely accepted, would certainly tend to abolish such deadly struggles from the future experience of the human race.

The cause of the War, like the cause of disease in the individual, to borrow a medical classification, may be considered twofold—first, the exciting; second, the predisposing. The exciting cause of disease is frequently a relatively insignificant thing; a slight exposure to wet or cold, a mild indiscretion in eating, an usual exertion or excitement, a plus or minus in the chemistry of the body, or a microscopical germ. So with the war, which may be considered a malignant national disease; the exciting or nominal cause was the mad action of an Herzegovinian lad, a Servian only by race, who in Seravejo, Bosnia, assassinated the archduke Francis Ferdinand, petential successor to the Emperor Francis Joseph of Austria-Hungary. This act, far from trivial in itself, is, however, to the nations, or to the war which it nominally caused, as a germ to the disease of the individual. The exciting cause has sunk into insignificance and is practically forgotten in the magnitude of the strife and slaughter which was originated by it; and it is perhaps excusable to say that this exciting cause in itself was not sufficient to justify the wholesale destruction of human life and happiness which is now in progress, any more than the activities of an infinitesimal germ justify the suffering and loss of life that accompany an acute infective disease, for instance. In both cases the predisposing causes, that is the lowered resistance to malign influences, or the "loss of immunity," and the inherited or cultivated tendencies, are the really important things to consider. It is well known that people are continually exposed to the germs of tuberculosis, pneumonia, diphtheria and similar diseases, but in the majority of instances the natural resistance of the body is sufficiently high to repel the invasion and

prevent the development of the disease. The resisting power of the body, however, once lowered, the malign influences have, and frequently seize, their opportunity to work mischief.

Of greatest significance then are not the slight exciting but the weightier predisposing causes of the present strife, such as the annual mobilization and manœuvres of vast armies; the ceaseless military training; the building up of thoroughly drilled legions; the utilisation of the wonderful inventive genius and the mechanical skill of the age in manufacturing more terrible and powerful engines of destruction than the world has heretofore known; the detailed plans and preparations for waging war; the wrong ethical and moral standards upheld by the nations; their guiding doctrines, philosophies and policies; the rather general substitution of civilization for Christianity; inordinate ambition, pride, jealousy, and love of dominion; a brooding spirit of revenge; wrong conceptions of life and its objects; and the attitude of the nations towards each other, which for years has been not unlike that of a group or different species of carnivorous animals ready on the least fancied or real provocation to spring at each other's throats; furtively watching the most insignificant movement of each other; wary, revengeful, apprehensive, distrustful. The predisposing causes here enumerated are not unlike a powder magazine needing only a spark, a lighted match, to bring about a terrible explosion. Civilization's misfortune has been in assiduously collecting and carefully preserving such a mass of dangerous explosives.

It is becoming somewhat widely recognized that the real causes of the war are not superficial or accidental, but deep-seated and evil; that the conflict represents the struggle of falsities against truth, evil against good. That these views are prevailing may be seen by reading many of the more recent books and articles on the war, as for instance in the October number of *The Hibbert Journal*, wherein Sir Henry Jones, writing on "Why We Are Fighting," says: "The real cause of the war is undoubtedly the misapprehension of moral facts, and confusion of judgment as to the relative place and value of material and moral principles." "It is the moral perversion which subjugates and even dedicates the higher, the things of the spirit, to the service of the lower and material." People have been fed on "the starving spiritual diet of physical science and mechanical invention"; on criticism instead of interpretation of the Bible. "It is a dangerous experiment to lay the world at the feet of the natural man; it is safe at the feet of the spiritual." "The righteousness

which is like the everlasting mountains has taken up the challenge, and we are even now witnessing the coming of judgment." And the Bishop of Carlisle on "The Ethics of War," says: "Even now evil is not omnipotent, . . . Moreover, there is abundant evidence in many directions that the strength and supremacy of evil in the world have already been much curtailed." "That good at times accompanies evil, or even springs from it, is no evidence that evil is good; albeit it is an evidence that, amid all evils, God is God, that evil is being slowly brought into submission to His will, and shall finally be vanquished and put under His feet."

If in any nation there prevails the idea that Man is simply the highest type of animal life, possessing a more active and efficient brain with wider, more varied and useful functions than do other animals, differing from other animals only in cleverness, initiative, ingenuity, but always a mere animal whose life is no more than a passing experience, a temporary affair ending with the dissolution of the body, it is but natural that the ideals of expediency and sensual pleasures and creature comforts and material prosperity and worldly knowledge should dominate in the councils of that nation. It is of the utmost importance in all the affairs of life, in connection with a discussion of the war, or quite independent of it, that each human being should formulate for himself an answer to the question, "What is Man and What is Life?" Should he believe himself to be merely an animal, though a clever one, a member of the brute creation, to be guided by instinct and controlled by natural forces, a specimen of physical evolution representing the survival of the fittest, a result of natural selection or an accident, that his life and destiny are without definite plan or purpose, he will doubtless not allow himself to be disturbed by longings for anything better than his present life affords; he will not be troubled by high conceptions of individual responsibility and duty, by lofty ideals of justice and honour, of right and wrong.

It would doubtless make for the happiness, welfare, and progress of mankind if it were generally accepted as a fact that man is something more than the bones and muscles and tissues of which his body is composed, and something more than the functions which his wonderful body possesses. It would seem easy to convincingly demonstrate that man is essentially that "something more," for his body may be crippled by the loss of eyes or tongue or stomach or appendix or limbs, or various other organs and structures, without in any way crippling the ego, the personality, the essential charac-

eristics of the individual. Bones, muscles, lungs, glandular organs and tissues, and even brains are so absolutely alike that no vital differences can be distinguished between these structures in different bodies, and yet everyone recognizes the marvellous idiosyncracies and individualities that differentiate one person from another. It is not that two brains, for instance, are recognizably different: it is the two things, personalities, souls or spirits that use the brains that are different. It is true that man's body is an animal, a member of the brute creation with passions, impulses, instincts, natural desires, likes, dislikes, emotions, fears, hates, loves such as are possessed by other animals, but there is a something resident in man's body that has the possibility of subduing, controlling, guiding these passions, impulses, emotions, and instincts. It is this "something" that is the essential man, and it would be well for us all to remember that man was given "dominion over the fish of the sea and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth," which means that it is possible for man to dominate all the animal qualities that are born with his body. The study of anatomy, physiology and embryology, and the ordinary experiences of life should be sufficient to convince us that Man is not simply flesh and blood; that he is "something more," in fact nothing less than an immortal soul or spirit, temporarily and for a short time encased in the material and ever-changing body, and handicapped by its limitations. It is commonly recognized in these days of psycho analysis, psycho-therapeutics, mental healing, researches into sub-conscious cerebration and the psychological generally, that the real man is an indestructible personality, an imponderable, intangible force and entity, a reality separable from the purely physical. The idea of man being a spirit is not as offensive to scientific thought as it formerly was. Recent investigations into the nature of electricity, of X-rays, of radium, of wireless telegraphy, of psychic phenomena, of the all-penetrating ether, and the new conceptions of matter, the atom, the ion, the electron, have prepared the scientific mind to accept the idea of immortality, and to look upon man as a spiritual substance destined to immortal life. Progress in this direction is reflected in modern scientific thought, but nowhere do we find it more definitely stated than in the famous address on "Continuity" (the continuity of life) made by Sir Oliver Lodge, as President of the British Association, for the advancement of Science. He says: . . . "already the facts . . . examined have convinced me that memory and affection are not limited to that associa-

tion with matter by which alone they can manifest themselves here and now, and that personality persists beyond bodily death."

Unfortunately for the ready acceptance of the idea by man in his present status, it is difficult, if not impossible, for natural science to convince one of the existence of the soul and of immortality. This seems to be the special function of Revelation, and it is right here that man has for centuries wrecked himself. It must be acknowledged that mankind has not yet accepted and will not accept Revelation as the source of real knowledge and as the one infallible guide in life. If Revelation had been accepted in any practical and full sense, war, such as the world is now waging, would be impossible. Man willingly accepts as facts, or acknowledges, the frequently unreliable testimony of the senses, the results of his own investigations, and elated by the possession of so much knowledge, stimulated by the accomplishments of inventive genius, happy over his control of physical forces, he builds up a civilization, a culture, a refined society, with philosophies, sciences, and policies which he worships as his own production, and which he actually substitutes for Christianity, the product of Revelation. Man's civilization and culture and philosophy have shown themselves to be but a thin veneer incapable of withstanding the friction of severe use. Civilization is a human product partaking of the imperfections of humanity, incapable of holding in dominion "the fish of the sea, the fowl of the air, and . . . every living thing that moveth upon the earth," and that is why civilization after civilization has come and gone in human history, and why it is possible that history may even again repeat itself. Civilization has demonstrated again and again its utter inability to control or hold in dominion selfishness, greed, envy, malice, revenge, inordinate worldly ambition, pride, cruelty, arrogance and similar qualities of evil which repeatedly have been at the root of war and have caused the fall of many an empire.

But it may be asked, What has Revelation to offer that can modify the too widely accepted materialistic conception of life and abolish wars and other evils? Very briefly it may be quoted in reply, "So God created man, in his own image, in the image of God created he him" (Genesis i. 27). Therefore, man, the created, is spirit and immortal, because he is made in the image of God; and he is also dependent first, last, and always on his Creator. In absolute freedom he can, however, and even must, choose to try to guide himself, or to be guided; and if in the consciousness of his own inability to guide himself successfully he decides to seek guidance, he will find ample assis-

tance, for we are told, "Thou wilt show me the path of life" (Psalm xvi. 11), and "Thy word is a lamp unto my feet, and a light unto my path" (Psalm cxix. 105), and "He hath shewed thee, O man, what is good. and what doth the Lord require of thee, but to do justly, and to love mercy, and to walk humbly with thy God?" (Micah vi. 8). And furthermore, there have been given to man as safe and trustworthy guides through the difficult situations of life certain simple and easily comprehended "Commandments," fully one-half of which have been flagrantly disobeyed when nation has declared war upon nation. To illustrate, we are commanded, "Thou shalt have no other gods before Me"; therefore, man should not make a god of, and worship, his own judgment and power and foresight and might, and attempt forcibly to settle the destinies of other peoples and nations and the world. "Remember the Sabbath day to keep it holy." Do hostile forces in deadly combat on the Sabbath hallow the day? "Thou shalt not kill"; "Thou shalt not steal," or appropriate territory or property without the free consent of the original possessors. "Thou shalt not covet . . . . any thing that is thy neighbour's." These simple commandments were given, not only to individuals to guide them in their separate lives, but to groups of individuals called societies, states, nations. The greatest as well as the smallest nation is comprised of human units, and it is a dangerous doctrine that holds Christianity, Revelation, the Decalogue, the Golden Rule, the Bible and its teachings to be applicable, perhaps, to the life of the individual, but to have no relation whatever to the affairs of the state. This doctrine has its advocates and it is responsible in no small degree for the pitiful condition of the world to-day. The Two Great Commandments, given at a later date under the new dispensation, comprising love of the Lord and love of the neighbour, are both also utterly disregarded when one nation makes war upon another.

In view of the fact that Man's conception of life, as exhibited by all the civilizations past and present, has signally failed to bring continuous peace, progressive prosperity, universal happiness, and the development of the highest and most useful possibilities of human nature, it would seem to be a sensible thing for a rational humanity to give up its old and unsuccessful methods and try the conceptions of life and duty outlined so clearly and definitely by precept and commandment in the Word of God, the Bible itself. Can any simple-minded, trustful, and intelligent mind doubt what would be the result?

The transition may be accomplished by means of a broader and more comprehensive education than has yet been made use of. By education is meant not a mere training of the memory, not merely acquiring a few tricks in habits, manners, customs, traditions; not merely developing manual dexterity or technical skill in any art whatsoever; not merely becoming familiar with natural or applied sciences; not merely an unfolding of mental powers. It is more than all these. As J. F. Clarke, quoted in the "Century Dictionary," says, "But education, in the true sense, is not mere instruction in Latin, English, French or History. It is the unfolding of the whole human nature. *It is growing up in all things to our highest possibilities.*" In this high sense it may be claimed that education at the best is an imperfect state of knowledge and power; that as an accomplished fact it is impossible and never can be perfected, because finite mind can never learn or know all that Infinity has to reveal. In this connection one should never lose sight of the fact that man, whether king or peasant, is born into a state of absolute ignorance and inefficiency; that at the time of his birth he is less well equipped to participate in the struggle for existence than are other animals. These animals, as a rule, are born practically into all the knowledge and ability they ever possess, and education, except in the most superficial sense, is with them an insignificant matter. Man on the lowest side of his nature is born, in common with other animals with certain so-called instincts, or inherited habits; but these, after all, are of limited scope and variety, and are quite as likely as not to act as handicaps in man's ascent toward the high planes of thought and activity, to which it is his right and privilege and duty to aspire. Man's education proceeds from his original state of ignorance along certain definite planes: first, along the natural or sensual; for by means of his senses he learns to observe and become acquainted with his environment. Later his mental faculties are awakened and he adds to his observation the power of reasoning. Still later, if he so wills, his spiritual faculties are opened to the enriching and developing influences which are near and accessible. To his natural powers of sensual observation and his mental powers of reasoning and memory may be added those qualities of heart and soul which were doubtless included in Clarke's definition of education as a "*growing up in all things to our highest possibilities.*" It is on this high plane that man acquires conscience and conscientiousness, perception of truth as truth, humility, unselfishness, sympathy, love of service and usefulness, self-control, charity. And it is recognized by all that

those qualities are the real things which distinguish man from the brutes. Mere brute force, arrogance, conceit, intolerance, pride, lust, avarice, distrust, craftiness, deceitfulness, greed;—these qualities probably no intelligent person would classify as among "our highest possibilities," and their possession by man does not signify a high plane of education.

Perhaps from this standpoint it may be claimed that the present war owes its existence to a very insufficient education of humanity, in spite of the fact that those chiefly responsible for it are university men: that is, they have been "educated" no higher than the mental plane, one stage only beyond the natural or sense plane whereon man and the brute creation hold fellowship. Such men need to be educated up to an idea of the easily proven fact that brute force, euphemistically called "the sword," cannot make a wrong right; cannot "settle" a disagreement, a dispute or "difference;" cannot obliterate an offence, a slight or insult, fancied or real. No one can claim that the war was brought or in a spirit of benevolence, of altruism, or in behalf of universal brotherhood, freedom and liberty; or from love of use, or love of truth, or in a spirit of charity or of Christianity. The moral faculties which differentiate man from the brute most evidently have not received education, training, development, among those so-called "cultured" and "civilized" peoples to whose love of dominion and ambition to rule the war is due.

Fortunately for humanity in its present sad condition, and for the humanity of the future, there have been, and are, men who hold fast to high ideals of life, and who do not agree with a much-quoted author who claims that "The lessons of history thus confirm the view that wars which have been deliberately provoked by far-seeing statesmen have had the happiest result," and that "under certain circumstances, it is not only the right but the moral and political duty of the statesman to bring about a war." Fichte, for instance, advised his countrymen to "Strive not to conquer with bodily weapons, but stand before your opponents firm and erect in spiritual dignity. Yours is the greater destiny,—to found an empire of mind and reason,—to destroy the dominion of rude physical power as the ruler of the world." Kant had already written: "So long as States spend all their powers in vain and violent efforts at aggrandizement, and thus ceaselessly hinder the slow toil of education of the inner life of their citizens, nothing of the kind (empire of mind and reason) can be expected. All good that is not based on the highest moral principles is nothing but empty illusion and glittering misery." Professor

Roland G. Usher says, "After all . . . . we come at last to the conclusion that the factors of greatest potency explaining national power and success are spiritual and not physical." And Major-General A. W. Greeley, U. S. Army, recently wrote, "That nation stands supreme which best strengthens the weak, encourages virtue, recognises service, represses evil, preserves peace, and deals justly with persons and nations." On the same high plane is the inscription found on a Jewish temple in the City of Boston, "Dedicated to the Brotherhood of Man—Consecrated to the Fatherhood of God." Interpreted, can this mean anything else than an acknowledgment of the duty and privilege of serving mankind as the neighbour-brother, and loving beyond all else God the Father?

These ideals represent some of the deeper conceptions of life needed by mankind to help overcome the evils which have led up to the present crisis; conceptions which when universally adopted will permit humanity to sing with the Psalmist, "Blessed is the man unto whom the Lord imputeth not iniquity, and in whose spirit there is no guile."—The *Homœopathic World*, June 1, 1915.

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DIETETIC TREATMENT OF CHRONIC CARDIAC DISEASES.

By G. Carroll Smith, M. D.

I thank you for the honor you have conferred upon me by asking me to address you upon this occasion. And since you assigned me a theme which has greatly interested me during the past twenty-five years, I gladly accepted your invitation.

It is especially gratifying to me to see that the medical profession is beginning to wake up to the idea that dietetic therapy is the most efficient means we have of relieving and curing patients suffering with chronic cardiac disease. Let us reflect for a moment and we shall understand the causes of this late awakening.

It is only thirty-five years since the subject of dietetics began to be scientifically studied in this country. At that time only the merest allusion to the subject of diet in the treatment of any disease was made by my instructors in New York, among whom were some of the most celebrated clinicians in this country—Austin Flint, Alfred L. Loomis, E. G. Janeway, and William H. Thompson. In the hospital wards, at the heads of the beds, were cards on which we read liquid, semisolid, or solid diet. Now, this means nothing to either the student or teacher, save a form

of administering food in such a manner as could be swallowed. Our textbooks then devoted no space to the subject of dietetics, and even now you rarely find in our standard works upon internal medicine more than a paragraph given to the dietetic treatment of disease. Furthermore, until within the last few years there have been no lectures given upon dietetics in any of our medical schools, hence very few physicians who have been graduates more than five years have ony useful working basis for the study of dietetics, notwithstanding the fact that we have very many valuable treatises upon this subject. Now, food values are so well known to the young men in our profession that even their elders are compelled to familiarize themselves with this most important factor in therapeusis.

To understand the indication for a dietetic therapy in heart disease, let us recall the etiology of the most of our chronic cardiac affections. They originate, as you know, chiefly from the infectious diseases of childhood—tonsillitis, scarlet fever, la grippe, acute rheumatic arthritis, etc. Now without going into the comparatively smaller number arising from infection in adult life, or as sequelae to sepsis elsewhere in the system, let us see what takes place in the cases which begin in childhood.

The disease begins as an acute endocarditis, and ends in a chronic myocarditis, with or without crippling of one or more valves. A lesion of the myocardium results, and is readily compensated for, in youth, by increase of cardiac muscle, and the patients go through middle adult life perhaps without a knowledge that they have heart disease. This is especially true of a person whose professional or business life carries with it no physical strain, providing his financial status is such that he is obliged to economize in food and stimulants, and he allows himself sufficient moderate exercise. He rarely, however, reaches the age of fifty before he has over-indulged in the luxuries which become possible by increasing experience and consequent revenue. His active exercise correspondingly decreases, and an accumulation of fat naturally follows. Then a very foolish idea enters his mind, and, I am sorry to say, is often suggested by his

medical advisor, namely, to take up physical exercise, and he begins with tennis, cross country runs, and golf, and these, without intelligent physical or medical oversight. He unwittingly thinks the more strenuous the muscular activities are, the sooner he will reduce his flesh, and he very soon stretches out the muscular wall of his previously diseased heart, and at once evinces the symptoms which lead him to consult his doctor, namely, dyspnea, fatigue, general weariness, indisposition to exert himself, as he so often says "he is tired all the time."

If this patient is not properly treated dietetically he will continue to live on a fattening diet, and will soon deposit so much adipose in his abdominal walls, and within and around the abdominal viscera, that it acts as a buffer to the descent of the diaphragm, and oxygenation becomes seriously impaired At this stage the gastric, intestinal, and pancreatic secretions become impoverished, and disorders of digestion make themselves manifest at first in the well known subacute congestion of mucous membranes of nose, pharynx, larynx, and bronchi, commonly known as "colds;" also in the stomach and bowels, called catarrh of the stomach; biliousness, intestinal catarrh, or diarrhea. Not infrequently a slight congestion of the kidneys is shown by albumin in the urine.

My object in mentioning these early symptoms of cardiac failure, is because I have found in my consultation work that these symptoms have not been correctly interpreted, or they have often been entirely overlooked, especially if seen in the cardiac obese, and in mild cases of myocarditis without cardiac murmurs.

As the accumulation of fat increases we have the development of symptoms of faulty metabolism, such as rheumatism of muscles, structures of joints, sheaths of nerves (neuralgias and neuritis). These conditions are due in part to poor quality of the blood, but chiefly to an insufficient supply of the same, because of loss of heart power, and the increased resistance of blood vessels reduced in caliber by superimposed fat.

It seems useless to mention the high blood pressure observed in the cardiac obese, but I have so often seen physicians distressed

about it, and trying to reduce it by drugs, that it was very evident the actual cause of the high blood pressure was not perceived. Here lies the danger of treating one symptom of a diseased condition, namely, obesity, for arteriosclerosis. I see this mistake made so often that I am constrained to offer the above statement as a word of caution.

After this little digression let us return to the more serious stage of our cardiac affection, that of marked decompensation, when our patient is confined to the house because of great disability, cyanosis, marked dyspnea, orthopnea, Cheyne Stokes' breathing, oliguria, albuminuria; and a physical examination shows respiration 48, pulse 140, and a low blood pressure of 120, which was formerly 193. The pulse may be irregular, and nodal rhythm, auricular fibrillation and flutter may be present.

The foregoing are some of the conditions which follow a simple endocarditis after forty or fifty years. They could have all been prevented by a proper diet, and other judicious prophylactic means.

I am greatly pleased to see that our pediattrists are blazing the trail for us to follow.

To illustrate the method I have been using in the treatment of chronic cardiac disease, I have simply, for convenience, divided my cases into three classes:

Class 1. The cardiac obese; or, if you please, obese patients who have cardiac symptoms,—fatigue, dyspnea, albuminuria, and dropsy.

Class 2. Mild cardiac cases with the same symptoms; that is, cases of disease of the myocardium with or without valvular lesions, with symptoms of moderate decompensation.

Class 3. Cases with broken compensation of a severe type with marked dyspnea, cyanosis, orthopnea, dropsy, and symptoms of extreme irregularity of the heart, even auricular fibrillation and flutter.

I have selected from my card histories one case to illustrate each class. I will briefly cite the important symptoms in the

history of each, and discuss the salient points in the diet advised.

Female. Single. Age, 49. School Teacher. Ht., 5-2½. Wt., 180½ (nude).

F. H. F. died of esophageal tumor. M. died of Bright's at 75. 2 S. and 1 B. al. and w.

P. H. Had the usual children's diseases in a mild form. Cta. at 14, always regular, ceased at 48. Has been in bed only a part of two days since childhood. During the past 10 years has had an occasional twinge of rheumatism in muscles and joints.

P. I. Patient comes in to be looked over. Complains of dyspnea on waiking, even on level; rheumatic aches and pains, swelling of legs.

Habits. Bowels regular. Nocturia —0. Alc. —0

Urine. Acid. 1024. Alb.—0. Sug.—0. Sed.—No blood, pus, or casts.

Diet. Breakfast—baked apple, 2 slices of dry toast, coffee with sugar and cream. Lunch, 12 M.—½ doz. "Educators." Second Lunch, 2-30 p. m.—Ice cream soda. Dinner, 6-30 p. m. —Dip toast in cream, rice or macaroni, coffee with sugar and cream. All kinds of sweet desserts. Between meals candy very freely. Patient never eats meat, fish, or eggs, because her father never did.

P. E. Pulse, 72. Resp., 18. Blood pressure, sys. 140 mm., dias. 120. Head, throat, heart and lungs normal. Liver and spleen could not be palpated. Marked edema of legs. Slight exertion in the office made patient dyspneic.

This patient well illustrates the cardiac obese, aud is especially interesting because of the fact that she was vegetarian.

She was put upon a reduction diet, in which proteins, especially meat, predominated, carbohydrates were reduced to a minimum, and fats were restricted to that which appeared in the lean meats and fish ordered, with a little butter. Liquids were

reduced to five glasses during the day, including water, separated milk, coffee, tea, and thin soups. One teaspoonful of Epsom salts in a glass of water was given on the fasting stomach in the morning, until all edema had disappeared from the legs.

This mode of treatment was persisted in until the following June (9 months), when her weight was 127, pulse 76, and blood pressure 130 mm. (sys).

During the first four weeks some difficulty was experienced in teaching this patient to eat meat, fish, and eggs, but after this there was no further trouble in that direction. She has remained perfectly well until the present time, maintaining the same weight as when she was discharged nine months after beginning treatment.

Patient—Female. 43 M.
Ht. 5-7. Wt. 194.
F. H. Good.

P. H. Frequaint attacks of tonsillitis and la grippe. Comes in for rheumatism in hands and feet, dyspnea, and gas in stomach and bowel, constipation. Nocturia—1. Wakens in the morning with headache.

P. E. pale and fat. Pulse 80, reg. Temp. 98.6 (F). Blood pressure (sys.) 108 mm. Head and throat—normal. Lungs—clear. Heart sounds—clear, P2 greater than A2, mitral systolic murmur. Abdomen—soft; liver—3 cm. below the costal margin; spleen—not palpable. Moderate edema of the legs to the knees.

Urine. Color—normal. Acid. 1024. Alb.—S. P. T. Sug.—0. No blood, pus or casts.

Diagnosis: Mitral insufficient incompletely compensated Obesity.

Treatment. This patient was obliged to work, so she was requested to rest by lying down after meals for one-half hour to one hour, and given 1/60 grain doses of strychnin after meals, and one drachm dose of Epsom salts in hot water one hour before breakfast every morning, until all the dropsy had disap-

peared. She was given a reduction diet, representing about 1800 calories, in which the portion represented 175 grams, fat 40 grams, carbohyhrate 200 grams.

Upon this diet she lost 2 pounds a week, on the average, for 17 weeks, when her blood pressure had risen to 126, her pulse was 72, and her weight 160.

These two cases received the same kind of diet, and the following list is a copy of the one given them. I wish to call especial attention to it here.

BREAKFAST

Fruit—apples, peaches, plums, or pears (baked or stewed), melons, oranges, grapefruit, pineapples, stewed evaporate apples, epricots, prunes, peaches, berries of all kinds in season, Malaga grapes (all fruit to be taken without sugar). Eggs—(every second day) soft boiled, coddled, dropped, scrambled, omlet. Fish—(broiled) shad, haddock, halibut, finan haddie sole, smelts, perch, pickerel, bass, brook trout, flounders, scup, hako, tinker mackerel. Chops—lamb mutton, veal. Broiled chiken, broiled honeycomb tripe, hash (made with meat and vegetables or fish and vegetables), fish cakes. Baked potatoes. Two thin slice of dry toast. Coffee or tea, without cream or sugar (saccharine may be used if desired). Seperated or skimmed milk.

LUNCHEON

Raw oysters, little neck clams, steamed clams. Thin soups—clam bouillon, consomme, etc,. Fish or chops—when not taken for breakfast. Cold meat of any kind. Hash—as for breakfast. Potatoes—boiled, baked, or mashed; broiled fresh mushrooms. Salads—fruit or vegetables, with French dressing. Fruit—as above. One cup of tea, glass of water, seperated milk, buttermilk, or cocoa shells.

DINNER

Raw oysters, little neck clams, steamed clams. Thin soups—consomme, clam buillon, vegetables, strained chicken gumbo; oyster stew, fish or clam chowder (made with thin milk). Fish—

as above, baked, boiled, or broiled; soft shell crabs, crab meat, shrimps, scallops. Roasts—lamb, mutton, veal, chicken or turkey (white meat, venison, quail, partridge, pigeon, rabit; corned beef or tongue (boiled six hours). Chops—as above. Vegetables—Irish potatoes, lettuce, cucumbers (cut thin as tissue paper), radishes, tomatoes, spinach, kale, Brussels sprouts, celery, asparagus, cabbage (chopped fine and boiled ten minutes in slightly salted water), cold slaw, cauliflower, greens of any kind, string beans, green peas, beets squash, onions, English white turnips, carrots, parsnips, eggplant, mushrooms, pickles. Salads—as above. Dessert—fruits, or crackers with cheese (Camembert, Brie, cottage, curd, Edam). One glass of water or cup of tea (without cream or sugar), or seperated milk.

SUGGESTIONS

Eat small meals.

Toast or bread of any kind are allowed only when eggs are taken for breakfast.

Drink one glass of hot or cold water on rising and retiring half a glass at 11 a. m. and 4 p. m.

Do not drink while eating,—but after the meal.

Vary the food as much as possible from meal to meal and day to day.

Take a different kind of fruit at each meal.

Eat very slowly and thoroughly masticate the food.

A little butter may be used on toast and vegetables.

Do not eat meat and fish, meat and eggs, or fish and eggs at the same meal.

Fruit may be taken raw if it agrees.

Eat no canned or preserved fruit.

When cheese is taken the equivalent of one of Bent's water crackers is allowed.

With slight modifications it serves the purpose for my first two classes, because the prime object is a reduction in weight,

since it is obesity which causes the same symptoms in each class. When constipation or diarrhea exists at the beginning, or develops during the process of treatment, the coarse vegetables should be increased or omitted, according to the doctor's instructions. Diarrhea is a very rare complication, except in cases of recurring mucous colitis, and it is best treated by omitting all solid food for a few days, and giving milk and lime water instead, after thoroughly irrigating the colon with hot salt solution. When solid food is begun again, all coarse vegetables and raw fruit should be omitted, and about four glasses of warm separated milk substituted for them. In some instances buttermilk may take the place of a part of the separated milk.

On the other hand, constipation is very commonly induced by this diet, since sugar—a decided laxative—is omitted. This constipation is, however, readily overcome by giving a little more drinking water between meals, and increasing the coarse vegetables and raw fruit, or by giving a little milk of magnesia or sodium phosphate.

Again, it is self-evident that Class II would often require less excersise, longer periods of rest, and a slower reduction than Class I, depending entirely upon the degree of embarrassment of the heart's function. All that is necessary to make the patient lose weight more slowly is to add a little bread and butter to the diet, or an extra egg or two.

One other complication which you will find exsists in many patients of these two classes is diabetes mellitus. In my experience more than 50 per cent of my diabetics above fifty years of age are obese, and fall into these two classes, and yield readily, in most cases, to the same cure, while in severe cases the more rigid diabetic diet should be resorted to until the urine is sugar-free, and then it may be similar to the above, with an increase of fat and reduction of carbohydrate.

Let us now study this menu somewhat in detail. The proteins predominate, and appear in every meal merely to allow the patient an option as to the time he desires them. Predominance is given to them, both for their constructive power and in

a measure to supplant fat and carbohydrate in furnishing heat and energy. Physiological chemists have found that as the latter are reduced in amount the former must be increased to maintain nitrogenous equilibrium.

With regard to the amount and kind of protien, I have found this will vary with the patient's occupation and kidney function. When the muscular activity is considerable, and kidneys are normal, 100 to 150 grams of protein are often desirable. When activity is forbidden because of obesity, and there is no evidence of nephritis, after the dropsy disappears a similar amount may be given. The urine should be carefully watched, but I rarely see any occasion to reduce the amount of protein. A persistent high blood pressure, even when albuminuria and casts are not present, is suspicious, and should keep you always on the lookout. The more severe and chronic the cardiac decompensation, the greater must be the restricton of portein. The preference should be given to animal protein. Fats are considerably reduced, being restricted to a small amount of butter on toast and vegitables, and to the fat eggs, and that contained in lean meat and fish. The doctor must bear in mind also that the fat of butter and cream is nearly all absorbed, while that of olive oil largely escapes absorption. The absorbability of the fat of different meats and fishes also varies much. To avoid trouble on this accout lean meat and fish are used, and numerous kinds are here introduced to allow latitude of choice, as it is the fat which gives to them their respective flavours.

For some reason the carbohydrates seem to be the Waterloo for the average physician who has given very little attention to food values. I find for such cases as are here under consideration, he cuts out potato which contains 18 per cent starch, and gives bread and rice which contain 50 to 80 per cent starch. In this menu the carbohydrates are very much reduced; i.e., they are large in bulk, but in actual per cent of absorbable nutriment they are small. Cane sugar is cut out, and the fruit and vegetable sugars allowed are comparatively small. Please recall to mind that all vegitables containing less than 5 per cent starch

are ignorable as to their caloric value for food, because their little starch content escapes absorption in passing through the bowel with the vegitable fibre. They are valuable, however, to assist digestion and assimilation because of their water content, to maintain alkalinity of the blood, and to facilitate peristalsis, as well as to satisfy hunger. Of additional food value are all the other vegetables in the ratio of their relative starch-content up to the Irish potato, which has 18 per cent starch. You will notice that sweet potato (26 per cent carbohydrate) is omitted, and bread is reduced to a minimum and given toasted because very little will satisfy. The cereals and rice are obviosly avoided, not only because of their high starch content, but also because they require no chewing, being, therefore, bolted, and are eaten with cream and sugar, or butter, thus further increasing their high caloric value.

Patients in these two classes will require from 1,400 to 2,000 calories daily. You may like to know if it is necessary to figure the amount of calories each day. No, unless you want to do so for teaching or other scientific purposes. For clinical purposes you should have each patient buy a scale and weigh himself nude, daily upon rising, and make a memorandum of this weight to interest him, and to satisfy you that this ration is well proportioned. Nurses are now taught in the training schools to reckon food calories, so that a great saving of time of the busy practitioner will soon be possible.

It is my custom to have these patients come to my office once each week for one month, to teach them to follow the diet, also to see if they are losing fast enough. Some will lose much faster than others at first, largely because they have more dropsy, and the loss in weight the first week may be more than half water and after the dropsy disappears, one may lose three or four pounds each week, while another loses only one or two. This is usually due to the amount of foood taken, so that each patient must be questioned carefully about each day's meals, and in some cases it is necessary to have him bring his daily menus with him. It may be found that he is eating too constantly of the most

fattening kinds of food, in spite of the suggestion that this food should be varried from day to day and meal to meal.

In the treatment of no other disease is the attention of the doctor to details and the hearty co-operation of the patient more necessary for success. To secure the latter it is, in my judgment, necessary to adroitly tell him that he has a heart trouble, which, if properly treated, will never debar him from hard mental and moderate physical work. Without such a knowledge he will not understand why he is restricted in his physical activities and intake of food. From this heart-to-heart talk I have never seen harm come, though I am well aware the plan is not popular with physician.

From this list a patient is required to make a substantial breakfast, a light lunch or hearty dinner at noon, as is best adapted to his health and business, and a light supper or full dinner at night. He may have meat or fish at one or two meals daily. Every effort is made to have a great number of kinds of food from which to select, which lessens the hardshfp which a monotonous diet causes.

I am often asked if there is not danger in reducing the weight of a patient, and what is the age limit. In reply to the first question I will say, no, if you know how. The strength of the patient must be carefully safegaurded; very delicate and old invalids must be reduced slowly, especially after the dropsy has disappeard There is no age limit, unless the patient does not want his life prolonged. We have reduced patients who were over eighty years of age. The old idea that one must eat up to die was exploded by Louis Cornano—a Venetian— who lived from 1464 to 1566 and showed by his simple and temperate life he could avoid corpulence and remain efficient in old age. He wrote his treatise on "La Vita Sobria" between 86 and 95.

Class III is illustrated by a man now under our care. I will read you his card:

Patient. Male. 68 Single.

F. H. Father died of cardiac disease at 66. Mother died at 72 of pneumonia.

P. H. Had the usual children's diseases. Tonsillitis frequently. Denies lues.

Habits. Moderate smoker. Alcohol—0. Tea and coffee—1 cup each.

P. I. This patient came to me first seven years ago with a cough and free expectoration of frothy blood-stained mucus and distress in the epigastrium. These symptoms came on after climbing the subway stairs with a twenty pound suit case.

P. E. Ht. 5-6. Wt. 185. Fat and cyanotic. Pulse 96, weak and compressible. Resp 32. Temp. 99. Blood pressure 100 (sys.) (2 years ago systolic blood pressure 150). Head, eyes, throat, and neck glands normal. Lungs—moist bronchial rales on both sides. Heart—apex impulse heaving and felt in the 5th interspace just outside the nipple line, and in the epigastrium. Cardiac dullness reached 3 cm. to right of sternum. A loud mitral systolic murmur extending well toward the left axilla. P2 greater than A2. The liver reached 4 cm. below the costal margin; spleen not palpable. Bowels considerably distended with gas. Urine showed albumin and rare hyaline cast. Legs edematous even above the knees.

Diagnosis: Myocarditis, mitral insufficiency, decompensation. Acute dilatation. Pulmonary edema.

Treatment. The patient was put to bed and given one drachm of the sulphate of magnesia every four hours, until he had eight or ten liquid stools, and after that the salts were given only once a day, until the dropsy had disappeared. During this period of four days the diet was one glass of milk with a cracker every three hours for six meals daily, with the whites of three eggs and the juice of an orange. For the next four days fifteen pounds had been lost, and all his symptoms had disappeared.

Solid food selected from the menu before referred to was then gradually begun for regular meals, and separated milk given between for three weeks; after this, the milk was omitted. At this time the patient began to sit up a short time, and a week later to walk about, and to ride in an auto. In five weeks he

was dismissed and he returned to his office business. His weight had gone down to 145.

Since then he remained well until six months ago when he was sent home from Washington to die with an attack similar to that of seven years ago, although the former symptoms were very much more severe, and there were superadded orthopnea, auricular fibrillation, and bigeminy. His weight had gone up to 160, the cardiac dullness reached 6 cm. to right of sternum, and the liver was below the navel line. Restlessness, insomnia, and cyanosis were very prominent; the dropsy of the legs was more marked; oliguria, with high colored urine, containing albumin and occasional casts, added greatly to the patient's distress.

Treatment. Morphin grain 1-4 and atropin grain 1-100 was given subcutaneously to quiet restlessness and secure sleep, and later ten minims each of the deodorized tincture of opium and tincture of digitalis twice daily for ten days, until the patient slept well with one pillow. For two days he was given one drachm of magnesium sulphate every four hours, then the dose was required only once daily. On the fifth and sixth days diuretin was given in 15 grain doses every four hours, which caused an output of 3000 c. c. and 4000 c. c. of urine, respectively.

The diet the first day consisted of the albumen of one egg, with one ounce of separated milk, alternating hourly with one drachm of whiskey when the patient awakes. The second day, four ounces of separated milk every two hours, and the white of one egg every four hours with two drachms of whiskey were given, and afterwards the whiskey was omitted, and eight ounces of separated milk with one ounce of cream were given every 2½ hours with four egg whites. After this the separated milk was increased to six and eight ounces every 2½ hours, with the same amount of egg albumen, and the juice of one orange was added until the seventh day, when one whole ogg was given three times a day, and pure milk was substituted for separated milk, and each day the food from the above list was cautiously

added, and the milk omitted. In four weeks he was sitting up for brief periods, and in eight weeks walking and motoring about the country. He is now in his seventh year, weighs 140 pounds, and complains only of an occasional feeling of pressure under the sternum and epigastric distress, the former, of course, due to the dilated heart; the latter to the greatly hypertrophied liver which still reaches below the level of the umbilicus; auricular fibrillation and bigeminy are still present. Strange to say, his urine now, after repeated examinations, shows no albumin or casts. The patient, on the whole, is very comfortable and enjoying himself, although unable to work. The bundle of His is involved, and in old age when auricular fibrillations and bigeminy exist for weeks, the prognosis is unfavorable, but in one of my patients who was forty-six years old compensation took place and after three years all signs of heart block had disappeared. Digitalis full doses is thought in such cases to be our sovereign remedy, but too often it fails and I obtain better results from opium.

In closing I would like to lay emphasis upon:

1. *Rest*—the most important factor in the treatment of all cardiac affections.

A. Before conscious symptoms have arisen, by short periods of rest in bed, and avoiding strenuous exercise, with a diet properly arranged to avoid the accumulation of fat, mild cardiacs would never develop symptoms of decompensation.

B. In the stage of decompensation, rest must be insisted upon, until by a reduction of weight the patient returns to a normal condition, after which stated periods of rest should be enjoined to prevent a recurrence of heart failure.

2. *Exercise*—should not be allowed while reducing the weight of such patients, because the heart is already much over-taxed, as shown by the symptoms of failure, but later, after health is regained, carefully regulated light exercise is very beneficial, but should be under control.

3. A careful study must be given to each patient, and more attention directed to his circulation, respiration, and the condition

of the splanchnic viscera than to frequent examinations of the heart, or daily taking of his blood pressure. The latter in no way aids the treatment, and often alarms the patients. It is a common experience to see a blood pressure in an obese cardiac drop 40 mm.—from 180 to 140—during one week's rest in bed on a milk diet. If a patient has a blood pressure of about 200 mm., and it remains there after 10 to 20 pounds reduction, you may feel sure you have a renal complication to reckon with.

4. Time is worse than wasted at European Spas, as the essential factors—*REST and DIET*—are ignored.

5. Reduction in weight is necessary at all ages when it is above normal, but of course the young do not require as much reduction as those in middle life and old age.

6. Do not expect good results from giving a diet list issued by some patent drug manufacturer, or by telling him to live on "a light diet," but prepare a special diet for each patient, and see that he follows it to the letter. Have all your patients weigh themselves daily, and, if possible, own their own scales.

7. The prognosis is good in more than 95 per cent of our cases.

8. About 5 per cent only are lean, and belong to the cardio-renal type, or they have a severe lesion of the bundle of His.

Lord Bacon said, "Of all sorts of instructions, the best is gamed from our own thoughts as well as experiences."—The *Journal of the American Institute of Homœopathy.*

EDITOR'S NOTES.

Sterilization of Water by Chlorine.

By J. J. Harper Nelson.

The apparatus consists of two bottles, one of about thirty ounces capacity, the other holding about two ounces. The larger is fitted with a double perforated stopper through which are passed two glass tubes, one short, the other reaching nearly to the bottom. Both are supplied with stop cocks. The long tube is connected with a short tube inserted through a stopper in the small bottle. Twenty ounces of water are placed in the large bottle and two drams of concentrated hydrochloric acid in the smaller along with fifteen grains of powdered potassium chlorate for the liberation of nascent chlorine and chloric dioxide. These gases are passed into the water in small amounts at a time with frequent shaking. This yields a solution of the two gases of such strength that when one ounce of it is added to five gallons of water, a concentration of chlorine gas of one in 500,000 is obtained. Repeated experiments with naturally and artificially contaminated water have proved that an exposure for half an hour to this concentration of chlorine suffices to sterilize it completely of all pathogenic organisms, particularly of the fecal group. The entire process consumes little over half an hour, and can be easily carried out effectively even by an inexperienced person. The amount of chlorine in the finished water does not impair its palatability or its potability. If the water is very turbid, it can first be cleared by sedimentation over night with alum; it is then treated with the chlorine solution. An outfit has been designed which weighs only twelve pounds and which can be easily carried on a man's back. This outfit contains sufficient material to sterilize 19,800 gallons of water without replenishing, or enough to give each of 200 men a gallon of drinking water a day for seven weeks. The process is inexpensive, rapid and effective.—*New York Medical Journal*, May, 29, 1915.

Extraction of a Projectile from the Right Ventricular Cavity.

By Beaussenat.

The case is reported of a soldier who had been wounded by the explosion of a hand grenade, one shot entering the right thigh, another, the left deltoid region, and the third, at a point one fingerbreadth below and to the left of the ensiform appendage. Hematemesis and a copious hemorrhage from the epigastric wound followed, and for four and a half months after the injury extreme dyspnea on the least exertion and even on talking, with facial pallor, was noted. Repeated x-ray examination appeared to reveal an intrapericardial foreign body. At operation eight c.m. of the left fifth rib and cartilage ware removed and the pericardium explored and found empty. Palpation of the heart showed the projectile to be free in the cavity of the right ventricle. The heart was now drawn out of the parietal pericardium, guy threads were placed in the right ventricular muscle, the foreign body was coaxed down to external border of the ventricle near the apex and held there with the fingers, and an attempt made to secure it with forceps through a small incision between the guy threads. At the second attempt the foreign body, irregular and measuring 1.5 by 1 by 0.3 c.m., was extracted. Silk sutures in the heart were inserted. Intense dyspnea and a weak, irregular pulse were observed for a few days, and two attacks of pulmonary embolism followed later; one month after the operation the patient had completely recovered. Auscultation was negative, and electrocardiography revealed merely a predominance of the left ventricle over the right.—*New York Medical Journal*, July 17, 1915.

An Active Principle from the Thyroid Gland.

It has long been known that the thyroid gland was the one organ of the body in which iodine was present in any considerable amount. From clinical studies combined with post mortem and surgical observations, from physiological and pharmacological researches, and from the labors of the biochemists we have enormously advanced our knowledge of the functions of the thyroid gland and have learned to know something of its potential activities. We have learned its value in the treatment of myxedema and cretinism, and we know something of the mechanism of the production of the symptoms of Graves's disease. But we still remain ignorant of the precise active substance or substances, in the gland or its secretion; this is not because no attempt has been made to isolate them, but rather because of their elusiveness. Quite recently, however, an American worker in the field of biochemistry—E. C. Kendall, of the Mayo Clinic (*Journal A. M. A.*, June 19, 1915)—has reported the results of his attempts to isolate the active substances from the thyroid gland.

He found that after hydrolysis of the gland substance by sodium hydroxide in alcohol the resulting products could be separated into two groups, the one soluble in acid and the other insoluble. Each of the two groups contained about half of the total iodine of the gland. By further hydrolysis of the group which was insoluble in acid, he obtained a crystalline substance which contained sixty per cent. of iodine. This new substance is at present believed to be di-iodo-dihydroxyindol, but its exact formula has not yet been positively determined.

This new crystalline iodine body has all the typical physiological and pharmacological actions which are ordinarily produced by extract of the whole gland and was found to be exceedingly active, one milligram per diem being sufficient to cause considerable acceleration of the pulse rate in man. Perhaps the most interesting observation, however, was the fact that the ether fraction—that soluble in acid—while devoid of the power of producing the physiological actions of thyroid, was apparently

quite effective in controlling the manifestations of myxedema and cretinism. From these observations it would seem probable that there are at least two different types of compounds present in the thyroid gland, with widely different physiological properties and of different toxicity.—*New York Medical Journal*, July 3, 1915.

Investigation of Colonial and Indian Drugs.

In view of the enormous geographical extent of the British Empire and of the fact that it comprises practically over variety of climate, a systematic investigation of the natural vegetable products of the less developed countries can hardly fail to lead to the utilization of a considerable number at present unknown, and the commercial and economic value of such investigation is very great. A considerable part of the work of the Imperial Institute is devoted to such examination of products from different parts of the empire, and the current number of the *Bulletin* contains summaries of some of the investigations carried out in recent years on drugs from Africa, India, and other parts. In some instances valuable results have been obtained, while in other cases, as was to be expected, they have been negative. Among the former may be mentioned the examination of the rhizome and rootlets of *Podophyllum emodi*, which showed this plant to be a valuable source of the drug podophyllin, and has led to its recognition in the *British Pharmacopoeia*. The present great scarcity of atropine gives special interest to the investigation of the Egyptian plant *Hyoscyamus muticus*, which showed it to be a valuable source of hyoscyamine, from which atropine can be obtained by isomeric conversion. The seeds of *Croton elliottianus*, from East Africa, have been found to contain an oil having purgative properties in quite small doses, but devoid of the vesicating and irritant resinous constituents present in ordinary croton oil (from *C. tiglium*); the physiological action of the oil was investigated by Dr. J. T. Cash and Mr. W. J. Dilling, who regard it as "a body which would be of considerable value as an addition to purgative remedies, for some of the more drastic and irritant of which it would prove a safe and effective substitute." "Native drugs"—that is, products which have a reputation as medicines

among the natives of the country of origin—have, as a rule, given disappointing results; not only has chemical examination failed in some cases to detect any constituents to which the reputed activity could be due, but physiological tests carried out with extracts have shown that the drugs do not, in fact, possess the properties ascribed to them. This is, perhaps, not very surprising; but in one case at least—that of the fruit and leaves of the Afon tree (*Treculia Africana*) from Lagos—a drug reputed to be poisonous was found to be harmless. The Commissioner of Abeokuta had reported that it was impossible to take horses to certain districts in the colony owing to water-holes and streams being poisoned by its leaves, while the Director of Forests and Agriculture and the Government chemist attributed the poisonous properties to the fruit of the tree; aqueous and alcoholic extracts of fruits and leaves, however, were all found to be non-poisonous to animals. The *Bulletin* contains also several other interesting papers, of less interest from the medical point of view.—The *British Medical Journal*, July 10, 1915.

The History of Spectacles.

So many myths surround the history of the invention of spectacles that the task of sifting truth from fiction is almost heroic. We are indebted to Dr. K. K. K. Lundsgaard, of Copenhagen, for a critical view of the numerous and conflicting accounts of this invention, which, though about six centuries old, has been of general value for the past century only. The popular notion that spectacles were used by the Chinese has been dismissed as erroneous by Professor F. Hirth, of Columbia Universiey. Some historians have attempted to credit the Romans with the use of spectacles on the rather flimsy assumption that Nero was in the habit of holding an emerald to one eye to see better. It is highly improbable that he was short-sighted, for this would have disqualified him as a charioteer, in which capacity he seems to have given, to himself at least, perfect satisfaction. His eyes, it is true, were weak, and it is conceivable that the emerald was used to relieve photophobia. Emerald-gazing has from time to time been regarded as a valuable remedy for weak eyes, and it is, therefore, also possible that Nero followed the dictates of his oculist while enjoying the pleasures of the arena. Again,

he may have flaunted his emerald to point his political sympathies with the so-called Green Party. It is not even stated that the emerald was polished; and the view that it was used as an aid to vision seems to depend for its correctness solely on Pliny's words: *Nero princeps gladiatorum pugnas spectabat in zmaragdo.* Coming to a much later date, Lundsgaard does not give Roger Bacon much credit for the actual invention of spectacles; he thinks it is even doubtful whether Bacon's speculations on vision and his optical theories were original. The magnifying properties of glass spheres were, at any rate, recognized before this time. Yet, the invention of spectacles was made in his lifetime, and it is impossible altogether to dissociate him therefrom. It is very probable that the invention was made independently by different workers towards the close of the thirteenth century, for the use of spectacles was apparently introduced simultaneously in widely separate localities. Important among these is Florence. Here the church of St. Maria Maggiore contained the grave of one Salvino Armati, with an inscription to the effect: "Here rests Salvino Armato Armati of Florence who invented spectacles. May God forgive him his sin. In the year of Our Lord 1317." Francesco Redi of Pisa discovered a manuscript of the year 1299 in which the writer referred to the benefit he had derived from the use of the newly invented spectacles. In a sermon preached in Florence in 1305 Giordano da Rivalto said: "It is not twenty years since the invention was made of eyeglasses, which improve vision, and are one of the most useful inventions known to the world." For some centuries only convex glasses were used, and it was not till the middle of the sixteenth century that the value of concave glasses was appreciated. The earliest evidence we have of their use is probably the painting of Pope Leo X by Rafael, who represents the Pope as holding what is evidently a concave glass in his hand. In a painting of the same period by Lucas Muller, of Christ and His companions a man is portrayed with concave glasses—an anachronism of which the painter was doubtless blissfully unconscious. In 1760 Benjamin Franklin, who was short-sighted, had spectacles made with the upper halves concave and the lower convex; but it was not till 1828 that McAllister of Philadelphia succeeded in grinding glasses so as to correct astigmatism. Spectacles were usually made of glass, the best specimens of which came from

Murano, where the secrets of its manufacture were successfully preserved from the thirteenth to the sixteenth century. Towards the close of the seventeenth century Christian Porschinen of Königsberg made spectacles of amber, which he boiled in oil to get rid of the yellow colour. The Scandinavian and German name for spectacles is *brille*, which is probably derived from the word "beryl," although Stilling has traced it to the word *parilium*, a pair.—The *British Medical Journal*, July 24, 1915.

CLINICAL RECORD.

VERIFICATIONS AND CURES.

MAURICE WORCESTER TURNER, M.D., BROOKLINE, MASS.

Verifications of symptoms are important in many ways. Comparison with the materia medica is the only test required. This is comparatively simple.

It is not so easy a matter when reporting cases cured. With them a diagnosis is inevitably demanded. The diagnosis to be of value, acceptable and conclusive, must now be confirmed by the most approved and latest diagnostic methods.

Nearly all the cases herewith reported contain verifications, some of which are pointed out. As far as the diagnosis is concerned, the last case is of most importance, and will, I trust be found satisfactory in that respect.

Case I. Miss R. H., act. 22, bookkeeper. Headache constantly for seven weeks. Brought on by worry, over getting a set of books in shape, in a new place. Pain began in occiput and nape and now extends to both shoulders. Evidently no pain in the night, or at least no sense of it, as she sleeps well, but the pain returns as soon as she opens her eyes in the morning. There is an interval of relief from 10 a. m. to 12 m. Then the headache returns and is much worse in the afternoon and evening. Inclined to bend head backwards. Head feels enlarged.

Aggravation lying on back of head; from jar; from noise; ascending; damp weather.

Throbbing relieved by pressure. There is snapping in the brain with necessity to hold on to the head.

Hands and feet cold, with general sweat, when pain is severe.

℞ Cocculus 200th, four doses, cured.

Most of the symptoms correspond to Cocculus, though they do not run along the usual lines.

The particular cured symptoms—verification—is the modality "aggravation lying on the back of the head." There was none of the "opening and shutting" sensation.

The aggravation from damp weather is of interest, as is also the relief from 10 to 12 o' clock.

Case 2. This was one of debility and anæmia following miscarriage and hæmorrhage two years before. The patient, Mrs. C. D. H., aet. 20, was much improved under China 200th. She was of markedly nervous temperament and a minor misunderstanding at home caused several sleepless nights with associated hysterical symptoms. The insomnia did not yield to Coffea though that remedy seemed indicated then. She could sleep in the day, but at night was wakeful and restless. Felt too warm. No sweat. Moschus 200th relieved at once; this was given in December. In February the remedy had to be repeated, no medicine being given in the interval.

The hysterical state (globus hystericus, etc.), sleep in the day but not at night, together with the restlessness and heat and absence of sweat, were the deciding symptoms.

Case 3. Mrs. C. D. W., aged 75, reported on October 8th, 1908, that, as a result of a nervous shock, a year and a half before, she then, almost immediately, had a vaginitis with much burning. This improved somewhat, but had now returned. She was quite emaciated and weak. There were also constantly cankers, bluish, inside the lower lip. Great thirst; urine much increased, especially at night, and also a painless diarrhœa, worse at night and after eating.

The diagnosis of diabetes mellitus was at once confirmed by urinalysis (sample) which showed a specific gravity of 1041, with 46 grains of sugar to the ounce.

She was given Arsenicum 200th, and later the 1m and 50m, as needed, with gradual and permanent relief of all symptoms.

A second urinalysis, December 15th, 1908, was as follows: 24 hours, amount 1360 cc.; specific gravity 1019; sugar, only a trace; amount of solids, individually and collectively, normal.

She lived six or seven years after this with no recurrence of the diabetes. Very little change in diet was made, only a temporary abstinences from sweets and bread, which were gradually resumed in three months.

There is hardly a single symptom in this case, but is to be found under Arsenicum. The totality is overwhelmingly marked for that remedy.

Case 4. Mr. W. R., 56 years old. Æstivo-autumnal fever. Plasmodia found. It commenced at the end of July, 1906, with irregular paroxysms of evening chills, beginning at six o'clock and postponing. Later a morning chill developed which anticipated. Finally it settled down to a double tertian, the afternoon chill coming, on alternate days, somewhere between half past four and six o'clock. Several medicines were given without result. Finally, the following picture was obtained.

Prodrome; cough.

Chill begins in anterior chest and in hands.

During chill; cough, heavy breathing, thirst for cold acid drinks, desire to be wrapped up.

After chill; exhausted, fall asleep for a few minutes and wakes wanting lemonade.

Heat; slight, does not uncover, thirst for cold water.

Sweat; has sweetish odor, does not weaken, occurs at night, during sleep, and ceases on waking.

Keeps covered in all stages, but no desire for warmth. There was no urticaria. The morning paroxysm was less developed.

August 24th, he had a chill at 2-15 a. m., with cough before and during.

At 10 a. m., that day, he was given Apis 200th, four doses in water, at three hour intervals.

After that he had but slight shivers till September 6th, when a pronounced one occurred.

He was then given Apis 1m, two doses dry, which completed the cure. No return to June 1915.

It is hardly necessary to call attention to the peculiar symptoms in this case. They are not many and include the prodromal cough; the cough, heavy breathing and thirst, during the chill; and the falling to sleep after the chill.

The sweat, during sleep, with dry skin after walking, I have not found under Apis. It is worth noting.

Case 5. Mr. C. W. C., aet. 28, had in March, 1905, what appeared, at first, to be an attack of grippe, with a temperature, for three days, varying between 100.4° and 105°.

In the beginning, the stomach and head symptoms called for Nux vomica, which relieved; but at the end of the third day, the temperature reaching 105°, he became stupid, tongue thickly coated, offensive breath, pulse full and soft, skin hot and dry.

Headache, which had been present from the first, now especially in the occiput and vertex, was somewhat relieved by having the head raised. There was also some retraction of the head. Projectile vomiting occurred twice. Aching in the back, but little thirst, face and eyes suffused, with two herpetic spots on the upper lip, completed the list of symptoms. Kernig's sign was now present. No lumber punctnre was made. There had been no chill.

He was now given a dose, dry of Gelsemium 200th. During the night following, considerable sweating occurred, and the nexth morning the temperature was 98·2.

No more medicine was needed till five days later, when, as there was a slight return of the occipital headache, a dose of Gelsemium 1m was exhibited.

No diagnostic statement was made in this case, other than at first that it probably was grippe. It seems suggestive to me, however, of cerebro-spinal meningitis, and that he received the simillimum, which, of course, aborted it.

Case 6. This is not peculiar as to either remedy or disease, taken separately, but taken togethor, I think it is somewhat unusual.

The case was one of injury to the left knee, in a man over fifty, with resulting synovitis with effusion, and occurred in September, 1914. The knee was much enlarged and fluid was easily recognized.

Bryonia, which had helped in previous attacks, did no good. Neither did Arnica, Rhus, not yet Sulphur. There was nothing characteristic in the joint symptoms to distinguish any remedy. No fever was present.

The knee was now silightly bent and, consequently, on attempting to walk, there was muscular spasm above and below the knee. This added to the discomfort.

A posterior knee splint was appiled which gave some relief of the muscle spasm, but not otherwise.

The patient now developed marked mental symptoms of irritability. The snappish ugliness, so characteristic of Chamomila, which remedy was accordingly given in the 200th, and repeated, but without effect.

Then the 12x was exhibited, in water every two hours with immediate relief. If any increase of the interval between the doses was attempted, there was a decided aggravation. Consequently, the remedy had to be continued for two days and a half, every two hours. After that an occasional dose was sufficient. At the end of a week the swelling was nearly gone; but sensitiveness remained for some time.

There are no joint symptoms, that I can find, in the Chamomila pathogenesis like those of this case. Of course, the mental symptoms, being "characteristic and peculiar," were guiding. The low potency required, or rather effective, and with it the frequent repetition necessary, are also interesting.

Case 7. Telephone, on august 18h, 1911 from Mrs. A. P., who lives some fifty miles away, was soon followed by the appearance of the lady in person. She had pain in the left eye, had seen a physician in her city, who as I remember, felt that the case was too serious for him to undertake.

The left eye showed increased tension and I sent her at once to Dr. Albert W. Horr, in Boston, for exmination. His report, at that time, was as fallo vs:

"Examination of Mrs. A. P.'s eyes Agust 18th, 1911. There is blur in left eye; she finds it difficult to keep eye open; lame feeling and pain sometimes very severe, keeping her awake at night. No inflammatory symptons. Fundus oculi normal. Tension right eye normal; left eye tension + 1 (?), i. e., hardly + 1, but distinctly harder than the other.

Vision would not allow her to read anything on the card at twenty feet."

The only additional symptom to the foregoing, that I could elicit, was "drowsiness," no aggravations nor ameliorations,—not a complete drug picture. Navertheless, she received Gelsemium 50m, two doses.

August 21st, she reported that while not drowsy and less pain now, yet the vision in the left eye was wholly gone, and there was complete paralysis of the upper lid. This, together with the continuous pain and soreness of the left eye, made me decide on Spigelia, which was giving in the 200th, every three hours in water.

August 25th, the report came of "big improvement in every way." Now the medicine was stopped There was continuous, slow and steady gain till—

October 3d, when, as progress had ceased she was given Spigelia 50m, two doses dry.

October 20th, she reported "no improvement, vision blurred; occasional sharp pains through the eye, objects seem distant." In regard to the last symptom, she explained that "the step of an electric street car seems too high." There was also much thirst. For these symptoms Sulphur 50m, two doses, dry, was sent.

Improvement occurred again and lasted till November 29th, blur had gone, sight returned, no pain, but, with the left eye, objects where apt to have a violet tinge and also there was a

sense of a ring about the vision of that eye. Sulphur was repeated, two doses of the cm.

January 15th, 1912 Better, but an occasional sharp pain above the eye. Much thirst for water and also lemonade. Once more Sulphur was given, two doses of the cm,, as before. There was no further medication.

A second examination of the eyes was made by Dr. Horr on April 8th, 1912. His report to me at that time read, Boston, April 8th, 1912.

Dear Dr. Turner,

Mrs. P.'s vision is nearly perfect. Vision of right, with correcting glass, for slight amount of astigmia, $\frac{20}{15}$ or slightly better than normal. Left eye, with correcting glass, just normal. The astigmia is so slight, I advised that no distance glass was necessary. I have prescribed new reading glasses. The fundus occuli looks normal. The tension, which was slightly raised, is normal, and I cannot see why her eyes are not perfectly well. I congratulate you on the outcome: it is splendid.

Yours fraternally,
ALBERT W. HORR.

There have one or two prescriptions since, for other things, but the eyes have remained well.

I have intentionally made the report as concise as possible. On the other hand, the symptoms in the case were meagre. The change from Spigelia to Sulphur, when the former remedy ceased to act, was determined upon after study of the Boenninghausen Concordances.—*Medical Advance*, July, 1915.

Gleanings from Contemporary Literature.

TUBERCULOSIS AS A SOCIAL DISEASE.

S. Adolphus Knopf, M.D.

In spite of all our efforts, we are still losing about 200,000 people annually from tuberculosis in the United States, of which I venture to say, 50,000 are children. Estimating the average duration of life of 50,000 children who die annually from tuberculosis in the United States at about seven and one-half years, and figuring the cost to parents and the community for each life as only $200 per annum, the financial loss thus represented is $75,000,000. These children have died before they have been able to give any return to their parents and the community. What a useless sacrifice of life and of money! How much needless sorrow and heartaches caused to parents!

Besides all this, many a tuberculous mother has had her life shortened because she bore one of these children. According to the report of the Commissioner of Education, there are at this time about 20,000,000 children attending public schools in the United States. Placing the proportion of tuberculosis among them as low as only three per cent would make 600,000 children afflicted with tuberculosis who are at this time in urgent need of open-air instruction or sanatorium treatment. According to available statistics, we can at present provide instruction in open air classes for about 2,000 tuberculous children. The anemic, the nervous, and the children suffering from cardiac diseases, who are in equally great need of outdoor instruction, are not included in the three per cent.

The 150,000 adults who die annually of tuberculosis have at the average been ill and incapacitated for work for at least two years, and figuring their cost to the commonwealth (either to municipality or individual family) at only $1,000 per year, would mean $300,000,000 uselessly spent in caring for people afflicted with a diease that might have been prevented and cured. Of these 150,000 adults, a large number have been married and in many instances leave either widow or orphans depending upon public support. The annual maintenance of these widows and orphans must, of course, also run into the millions. We have thus an annual expenditure of well-nigh

$400,000,000. Yet this by no means represents all the actual loss to the community from tuberculosis. Our social economists tell us that between the ages of 16 and 45 every adult life with an average earning capacity represents an asset of $5,000 to the community. Now, as two-thirds of all deaths from tuberculosis in adults occur between these ages, we have an additional loss of $500,000. Thus, the actual direct and indirect loss caused by death from tuberculosis in the United States amounts annually to something like $900,900,000, and this amount we spend on a preventable and curable disease!

We must also bear in mind the fact that we have at least eight times 200,000 tuberculous adults, for it is well known that for every individual who dies of tuberculosis there are eight living with the disease, still up and about, and the majority of them with an opportunity of spreading infection. Besides these, there are about 400,000 tuberculous children. By reason of lack of open-air schools preventoria, sanatoria, special hospitals, and horticultural, agricultural, and industrial colonies, the vast majority of these 2,000,000 tuberculous individuals continue the chain of infection and keep up our fearful morbidity and mortality at an expense of $900,000,000 per annum.

Where do those tuberculous adults and children come from? Our first thought is of course of tuberculous children as coming from tuberculous parents and we wish at once to make regulations restricting the acutely tuberculous from entering marriage relations. You have probably all heard of the recent decision of Supreme Court Justice Blanchard of Manhattan annuling the marriage between Sarah and Joseph Sobol because the latter was suffering from an "incurabe attack of tuberculosis." Let me say right here that I agree most emphatically with the wise decision of Justice Blanchard. If a man knowing that he is tuberculous and in a stage when he can transmit the disease, deceives his prospective bride by pretending to be in normal health, he commits a crime by entering into a marriage relation, and the annulment of such a marriage is absolutely justified.

If, on the other hand, one of the married couple, either husband or wife, develops the disease in the course of the married life, submits herself or himself to proper treatment and training, observes the precautions necessary to avoid transmitting the disease to others, and carries out the preventive measures conscientiously, it would be,

to my mind, inhumane and incredibly cruel to encourage the lawful separation of such a couple.

The honest, conscientious consumptive is no more dangerous to associate with than any well person, and if it is true that a certain doctor of New York City, when commenting on Judge Blanchard's decision, said, as was reported in a recent article of the New York Times, that "no person should live in daily contact with a consumptive," he is helping to spread an unnecessary and exaggerated fear of the presence of a tuberculous patient, which fear we call phthisiophobia. I do not know what this doctor's personal experience had been, but I have labored for more than a quarter of a century among consumptives as interne and attending physician in hospitals and sanatoria and have been and am in daily contact with this class of sufferers in consultation practice. The precautions taken in tuberculosis institutions to prevent contracting the disease are so simple and yet so effective when they are vigorously carried out, that communicating the disease is virtually impossible. These precautions, I believe, have protected me up to this time in spite of my daily contact with consumptives. It is one of the rarest occurrences that physicians or nurses in tuberculosis hospitals and sanatoria become tuberculous, though in daily contact with the disease. Thus, we may justly say that the safest place not to contract tuberculosis is a well-equipped and well-managed institution for the treatment and care of consumptives (hospital or sanatorium).

Many of our most distinguished physicians at the head of sanatoria have been or still are tuberculous, but are able to work and do an infinite amount of good through their personal knowledge of the disease and their devotion to the cause. Nearly all of them are married, and I know from personal acquaintance and friendship with those physicians that they are happy and contented in their labors and in their family life. It is not unlikely, however, that among the million and a half tuberculous individuals living in the United States, many of whom are married, there are some perhaps heartless men and women who would welcome a separation from the unfortunate tuberculous partner if the decision of Justice Blanchard would be interpreted to apply to all cases of existing tuberculosis in husband or wife. It would indeed be most unfortunate if the latter were the

case, but I hope that no such interpretation of the wise justice's decision can ever be given.

Another statement in the Times article, which occasioned so much comment in medical and lay articles, was the following: "A most interesting thing about tuberculosis is that if one parent is normal and the other is suffering from the trouble, the children are less likely to contract the disease than in cases where both parents are normal." I do not know how the writer came to this conclusion, but by making it public he encourages the marriage of an actually ill tuberculous partner to a healthy one in order to have a non-tuberculous race. There is, however, no evidence at all for the accuracy of this statement. It is true that direct hereditary tuberculosis is so extremely rare that we never take it into consideration, but on the other hand, we know that a goodly number of tuberculous parents, particularly the mothers, transmit to their offspring a physiological poverty or predisposition to the disease, and if the child is then exposed to the disease by close contact with the mother or other tuberculous individuals by reason of its predisposition it contracts tuberculosis more readily than in cases where both parents are "normal."

The reason why more people do not have tuberculosis in spite of the prevalence of the tuberculosis germ is because of an immunity acquired not through heredity but by living a natural, healthy life. We do not know whether or not an accidental inhalation or ingestion of a certain number of tubercle bacilli adds to this natural immunity in the healthy man. We are so uncertain about this that I would strongly caution against taking in living tubercle bacilli, no matter how few, in the hope of getting immune. We have not yet been able to produce tuberculous immunity in animals, much less in man. Thus, all in all, I consider the statements above referred to on the subject of marriage of the tuberculous, immunity against tuberculosis, and the danger supposed to exist to a person living in daily contact with a tuberculous sufferer not only unscientific but most unfortunate.

The best we can do is to teach our patients not to marry when they are tuberculous, and when married and tuberculous not to procreate children. Also we can encourage our legislatures in their efforts to allow marriage licenses to be issued only to the physically fit and those free from active tuberculosis.

As long as we do not know how to render any one immune from tuberculosis, let us teach the masses how to highten the natural resistance to the invasion of the disease. This is after all the best immunity. Popular education is the one great thing to be constantly agitated if we wish to combat tuberculosis as a social disease.

There is no doubt that many tuberculous individuals come to us through immigration, and though once an immigrant myself and deeply grateful for all that this hospitable land has done for me, I nevertheless maintain that it is absolutely just for any government to refuse to be burdened with the tuberculous poor of another country. Instead of returning the tuberculous immigrant we should prevent him from coming and so save him hardships and disappointments. Although a large number of tuberculous immigrants are returned, very many of them pass unnoticed. It is no reflection in the ability of the medical men on Ellis Island when I say that they do not by any means detect all the tuberculous invalids, and that they diagnose only those who show very strong outward signs of the disease. How should the men stationed at Ellis Island be able to detect at a glance a tuberculous invalid in a first or second stage, when it often takes an expert a half to three-quarters of an hour before he can arrive at a definite conclusion, and that after a careful examination in the quiet of his office?

The examining physicians on Ellis Island, because there are only a small number of them, can devote but very few minutes to each of the thousands of immigrants who pass before them weekly for inspection. Tha excellent appearance of some tuberculous immigrants, because of a ten days voyage, invigorating sea air, good food and rest, has to my mind in many instances the reason why invalids in quite advanced stages have passed undetected. When they have been admitted to this country, a few weeks of hard work in the ditches or in the sweatshops, with nights spent in overcrowded tenements or unclean or crowded lodging-houses, usually suffice to bring about an exacerbation of the disease. The strain, the struggle for life, the new environments, the unaccustomed food, and perhaps also some nostalgia and disappointment, likewise help in a very short time to turn an incipient case into an invalid with open tuberculosis and thus a new center of infection is formed. All this accounts for the great prevalence of tuberculosis among the laboring classes who

have come to us from foreign shores only relatively recently. A goodly number of them return to their native land, particularly the Italians when they realize that their disease does not permit them to struggle as they must if they wish to remain here. I have been told that there are villages in Italy where tuberculosis has become most prevalent because of the return of those emigrants and because their methods of life result in infection of others.

Some return voluntarily to their native homes, but you perhaps are not aware that we have a deportation law,* which, as a good American, I am sorry to admit, seems unnecessarily harsh and unjustified, founded as it is on an unscientific basis. It is to the effect that any immigrant who has become a public charge in a hospital or other institution and is found to be tuberculous, can be deported even after a residence of three years if in the opinion of the examining physician he had contracted the disease prior to his landing on these shores. During the year 1911, about 1,500 of such tuberculous aliens were referred to the State Board of Charities for deportation. On the strength of this law the deportation is done at state expense.

With all due respect to the framers of this law, I believe it absolutely impossible for the most skilled diagnostician, upon examination of a tuberculous chest, to state the duration of the disease with even approximate certainty. A declaration that an individual had tuberculosis for a definite period of time, based on a physical examination or even on the history given by the patient, must necessarily be guesswork. I know of a case of deportation which was declared legal upon the statement of a young physician to whom a tuberculous patient had admitted that he remembered having had a cough a little less than three years ago, prior to his coming to this country.

How many thousands of us have a latent tuberculosis which has never been discovered and which may never cause us any trouble if we continue to live carefully and hygienically? Should we, however, be submitted suddenly to a life of hard physical struggle, be transported into unhygienic environments, be underfed and badly housed, the development of the tuberculous trouble would be almost certain to take place, and in a much shorter time than three years. One must have witnessed such a deportation in order to comprehend its meaning, particularly when one is not at all certain

that the case might not be one which developed right here because of hard work and privation.

And now, to the most important question of all; what can be done to prevent tuberculous invalids, likely to become a burden to the community, from entering the United States, only perhaps to be deported after a sojourn of one, two, or three years? Tuberculosis must be considered a world problem, for every civilized nation. Let European governments understand that they must take care of their own tuberculous people as we take care of ours, and that in the end, by united efforts, it may be possible to conquer the white plague in all countries.

Every prospective emigrant should be examined to ascertain his freedom from tuberculosis by two competent medical men, one appointed by his home government and one by the steamship company which is to transport him to these shores. A certificate showing freedom from tuberculosis, signed by these two medical men, should be in the possession of every emigrant wishing to come to these shores. An individual discovered to be afflicted with this disease should be returned to the care of the authorities of the city or village from which he came with the diagnosis and recommendation for treatment. Exceptions can and should be made in the case of an individual with ample means who is simply visiting, or seeking to recuperate his health by a change of climate, or desirous to enter an American sanatorium for treatment. To avoid misuse or fraudulent use of the physician's certificate, a photograph should be taken at the time of the examination in the home port and attached to the certificate. Or, since a photograph could be removed and another one substituted on the certificate, I even go so far as to suggest that it would be well to have the finger-print taken for identification. This is the most accurate and scientific method known for such purposes.

The laws relating to deportation should be changed to the effect that if the holder of any such certificate, or any immigrant develops tuberculosis within six months to one year from the date of his arrival here and becomes a charge to the community, he shall be deported to the port whence he came. The expenses for this deportation should be borne by the steamship company who brought

the immigrant to our shores and not by the State Board of Charities. Whether, to avoid possible mistakes in diagnosis, European governments in co-operation with the steamship companies, should desire to keep doubtful cases under observation for a few weeks, or increase the examining boards by one or two more experienced diagnosticians, is a matter for the foreign governments to decide. There is no question but that the more careful these examinations are at the ports, the fewer cases of deportation will ensue.

The suggestion has been made that physicians of the Public Health and Marine Hospital Service be stationed at the important points of departure in Europe so that each emigrant can be thoroughly examined, and those entitled to a clean bill of health be allowed to take passage. I question whether international law would sanction such procedure. Secondly, there are too many minor points from which emigrants could take passage and escape the United States government physician's examination. Of greater value would it be for foreign governments and steamship companies to make it known that if a man expects to stay in the United States, he must not become a public charge; that he must be physically, morally, and mentally sound. With such publicity and the additional examination in the manner above outlined, the United States government will be less burdened with the care of tuberculous aliens who, uncared for, are a constant menace to the community.

An interesting suggestion in relation to this subject was made at the International Tuberculosis Congress in Rome by Dr. Antonio Stella, of New York. It was to the effect that every emigrant should be insured against tuberculosis, the cost of the insurance to be added to the price of the steamship ticket, the policy entitling the bearer to return transportation and treatment in a sanatorium in the event of his contracting tuberculosis within a specified time. This suggestion was presented in the form of a resolution, which was unanimously adopted but whether or not it results in any or definite action no country should have uncared for tuberculous patients.

We know that alcoholism by undermining the power of resistance predisposes the individual to tuberculosis. As proof of this I can give you the statistics of my own service at Riverside, where it is true I do not get the elite of society but many of the down and out. Let me give you the statistics of three years:

In 1908: 349 cases, of which 259 were males and 91 females, gave the following alcoholic history:

	Small amount	Moderate	Excessive
Male	8	135	51
Female	2	21	1

This is 192 out of 259 males, 74%.

In 1909: of 901 cases; 694 males, 207 females:

	Small amount	Moderate	Excessive
Male	14	311	160
Female	5	35	5

This is 485 males out of 694, or 69%.

In 1910: of 773 cases; 579 males, 147 females:

	Small amount	Moderate	Excessive
Male	29	256	121
Female	12	23	2

This is 406 males out of 579, or 70%.

In 1911: of 418 cases; 297 males, 121 females:

	Small amount	Moderate	Excessive
Male	9	121	71
Female	9	9	0

This is 201 out of 297 males, or 66%.

Bad housing is the next social cause of tuberculosis. There is enough statistical evidence to show us that tuberculosis is a disease of congestion. It is to be found in the "lung blocks" of our large cities and in the congested cheap lodging houses in labor camps, prisons, reformatories and schools. The very carefully collected statistics of the city of Berlin showed that 42% of all the cases of tuberculosis occur in families occupying only one room, 40% where they occupy two rooms, 12% where they have three rooms, and 6% where they have four or more rooms.

Maurice Fishberg of New York, investigated the housing condition of 217 families living in New York, the greatest and wealthiest city of our continent. These families consisted of 1,369 persons of whom 1, 129 lived at home in 717 rooms and slept in 658 beds. That is about two a bed and 1·57 people to a room including kitchens. Of the 274 tuberculous persons only 112 had separate rooms and only 136 had separate beds. Some consumptive mothers slept on chairs or on the kitchen floor.

Kisbberg very justly says that this state of affairs is usual in all industrial centers of the United States. Is it any wonder that we came to look on every child born in such environments as a candidate for tuberculosis?

The Health Department statistics of New York show that the lodging houses with an accommodation of only 17,500 people furnish in tuberculosis hospitals and clinics combined 1,504 cases, or 8·8 per cent of the total number reported in Manhattan, although the lodging house population is only 0·75 per cent of the total population. Mr. Charles B. Barnes in the *Journal of the Out door Life* for April, 1914, shows that the lodging house population is eleven times more subject to tuberculosis than the average population. In connection with this Mr. Barnes says the following impressive words: "It is easy to see why so many men with tuberculosis gravitate to the cheap lodging-house. When the friendless or near-friendless man gets so weakened by his disease that he can earn little or no money, he is perforce compelled to go to a cheap place."

The next social cause of tuberculosis to be mentioned is poverty, and want as a result of underpaying. That tuberculosis is most prevalent among the poor, or those who receive low wages, is also too well known to need statistical evidence, however, it is interesting to recall here the well-known statistics of Hamburg which shows that the highest mortality was in those families with a maximum earning of $300 per year, this being three times as high as in families whose income was $1,250, and about four times as high as in families earning $6,000 a year. If such statistics concerning congestion and wage earning would be taken in the Unted States and Canada, I am sure the fact that tuberculosis is a house disease, one of overcrowding and of low wages, would be amply corroborated.

Thus for example, in the experience of a single charity society, the New York Association for Improving the condition of the Poor, it has become very evident that the prevalence of tuberculosis is in the majority of instances the result of insufficient earning on the part of the head of the family.

Thanks to the courtesy of Mr. William H. Matthews, Director of the Department of Family Welfare, I have come into possession of the advance sheet of a paper soon to be published, from which I will quote the following: "The law wages of many of the men whose widows and orphans had to be taken care of by the Society, may well be given as one of the reasons why many of the families were more or

less dependent before the husband's death. Again the result of the low wage, insufficient to supply the food, clothing and shelter nacessary to healthful existence undoubtedly meant that the bodies of the men, women, and children were exposed to diseases that specially prey on underfed, poorly clothed, and badly housed people. Tuberculosis cut short the lives of 40 per cent of those men." Their minimum wage was $8 and their maximum wage $18 per week.

In the latter accompanying this report, Mr. Matthews says: "Generally speaking as I read relief case records and go in and of the homes of our familes, I read relief cases records and go in and out of the homes of our families, I am constantly depressed as I note the amount of poverty and want that comes through the presence of this disease (tuberculosis), and again with the fact that poverty seems responsible for the quick hold which it gets on so many of our families, that is, it appears in terms of both cause and effect, and it is often difficult to determine where the line between the two may be drawn."

Bad sanitation of schools and workshops is a subject so often discussed that I fear trespassing on your valuable time if I speak at length about it. The same may be said of child labor. All this must be done away with if we wish to combat tuberculosis successfully.

In some sections of the country as many as 50 per cent of the children of parents attending tuberculosis dispensaries have been found on examination to be afflicted with tuberculosis of various types. We know that children can also contract tuberculosis from others than their parents, as nurses, tuberculous relatives, boarders, and strangers to the household, and we furthermore know that nearly 10 per cent of the children afflicted with tuberculosis have contracted the disease by the ingestion of tuberculous milk because the bovine type of the bacillus has been found in that percentage. We are as yet uncertain whether or not the bovine type of the bacillus of tuberculosis is transformed in late years into the human type by its new environment, but we do not worry about this uncertainty; we teach, preach and practice the prevention of tuberculosis in cattle by the enforcement of the tuberculin test and by weeding out the tuberculous cattle and prohibiting the sale of tuberculous milk and meat.

An important factor to prevent our children from developing tuberculosis is to pay more attention to a healthy physique and not carry mental training to such an extent as to hinder the proper physical development of the child in school or the young girl or man in college. All children should be taught to love of fresh air and the value of

deep breathing in good pure air. The simple rules for the prevention of tuberculosis and for general hygiene should be taught the children according to their understanding. They will thus become apostles of sanitary living and of open air life in their own homes.

It goes without saying that while healthful and useful occupation under sanitary conditions is not harmful to the healthy child if it has sufficient time to play and to sleep, child labor is death dealing. It is a disgrace to our nation that child labor is still carried on in many sections of the country. All careful students of the tuberculosis problem consider child labor one of the most pathetic predisposing factors of tuberculosis in the adolescent.

Open air schools should be more universal features; in fact, I believe that we should make the open air school the rule and the indoor school the exception if we wish to combat tuberculosis in childhood.

One more word about the children. Let us encourage more breastfed babies; let our mothers glory in the fact that they gave their breasts to their children for a whole year and gladly sacrificed society's obligations so that the child may get the best possible physiological start of life and be resistant to the tuberculosis germ.

It has not been my intention to picture to you too sad a situation of the tuberculosis problem as it confronts us at this time in the United States. In the European Countries, which are now in the throws of a fearful war, the tuberculosis situation is many times worse than with us. I have reliable information that many of the German sanatoria for the consumptive poor have had to be evacuated to make room for the wounded soldiers from the battlefield, who will be nursed there and if possible made strong enough to go to the front again perhaps to be wounded a second time, or to meet death. The former inmates of these sanatoria have been sent home, many not cured, with their chances of recovery much lessened and the chances of infecting others much increased.

Let us be grateful that in this country we have at least peace, and while I would not wish for a moment to have our benefactions for the unfortunate war sufferers halted, let us not forget our own consumptive poor who because of the general business depression and the demands for philanthropy from the other side, receive now less consideration. We must not allow ourselves to be lulled into the belief that the sufferings of our consumptive poor are any less because there is so much suffering elsewhere. The tuberculosis situation in

the United States is now as serious as ever and all our energies are needed in the combat of the social as well as the medical aspect of this disease.

May I now be permitted to briefly summarize what we ought to do from a social point of view to combat tuberculosis? I do not believe I can do better than to repeat here in the main the summary which I gave when it was my privilege, some months ago, to deliver the oration for the annual meeting of the Canadian Tuberculosis Association in Halifax, under the title "The Modern Warfare against Tuberculosis as a Disease of the Masses."

I plead first that the men and women afflicted with tuberculosis socially so situated as to be unable to procure the sanatorium treatment at home, be placed in an institution where all our knowledge of modern phthisiotherapy shall be applied with a view to re-establishing health and to restoring earning capacity. There should be no uncared-for tuberculous individual, rich or poor, in a modern civilized community. This means of course an increase in the number of sanatoria, special hospitals, preventoria, home sanatoria, seaside hospitals for tuberculous joint diseases, etc. If this cannot be done by the ordinary budget, let us create a special tuberculosis tax, so that there will be no delay in the provision for those in urgent need of treatment. Let statesmen everywhere realize that without federal department of health there can be no solution of the tuberculosis problem.

We must have a universal obligatory examination and re-examination of all citizens to discover tuberculosis and other diseases; judicious bovine laws to prevent infection of the human race from cattle; poper housing laws and supervision of factories and workshops to make dangerous infection impossible; reasonable and judicious temperance law and rational anti-alcoholic educational movements; the abolition of child-labor and the support of the indigent pregnant woman a few weeks before childbrith and partly during the nursing period; open air schools in abundance and equally great attention demanded of the physique as for the brain in primary schools as well as in high schools and colleges; the thorough training of our medical men in early diagnosis and special antituberculosis work, and a just remuneration for the services they render thereby to the community and the state; special training for nurses and social workers among the tuberculous; education in schools and colleges, factories and workshops, by literature and lectures, exhibits and museums in all that appertains to the prevention of tuberculosis; furtherance of sanitary living, and avoidance

of infection from other diseases. Our statement must make laws which will make farming more profitable so as to attract fewer people to the cities and more to the country, and there should be State and Municipal labor bureaus to adjust the supply to the demand for labor in various localities. Last but not least, there must be a readjustment of the earnings of the laboring men and women, there must be a minimum wage which will enable each individual if he works to earn enough to live, eat, and clothe himself decently. There must be no underfeeding, no bad housing, more enlightenment and more sanitary education. Tuberculosis in order to cease to be a disease of the masses must no longer be a disease of ignorance, congestion, or underfeeding; in other words, in order to combat the great white plague I plead with statesmen and philanthropists, with men and women of power and influence, for more social justice, more humanity to the unfortunate, more kindness and love for those so sorely in need of it. Let our war be against tuberculosis but never against the tuberculous. Let every one have a sympathetic interest, let all those who can render personal service in this holy cause, remembering that after all service to man is the highest service to God and the most inspiring form of religion.—*Long Island Medical Journal*, June, 1915.

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SENILITY, PREMATURE SENILITY, AND LONGEVITY.

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Quite in contrast with the many specific phases of life, the diverse problems that embrace the question of old age are very general indeed; they are medical, economic, and social. The decline and the decay incident to old age are causative of many hardships, and make that period of life such a dreaded one. Yet it is the attainment of old age, or to be more exact, of older age, but with mere usefulness and with less adversity, that is the vital problem of the time. Old age is antecedent to that inevitable process or event—death, although not all living things are mortal. "Death is not the universal accompaniment of life. In many of the lower animals death does not occur, so far as we at present know, as a necessary and natural result of life. Death with them is purely accidental, the result of some external cause." (1)

Biological and embryological considerations. In the higher animals and in man life, age and natural death are purely matters of cell differentiation. The higher the plane of the animal, the more marked is the cell differentiation or specialization. Cell differentiation affects the mortality of the cell and

of the organism through the expenditure of energy and the consequent loss of vitality entailed in this process. Once a degree of differentiation has obtained, no backward step to the previous state of generalization, that is, regeneration or rejuvenation, is possible. The higher the ascent of the cell in the plane of cell differentiation, the lower is the power of rejuvenation. In the lower organisms rejuvenation is quite marked and increases as the plane of life is lower. The earth worm or the water polyp can generate a new head or new polyps, as the case may be. In the higher animals the comparatively slight power of regeneration depends upon the degree of the individual cell's differentiation. Connective tissue muscle, nerve fibre and epithelial cells are the least differentiated and have, therefore, the greatest power of regeneration. Nerve cells have the least power, because carrying on work of a very high order, they are of necessity more differentiated or specialized. Nerve fibres, on the other hand, are merely conductors, carrying on rather menial work. Nerve fibres and epithelial cells have probably the greatest power of regeneration.

Likewise the more highly differentiated the cell, the more rapid is its development, the earlier its decline, and the sooner its death. Precocity, whether in a separate cell or in the human being as a whole, imports early maturity, and is not desirable because the early ripening and the early differentiation mean a rapid life with premature aging or decay, and an early death. "Senescence is an increased differentiation of the protoplasm, while rejuvenation is an increase in the nuclear material. The increase of the nuclear material is at the expense of the protoplasm. The increase of nuclear material allows fission and the formation of new cells" (1). The degree of cell differentiation is greatest as the power of cell fission or mitosis is least; the power of regeneration is in direct proportion to the power of cell fission. In the young, nearly all cells show active mitotic changes. The more mature a tissue becomes, the less active are the mitotic changes in the component cells. The mitotic

power or index of a group of cells is computed from the number of cells in a thousand found in the act of cell division. The index is highest at birth and grows with maturity and age. *The greater the cell differentiation, the smaller the mitotic index.*

With maturity—with the decrease of the mitotic index—the number of tissues into whose composition the cell can enter becomes restricted. The cells in the original germinal layers have before them the possibility of entering into the structure of any tissue. As the cells differentiate, the germinal layers take on more structural character, and leave the field for entrance of the cells into different tissue formations more restricted, since during development the number of tissues yet unformed or undifferentiated becomes less and less; and once a cell has assumed a personality it must continue to follow it up and cannot diverge from it. This is the law of *genetic restriction*. The younger the cells, the greater their multiplying power or mitotic index, and the greater are the tissue possibilities from which they can choose. For this reason rapidly growing morbid tumors are formed from young cells of high mitotic index, whose genetic restriction has not progressed high enough to inhibit range and rapidity of growth. Before genetic restriction young cells may become one tissue or another. Injuries necessitating cell regeneration with young cells are, therefore, often the seats of morbid growths. The young and undifferentiated cells forming malignant amorphous tumors, and growing in tissues alien to them, develop rapidly, probably because they are deprived of the "social" restrictions to overgrowth that they would have in their own cell society. The presence of young cells in out of the way places or where older and more differentiated cells would be expected, should excite suspicion of, or foreshadow a morbid growth. *Young cells like young children are safest among their own.*

As a rule, a cell or an organism lives long enough to reproduce its kind, otherwise the species would become extinct. Indeed, in certain of the lower forms of life death occurs immediately after ovulation; and it was the common belief

that procreation determined the span of life. The length of life depends, however, solely upon the rate of cytomorphosis—upon the rate of cell growth, change, and maturity; the lower the rate, the longer the life. The end of the development of a cycle of cells spells their death. The rate of cell differentiation determines the rate or rapidity of senescence; and quite paradoxically the rate is highest in the young, and slowest in the young. Yet every process is slowed in age. *The young grow older rapidly; the old grow older slowly.* Old age is the period of slowest decline. "The rate of growth depends upon the degree of senescence. The tendency to senescence is at the maximum in the very young, and the rate of senescence diminishes with age" (1).

The rapidity of development in the young is especially well illustrated in the rapidity of their mental development, and by its slowing as they mature. Mental development goes on with diminishing speed—most in the baby, less in the child, least in the adult, and none in the aged.

Causation of senility. Physiologically, senility is a drying or desiccation process, continuous from birth to death. At birth the superabundance of fluid and gelatinous material militates against proper vital organization and operation. *Organization everywhere demands solidarity.* In senility there is too much solid and too little fluid for easy function and motion. The proper balance occurs only in the prime of life, at which time the best and the most coordinated work is performed (2). Besides this theory on the causation of senility, there are a number of others, chief among which are Metchnikoff's Lorand's, and Montgomery's.

Metchnikoff believes that the senile changes are autotoxic, from intestinal putrefaction and absorption of bacteria and bacterial products; and that if bacterial activity and putrefactive changes can be inhibited, life will be prolonged and old age deferred. He advocates the ingestion of lactic acid bacilli to retard the growth of the intestinal flora, and the upkeep of

the intestinal toilet by lavage. Intoxication of some kind is a factor in the atheromatous changes accompanying senility. The intoxication from the virus of syphilis, and even of the congenital form, causes the markedly aged appearance of the victims (3).

According to Lorand, old age is due almost entirely to the atrophy and degeneration of tissue and function of the ductless glands—the thyroid, the adrenals, the pituitary body, the testes, and the ovaries—but especially of the thyroid gland. The aged appearance of the myxedematous and the cretinoids is well known, and the similarity between many of the symptoms of myxedema and premature senility has often received comment. Moreover, the administration of thyroid extract aids the elimination of uric acid, which latter seems to be a factor in general atheroma (4).

That "the limit of life is a matter of excretion" is almost obvious. There can be no continuation of life unless there is ample provision for the elimination of toxic or waste products. The normal permeability is lost in the sclerotic changes of the tissues, especially of the tissues concerned in elimination—and in a manner all tissues are more or less tissues of elimination. The special organs of elimination cannot act to their full capacity nor even to the limit of vital necessity, because of the replacement in senility of parenchyma by fibrous or fatty tissue. The retained waste products act to increase the sclerotic changes and produce a vicious circle-irritation, intoxication, and atheroma. "The degeneration of age first produces an insufficiency of the organs of elimination and then degeneration of all the organs" (5).

Physical manifestations. Because the inherent tendency of the human cell to differentiate is a normal physiological process, the senile changes cannot truly be considered disease entities. The physiological processes, however, are defined by changes that are inimical to the welfare of the organism, so far as activity is concerned—especially when measured by the highest activity of which the body was capable; there is diminution

of activity of the physiological, physical, and mental processes. Senility is a normal process with abnormal manifestations. "There can be no derangement of function without a correspondent lesion of tissue." Senility is atrophy. "In senile atrophy the same condition is always present; the atrophy of the higher and more specialized cells and their replacement by hypertrophied connective tissue" (3). Though there is a general replacement of parenchyma by connective tissue, the latter is increased even beyond the point of mere replacement; and the increase still more severely hampers the remaining parenchyma. The connective tissue soon gives way to fatty degeneration, which accounts for the primary corpulence of the aged – soon, however, followed by senile emaciation and general decrepitude. The bones are harder, less spongy, and more brittle. The natural pressure on these atrophied bones causes gross bone deformities. The skin is thinner, less elastic, and more transparent. The muscles are of smaller volume. The heart is enlarged. But this is compensatory, for with the stiffening and the narrowing of the lumina of the bloodvessels greater force is required to drive the blood through—and the blood pressure is accordingly increased. Arteriosclerosis is a general feature of senility, but especially of presenility.

Senile debility is the result of the gradual advance of the senile changes; there is the characteristic bent frame, tottering limbs, coarse tremor of the head, trembling hands, characteristic gait and attitude. The muscles are extremely wasted, skin remarkably thin and transparent. The changes in the bones, ligaments, and tendons are of an extreme degree. There is lessened innervation throughout the body (6). Some tissues show more marked changes than others, which has led to their characterization as different diseases. Senile marasmus—where the emaciation was particularly severe; senile osteomalacia—where the bone atrophy was causative of bone deformities; senile atrophy of the brain—where the nervous and mental elements were particularly affected; senile asystole and senile changes in the blood—the former referable to the severe cardiac

changes occurring in atheroma, and the latter to the severe secondary anemia so common in senile debility.

Temperature is, peculiarly, not affected in the aged. While the lessened respiratory and metabolic conditions reduce temperature, the lessened loss of heat from the lungs and skin quite overbalances it (7).

Mental manifestations. The physical changes in senility are, after all, gross and very apparent. They are of comparatively little moment, especially in the higher walks of life, where physical efficiency is of less import than mental, except where the physical impairment is so severe as to be incapacitating. The most desirable condition is to have both the mental and physical conditions at par. It has been frequently asserted, however, and just as frequently denied, that where the body is large, the mind is small. The range of muscular development is limited, of mental development infinite. The most subtle, insidious, but rather indefinite changes take place in the mind. These changes embrace the widest latitude. The virility of the mind should in every individual far outlive that of the body, yet if there has been no mental development during the developmental period of life, when physical development declines, there is nothing left. "For not his arms only (were dead), but rather himself was dead; since he never had anything valuable in him but the strength of his back and limbs, and if they were gone the whole man was gone with them" (8). As a rule, however, a good constitution, not merely brute strength, accompanies a good brain.

Old age dulls the sense of conscience. Vanity, avarice, undue ambition, petulance, irascibility, and irritability are on the increase. There may be peevishness, parsimony, misanthropy, dictatorial, exacting and even sensual dispositions. The aged are cold and curtly conservative and unreasonable; there is lessened ability to stand temptation and disappointment. They may become passionate and morose. Sentiments of beauty, sublimity, and passion are dulled in age. "Physiological senility means no reproductive power, greatly lessened affection

power, diminished power of attention and memory, diminished power and desire to energize mentally and physically, lowered imagination and enthusiasm, lessened adaptability to change, greater slowness of mental action, slower and less vigorous speech as well as ideation. Cellular action and nerve currents are slower, and there is more resistance along the nerve fibres" (9).

"The best average barometer of mental failure is memory in all its varieties, and all admit that memory begins early to decline. But the decline of memory in old age is only an advance guard of an invading army that is, sooner or later to devastate the brain" (10). The failure of memory is particularly of the names of places, persons, and events of recent origin Remote events are vividly recalled. This specific failure of memory can be remedied somewhat by cognizance of the defect and by association with more easily remembered contents (2). Moreover, there is an increasing difficulty in grasping new thoughts and assimilating new ideas. This is advanced in explanation of the refusal of such eminent men as Agassiz and Virchow to accept the theory of evolution. *The old have no faith in the young.*

There is quite an unnatural tendency to overeat in old age in spite of the maxim that one ought to "descend out of life as he ascended into it, even unto a child's diet" (14). The first sign that food must be reduced is the increase in blood pressure. For old people the preponderance of farinaceous food is better, for while meat is flesh building, the former is fat forming and heat giving—which is so desirable in old age. *Life is a question of warmth.* The mental significance of overeating in the aged has been explained on the ground that, with the forced decrease in the mental and physical activities, and with the diminution of visual and auditory acuity, there are no other pleasures left in life but the gastronomic.

The young crave for action. When restrained they are uncomfortable and unhappy. In the aged the craving for rest and quietude is of organic origin, which not being satisfied,

causes physical discomfort (11). "The very quietude of the mind in the senile allows an orderly and systematic arrangement and storing of knowledge already therein. The bustling activity of mind as well as of body will not brook such arrangement" (12).

Fortunately the mental and moral tendencies are not universally impaired in the aged. The fault is rather of the man than of the age. When only the lower ideals were exercised in earlier life—when there had been no moral training or moral ideas, then do these traits assert themselves with increasing force in old age. These tendencies have a particularly pathological significance only when they are the antitheses of earlier traits. A properly trained and exercised viewpoint will withstand the changes in senility. The moral decline in the aged is not a positive decline into the vulgar, necessarily. It may be merely passive—a lack of "moral enthusiasm." The decline need never be universal; it may be in only one or more of the enumerated traits.

There is no definite year at which physiological senility with its train of mental and physical symptoms begins. It need not begin till after sixty, sixty-five, and with proper living not till seventy or seventy-five years (13). Age is never chronological except in a legal sense, and merely indicates the length of time an individual has been in being; it gives no clue to physical, physiological, or mental ages. These depend upon individual tendencies possibly hereditary in nature, upon the mode of living, and upon environmental conditions—climate, disease, traumatisms, excesses, and intemperance. The beginning of senile changes differs, in each individual. "Old age is a vascular problem, and has been well expressed in the axiom that a man is as old as his arteries."

The redeeming features of old age are that one is freed from the demands of former youthful passions, emotions, and sentiments—if, indeed, such freedom is worth while. The old have, besides, the relative advantage of immunity to certain diseases, such as the eruptive fevers, typhoid, and phthisis: the old

tissues do not seem to be good media for these disease agencies. On the other hand, they are very prone to pneumonic infections and erysipelas, which carry away most of the aged.

Premature senility. It is not possible to say at what year senile changes and manifestations are premature. In determining the prematurity the chronological age is important, since with the same symptoms a man of seventy years would be physiologically senile, while a man of forty, forty-five, or younger would be pathologically senile. In a general way the symptoms of pre-senility are identical with those of mature senility. An individual below fifty years of age, with hardened arteries, increased blood pressure, hypertrophied heart, accentuated second aortic sound, arcus senilis corneæ albumin and hyaline casts in the urine, premature baldness, and gray hair, can be called prematurely senile, especially with a history of a strenuous life either from disease, intemperance, or excesses. Premature senility may appear even as early as the thirtieth year, but not frequently.

The general instability of the prematurely senile, mental as well as physical, is reflected in the pulsetracings taken under varying conditions and during different parts of the day. "A wide variation is presented as the mental equilibrium becomes disturbed by the change in blood tension. The elevation in the first line and the character of the tidal wave line will vary with the hyperemia of the brain, and the associated cardiac muscular instability; or if the vascular tension is continued, there will be found an appearance presenting a slanting up stroke and a long receding stroke, interrupted by numerous indentations, which is so characteristic of general paresis" (11), (23).

The arteriovascular changes, especially the liability to sudden changes in the calibre of the vessels, give rise to many symptoms characteristic of other and rather more specific organic conditions. There may be severe migraine symptoms, cramps, and convulsive movements of the extremities—even during sleep; transient hemiopia, paresthesias, vertigo, and surface vasomotor disturbances.

The mental changes are varied and sometimes very profound. Usually they differ in nowise from the mental symptoms in advanced senility. Exertion is avoided. There are lapses of memory and evidences of a lack of personal care, not associated with people at such an early age. "Under the slightest emotion and strain they are flushed and irascible, or lose patience and have an inability to throw off care. There is hypochondria, which is personal introspection accompanying limited mental power and brain fag" (11). The nervous and mental disturbances are almost entirely vascular disturbances in the brain consequent on the generalized cardiovascular changes.

Causation of premature senility. The pathological changes in premature senility, unlike normal or physiological senility, have rather definite though general causes—largely mundane. Abuse of the body in one way or another—either voluntary, as through intemperances or excesses, or involuntary though preventable, as through disease and social adversity. Hippocrates's aphorism, "Use but do not abuse," is the best prophylactic. There is a natural though unhealthy tendency to force early decline by overtaxing the body and the nervous system. It is strenuous life in work, even in play—in everything. It is the pace that kills, and kills early. It is overwork necessary in the keeping up of appearances beyond the actual capabilities, and to do which man are continually straining, worrying, and using up reserve strength until with nervous depression and depletion they become exhausted.

Intoxication with alcohol, and syphilis are probably the most potent individual causes of premature decline. Alcohol and syphilis are specific forerunners of arteriosclerosis. Over-eating is, perhaps a greater intemperance than alcohol. Large meat consumption especially increases the tax on the organs of elimination (4). Most people eat about twice as much as they need. *The high cost of living is the high cost of over-eating.* The dietitan and his tables of food values are established fixtures in modern economy and should be more often consulted. They can pretty accurately determine the nourishing and heat or calorie

values of the various foods and the quantities required. On the other hand, the economic aspects of the dietitian's menu are at times carried too far, especially in institutions for the care of incompetents. Enough food should be given over and above caloric necessity to allow of "seepage"—enough to satisfy to some degree the cravings of the appetite until at least it has been educated up to the dietetic table. Individual differences in a class must be allowed for in caloric method.

Stress, worry, the keen competition and commotion of urban life with its rapid currents, encourage early decay. They foster a desire to put in a certain number of years of very hard uninterrupted work, with the idea of enjoying rest and ease later in life with the fruits of their labors. Unfortunately, when the time comes for rest, there is too little vitality left. Work under high pressure pervades every endeavor. The simple life is a thing of contempt, of incompetence, and of waste. It may be, that with the tremendous progress of civilization, one must work at a high speed and at a high pressure to accomplish anything in a comparatively short life. Modern efficiency ideas and high pressure methods are synonymous. Their aims are for results—for products and for commodities. The effect on the producers is not yet given primary consideration. Every vestige of care afforded the product or the producer has in view merely the quantity and the quality of the finished product. The question is how much can an individual produce in a given time, and not how long can he produce? Real human efficiency—collective efficiency—would be better served by making use of all material, not merely the most perfect, to the limit of endurance.

The ill effects of high pressure methods can in a manner be nullified by prolonging the vacation periods of rest. The longer the vacation, the better the work—and the more of it, and for a longer time. The vacation period should be a period of change, not merely a period of rest. "*Change is the great rejuvenator.*" It allows the fatigue products accumulated in one system to be removed, while another system which has been sluggish, is exercised. For indoor workers even the most strenuous sports are

restful and beneficial. The long vacation is never a waste. It is the short one, or the absent one, that is a waste—of life (15). Even in child-hood there is a modern tendency to force things—education—maturity—everything. "It is forced maturity that shortens life?' (16).

The modern notion seems to be the relegation of the older men to the shade of "innocuous desuetude," in order to give younger and possibly more progressive men a chance to forge ahead. Older men are finding it harder to retain employment, and almost impossible to obtain it, in spite of the undoubted advantages of years of experience. Earlier retirements in almost every branch of human endeavor are becoming common. Modern training gives a larger scope, longer vision, and more headway than many years of slowly acquired experience.

The proper sphere of the aged. Many equally well informed men have taken opposite views on the proper sphere of the aged. Osler takes the view that "taking the sum of human achievement in action, in science, in art, in literature, subtract the work of men over forty, and while we should miss great treasures, even priceless treasures, we would be practically where we are today. It is difficult to name a great and far reaching conquest of the mind which has not been given to the world by a man on whose back the sun was still shining. The effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty." This is a consideration only of the present average length of life, and no doubt with its lengthening, with the deferring of old age, the period of maximum efficiency will be extended beyond his forty year limit.

When it is appreciated that there are not more than perhaps 500 really great men in the history of the world, one can understand what a very small percentage have managed to break through the shell of mediocrity. Galton estimates that seventy per cent. of their work was completed before forty-five, and eighty per cent. before fifty years of age. Dorland found in an analysis of 400 celebrities, that the average age of commencement of their activities was twenty-four years. In musicians it

commences as early as seventeen, in workers at twenty-two, in thinkers at twenty-four, in novelists at twenty-five, and in satirists at thirty-two years. Satire is an art that requires a large fund of experience and introspection for such a viewpoint. As a great general average, work commences at twenty-four and at fifty years the greatest work has been accomplished. The great general average for years of activity in all endeavors is forty (17). There have been many great works accomplished by a few really great old men. They were great—and exceptionally great—because they accomplished at an advanced age. But the great mass of mankind, the man-average, unfortunately does not.

* In order to enjoy life after forty, it is said that one must have attained some degree of success. Nothing makes the contemplation of old age so discouraging as to reflect upon past years of mere existence and no accomplishment. The organic changes which go on in the nervous system, diminish the pliability and the permeability of that system, and preclude, in most people, the undertaking of new work and the accomplishment of new successes. There comes a time when it becomes exceedingly difficult to glide into any new or unaccustomed form of activity. It may be possible to continue in the things in which one has attained a certain degree of expertness, in a routine and automatic manner, but when an attempt is made to overstep these limits, it is found that one is held up by a certain "mental fixity" and a "sense of permanent mental fatigue" (1).

Medicolegal aspects. In will cases it is often a cause of contention whether the mental deterioration was sufficient to rob an aged testator of the essential mental reservations necessary in making a will—that is, his ability to understand the nature of the transaction at hand, the general extent of his property, and the persons of the beneficiaries. These three elements must be present to validate a will. The eccentricities on which incapacity in the aged testator is desired to be proved are not sufficiently profound to deprive the deceased of his right to testament. In a broad sense, however, the mental symptoms of advanced senility

differ from senile dementia only in degree. Exertion of undue influence, sufficient to deprive the testator of his independent will, and thus to invalidate the testament is possible. Yet until the mental changes in the aged are better understood, or until the laws with respect to the descent of property are changed, it is perhaps not just to inquire too deeply into the mental capacity of the senile merely because they are senile. The right to leave property after death, unlike the right to own it during life, is not an absolute right, and the State can at any time revoke that right.

The future of the aged. Those of the old who are not distinctly or prematurely senile have a place in the niche of life. They can act as libraries of knowledge, and experience, as councillors and advisors—if they have had the experience. They should excel in strength of reason, cool judgment, mature counsel, and broad discretion. The term *senate* is derived from the Latin *senes*—the old men; the Roman senators held their exalted positions for their age and the consequent qualities. Yet *one may be as much past the age of discretion as before it.* The conservative tendencies of this period are valuable as checks to the exuberent radicalism of youth. Merely having lived a great many years does not of itself imply experience. Life must have been spent with that end in view. Pure reverence for the aged, no matter what their previous lives have been, is a survival of barbarism.

Dependent aged are a burden in every community, or on the children whom they handicap with the onus of their support. The feeling of burdensomeness of the aged is reflected in the increase of the suicide incidence in the later years. With the speed of modern progress the number who fail to keep pace and lay in their store promises to increase. In dependency, the life of the aged is always sad, and in the matter of their death they are often compelled to take the initiative themselves. The remedy is a social one—care by the State, old age pensions annuities, etc. Legislation in those directions is making rapid progress.

Longevity. The limit of age—of human life—has been placed between seventy and ninety years. The best known and perhaps the most authentic long lived was Thomas Parr, who died in 1635 at the age of 152 years, and there is even an account of a person living to the incredible age of 370 (18). With few exceptions man is the longest lived animal (19). The limit to life has been placed at six or seven times the time for maturity —fourteen years, or as five times the period of maturity—twenty years. The maturity theory is erroneous. In animals the period of maturity does not bear this relation to the known average length of life. The increase of the longevity of the species, man, should be aimed at in order to increase the individual longevity and the period of usefulness and virility

"Everything grows old," they say, "except vanity, which never grows old." The more perfect the organization, the earlier the aging—and the sooner the end. *The perfect, more surely than the good, die young.* "Every stage of human life except the last is marked by certain definite limits: Old age has no precise and determinate boundary" (8). While it would seem that the termination of advanced life is the inevitable consequence of time, it is nevertheless a fact that the immediate cause of death is generally some well marked disease. Disease and not time defines life. The mortality among the aged is less than among the young and the more vigorous; the latter are naturally more exposed to the casualties of life. "An old man, even of a bad constitution, who bears a regular and sober life, is surer of a long one than the young man of the best constitution who leads a disorderly life" (3). Extravagance with life must everywhere be discouraged. "Man does not die; he kills himself." Syphilis, alcohol, the degenerative diseases, and worry are the great shorteners of life, and they are on the increase. "Every man past forty is either a fool, a physician, or a divine, for the better sort of people lavishly and unconcernedly throw away their lives."

Brain workers live longer than muscle workers; those who make use of both live longer than either; and the greater

brain workers live longer than the lesser ones. Clergymen are the longest lived (20). The longevity of brain workers is not, however, Nature's reward for the use of its most sensitive and highly differentiated organ. It is a matter of comfort, comparative luxury, good food, freedom from the physical vicissitudes and dangers of life, and especially freedom from the sordid worries of keeping body and soul together. Brain workers are the masters who direct the performers of the coarser and more dangerous work. Yet the wear and tear and the expenditure of energy in brain workers are often very severe and devitalizing. Life insurance companies realize the progressive shortening of life as one goes down in the scale of education, when they refuse to accept illiterates as bad risks. The lower the scale of mental development and education, the greater the personal hazards of life. The instances of longevity among many pure muscle workers can be explained on the grounds of heredity and the survival of the fittest.

The influence of race on longevity is not known. The Jews have a reputation for long life. The Balkan peoples, the Scandinavian and Northern European races have a like reputation. The Southern Europeans are comparatively short lived. Racial longevity must be almost entirely a question of mode of living and environment in all its phases (15).

Women are longer lived than men, in spite of the morbidity of childbearing. Actual freedom from the vicissitudes of life, as well as a sort of hereditary freedom from them, may be determining factors in their longevity.

Overweights have a greater mortality than underweights; few of the markedly overweight ever have an opportunity of becoming senile. Underweights, except those from extreme degrees of emaciation as a result of underpourishment or disease, are little affected in the matter of underweight. Indeed many of the smallest mites live longest, but it may be because they are not called upon for any very strenuous occupations (21).

Celibates seem to age and decay sooner than the more courageous married individuals. The greater freedom from voluntarily acquired infection, from temptation for intemperances and excesses, and especially the more regular mode of life, would seem to be contributing influences to longer life. The regularity of life means also sexual life, and while female celibates cannot so much be associated with the temptations of life, the lack of normal sexual life may affect them in a manner the nature of which is not understood.

Religious life favors longevity because it breeds an optimism, ease, and contentment that help one to meet the adversities of life with more courage and endurance. Religion produces a mental and physical ease and calm. "Extreme sobriety, no worry, body and mind quite calm"—are the secrets of long life (3).

Heredity is a factor not to be overlooked or passed over lightly in senility and longevity. Certain families or strains are known to have a predisposition to rapid decay and short lives. Insurance companies often refuse them insurance, or only at advanced premium rates. On the other hand, even long standing disease, alcohol, and excesses do not have an effect to shorten the lives of the long lived strains. Longevity is something "intrinsic to the constitution." "Karl Pearson found that of children born of mothers who died before the age of thirty-nine, sixty-eight per cent. died before twenty-one; while of children born of parents reaching the ages of seventy, less than thirty per cent. died before twenty-one" (12). The short lived by heredity can anticipate the predisposition in their own lives by studying their ancestry with the view of finding out the specific causes, if any, for the abbreviation of their lives. Life has been prolonged by modern medical and sanitary methods, and heredity, natural selection, and the theory of the survival of the fittest are now amenable to human influence. People who would ordinarily succumb to disease and adversity are now "selected" to survive extinction. This is Haeckel's "medical selection"—in contradistinction to

natural selection. Whether this form of selection is desirable for integrity of the race is a problem for the eugenist.

"Death is a process, not an event in age. A man may begin to die ten or fifteen years before the mortal coil is shuffled off. Men die as trees, slowly and frequently at the top first" (4). "Death is maturity, they die when the clock runs out" (22), Some people, like a bicycle, will keep erect as long as they are in motion; when they stop, they fall—they die. So many people after lives of extreme pressure collapse like caisson workers when the pressure is suddenly removed. *The first vacation is often fatal.* They may have lived many more years had they remained in harness. After all it is perhaps better to die in harness—literally in one's boots.

Last scene of all.
That ends this strange eventful history,
Is second childishness and mere oblivon,
Sans teeth, sans eyes, sans taste, sans everything.

New York Medical Journal, July 10, 1915.

EDITOR'S NOTES.

Malaria in the Punjab.

A heavy monsoon rainfall in the Punjab causes great mortality from malaria. The total number of deaths in 1914 were 345,501, and the highest mortality was in October, September coming next. In an official report it is said that the riverain tracts, particularly that of the Ravi, were heavily flooded, and malaria followed in the wake of the floods. From Sept. 9th to the 17th fairly heavy rain occurred, and as the falls in October and November were abnormally great the conditions for fever were more pronounced. In the Muzaffargarh district alone were reported 14,492 deaths from malaria, which assumed an epidemic form. It cannot yet be said what the autumn rainfall will be this year, but if it is light the Punjab should escape malaria—a small compensation, however, for the loss of *Kharif* crops—*The Lancet*, October 23, 1915.

Medical Teaching in Bombay.

A Press Note issued by the Bombay Government gives an account of the origin and character of the College of Physicians and Surgeons, which was founded in 1911 by Surgeon-General Stevenson (now retired), with a view to teaching Western medical science on the latest approved lines, and conferring the diploma of M.C.P.S. and L.C.P.S., recognised by the Bombay Medical Council as a qualification for insertion in the Medical Register as required by the new Medical Act. The need for a medical degree of lower standard and cheaper to obtain than the degree of M.B, B.S. of Bombay University came to be felt after the decision of 1909 to abolish the University degree of L.M. & S. The College of Physicians and Surgeons in Bombay was then inaugurated on the model of the Royal English Colleges. The conditions of registration are a certificate of matriculation at a recognised university and a course of medical studies extending over five years. The Government has already spent Rs. 2 lakhs in the endowment of the College, in addition to allotting substantial grants-in-aid every year.—The *Lancet*, October 23, 1915.

The Shillong Pasteur Institute.

A grant of Rs. 25,000 has been sanctioned by the Government of India for research work in connexion with the Pasteur Institute at Shillong.—*The Lancet*, October 23, 1915.

Therapeutic Effect of Magnesium Chloride.

At the Academy of Medicine, Dr. Rosenblith explained his employment, since, June last, of $MgCl_2$ as an application to wounds, his preliminary experiments going back to the previous March. Four tablespoonfuls (60 c.c.) of a concentrated (1:4) solution are added to a litre of water, making a 1·2 per cent. dilution in which the dressings are dipped. Cicatrisation of the wounds so treated is much more rapid than in those treated by ordinary antiseptics, prolonged suppuration with cytolysis being checked. The idea of employing $MgCl_2$ originated after observing the effects of a solution of magnesium chloride combind with 2 per cent. iodide of sodium as a hypodermic injection in rheumatic and pseudo-rheumatoid affections. These experiments justified the assumption of a trophic cytogenic action on the tissues, the body fluids being modified in such a way as to produce a medium unfavourable to the life of certain micro-organisms—*The Lancet*, October 23, 1915.

Cholera in Ceylon.

The outbreak of cholera at Danushkodi and the subsequent appearance of the disease at Talaimannar, where it was most probably carried by a member of the crew of one of the Indo-Ceylon ferry-steamers, gives no cause for public alarm at the present time. The danger that the disease might spread to other parts of the island through the medium of coolies and other passengers crossing over from India to Ceylon by overland route, or through railway employees working these trains, is negligible. In an interview, Mr. Boles, chairman of the committee, explained that although he had not received the latest reports, so far as he knew, there had been no fresh cases at Talaimannar since Sept. 2nd, nor at Danushkodi since Sept. 5th. Every step that could have been taken, he declared, had been taken to prevent the spread of the disease. The crews employed on the ferry-boats between Danushkodi and Talaimannar were absolutely segregated and none were allowed to enter these villages. On the other side, similar steps had been taken to ensure that the railway staff at Talaimannar and employees on the trains did not come into contact with infection. In view of these steps there was practically no fear of coolies and other passengers becoming infected in passing through the infected areas by the overland route—*The Lancet*, October 23, 1915.

Glucose Solutions as Prophylactic against Shock.

Burnham urges the value of glucose solutions as a propoylactic against post-operative shock. It has been shown that fat, administered to animals and presumably stored in the liver increases the susceptibity of the organ to the injurious action of chloroform, the fat determining the fixation of the chloroform and the occurrence of necrosis, while experiments with carbohydrates, on the contrary, show that they protect the body proteins from disintegration. It is therefore important that patients should be put through a course of forced carbohydrate feeding for a short period immediately preceding operation, and should receive them in an available form soon after operation. When there is no contraindication to oral feeding the patient should be given a meal containing a considerable quantity of carbohydrate food in the shape of bread or cereal eight to twelve hours before operation, and about three hour before anaesthesia is commenced a feed containing 100 to 200 calories in the shape of easily absorbable carbohydrate for example, six ounces of coffee or orangeade to which has been added one ounce of lactose. By such means the organism is assured of a good store of readily available glycogen during the anaesthesia. Where oral feeding is impossible, as during or soon after anaesthesia, subcutaneous or rectal injections of glucose solutions afford a clinically available method for nutrition; the solutions being freshly prepared and sterilized as they are more easily contaminated than ordinary saline. For hypodermoclysis 4 per cent. to 5 per cent. solutions are recommended, as much as 2 to 3 litres, representing from 90 to 210 grams of glucose, being given in twenty-four hours according to symptoms. For proctoclyis 12 to 16 oz. of a 5 per cent. solution dissolved in ordinary tap water may be given during the operation, and its administration continued by the Murphy drip method after the patient is back in bed. By either or both of these methods from 300 to 500 calories a day may be given without discomfort, and though the quantity is not sufficient to supply all the total energy requirement, it is of importance in the prevention of excessive nitrogen waste. Notes of three cases are given in which glucose solutions were administered as a routine without regard to urinary findings or symptoms of acidosis, being used as a prophylactic against shock in cases where saline solution would be ordinarily used. When acidosis is suspected and acetone is present the administration of alkalis or of carbohydrates is indicated, sodium bicarbonate being given until the urine becomes neutral, often as much as 50 to 100 grams being needed before this

takes place. To summarize: Glucose solution should be given (1) as a routine after every operation where post-anaesthetic shock is to be feared; (3) as a routine where post-operative oral feeding may be difficult or insufficient for considerable time; and (3) either before or after operation as an emergency measure for the relief of an existing or threatened acidosis.—The *British Medical Journal*, October 23, 1915.

The Function of the Saliva.

Mr. L. A. I. Maxwell, writing from the Physiological Laboratory of Melbourne University, suggests that colloidal starch solutions might adsorb pepsin in the same ways as charcoal and other powders, and hence inhibit the activity of this enzyme. On the other hand, saliva by hydrolysing starch might prevent this adsorption of pepsin by the colloidal carbohydrate, serving thus as a material aid to digestion. Mr. Maxwell's experiments support this view. He finds that peptic digestion is delayed in the presence of colloidal starch solutions through absorption of the enzyme. There is a stage in the disruption of the starch molecule at which the absorption of pepsin is lost, this occurring between the amylo-dextrin and erythro-dextrin stage. Unboiled starch does not hinder the action of pepsin, which is a significant fact in connexion with the dietetics of herbivora. Further, cooked farinaceous foods, as rice, potato, bread, porridge, inhibit peptic digestion if not first subjected to salivary digestion. It seems clear, therefore, that ptyalin in human saliva plays a considerable part in aiding gastric digestion by hydrolysing colloidal starch, which otherwise would adsorb pepsin. These observations are of great interest, as they may likely enough throw light on the value of active malt extracts and malted foods in dietetics, and particularly in the feeding of infants. It certainly seems an odd physiological fact, as Mr. Maxwell points out, that an enzyme should be secreted in the mouth only to be presently destroyed in the stomach, while, again, a more efficient diastase is present in the secretion of the pancreas. The experiments, too, would appear to afford further evidence of the undesirability of unaltered starch being present in the infant's diet.—*The Lancet*, October 30, 1915.

Lithotomy and Lithotrity in India.

The rival claims of the two methods of removing stones from the urinary bladder have often been hotly contested, but the merits of lithotrity have been on the whole almost universally recognised. If there is one country in the world where the battle may most readily be decided it is India, where the number of cases of stone presenting themselves for operation is immensely larger than in any other part of the world, and therefore the opinions of those who have had much experience in that field may be considered authoritative. Colonel D. F. Keegan, I.M.S., may be regarded as the protagonist in the introduction of lithotrity into India, and the success with which he met in his operations in that country has done much to support the value in which this operation is held. In a recent issue of the *Indian Medical Gazette* Colonel Keegan has published a paper on the subject, in which he points out that lithotomy is still extensively performed in India and that the mortality from it is far higher than that resulting from lithotrity or litholapaxy as he prefers to call it, and he suggests by statistics that lithotrity "is a far more successful surgical procedure in dealing with stone in the bladder than any form of cutting operation." Yet he finds that many surgeons living in the calculous districts of India persist in performing lithotomy. He finds the explanation in the fact that they have not learned lithotrity, and he urges that "all surgeons appointed to the medical charge of a civil station in a district of India where stone in the bladder is a common complaint, should be sent for a short time to learn the art of crushing vesical calculi under the direct superintendence and guidance of an expert." There is much to be said for such a regulation, for it is acknowledged now that, except in the few cases unfitted for this operation, the results from lithotrity are superior in the speed of recovery, and especially in the rate of mortality, to those obtained after the operation of lithotomy.—*The Lancet*, October 30, 1915.

Curiosities and defects of Sight.

In a lecture delivered to working men and working women at the Manchester meeting of the British Association last month, Professor Stirling gave a most interesting account of the eye as an optical instrument. Illustrating his remarks with lantern slides of experiments and by cinematograph films, he described the developmental evolution of the eye, and the pitch of perfection to which it has attained in man. For the purposes of daily life it is indeed a product of singular perfection, and it has been recognised as such from very early days in the history of literature. Professor Stirling described the human eye as a tenfold instrument, and catalogued its separate functions as follows: (1) Microscope, (2) telescope, (3) camera, (4) range finder, (5) photometer, (6) self-adjusting lens, (7) automatic diaphragm, (8) autochrome camera, (9) cinematograph, (10) stereoscope. Little reflection is needed to show that here we have one of Nature's most successful *multum in parvo* instruments. Nearly fifty years ago Helmholtz waxed positively dithyrambic in describing its perfections. "Of all our members," he wrote, "the eye has always been held the choicest gift of Nature, the most marvellous product of her plastic force. Poets and orators have celebrated its praises; philosophers have extolled it as a crowning instance of perfection in an organism; opticians have tried to imitate it as an unsurpassed model. And, indeed, the most enthusiastic admiration of this wonderful organ is only natural when we consider what functions it performs." Such eulogy is well deserved; yet there is another side to the shield, and if it is considered coldly as an optical instrument, the eye has visual defects that cannot be passed over in silence. Here again Helmholtz may be quoted, for he speaks in no uncertain tones: "The eye has every possible defect that can be found in an optical instrument, and even some that are peculiar to itself . . . It is not too much to say that if an optician wanted to sell me an instrument which had all these defects, I should think myself quite justified in blaming his carelessness in the strongest terms and giving him back his instrument." But we live in an imperfect world, and have to put up with compromise when perfection is unattainable. It is in compromise that Helmholtz saw the chief virtues of the human eye considered as an optical instrument; and so he qualifies his severe strictures, quoted above,

by continuing as follows: "Of course I shall not do this with my eyes, and shall be only too glad to keep them as long as I can, defects and all. . . . The eye in itself is not by any means so complete an optical instrument as it at first appears; its extraordinary value depends upon the way in which we use it. Its perfection is practical, not absolute, consisting not in the avoidance of every error, but in the fact that all its defects do not prevent it from rendering us the most important and varied services." In his lecture Professor Stirling described the importance of the care of the eyesight during infancy and school life, the use of spectacles for correcting errors of vision, the nature of colour vision, and the importance of tests for colour-blindness in the selection of those who have to recognize colour signals at night on land and sea. To emphasize the many points he wished to make, he has published a pamphlet containing some hundreds of quotations and some scores of illustrations bearing on the eyes and their uses. Here the reader will find the structure of the eye explained in popular terms, and may see portraits of the chief men of science who have explored the mysteries of its functions, from Descartes to Argyll Robertson. The quotations are drawn from the writings of all ages and many countries, and form a highly instructive series.—*The British Medical Journal*, October 2, 1915.

Diary of Napoleon's Undertaker.

Two years ago (January 11th, 1913, p. 53) we published a lecture by Professor Arthur Keith, in which he sought to show that two specimens in the museum of the Royal College of Surgeons were, as Sir Astley Cooper had alleged, authentic parts of the great Napoleon. Distinguished Napoleonic scholars, such as Lord Rosebery and M. Fremeaux, regard them as spurious because of the strict watch kept over the Emperor's body both during and after the *post-mortem* examination by Antommarchi on May 6th, the day following Napoleon's death. We learn from the Literary Supplement of the *Times* (September 30th, 1915) that Major M. F. Foulds, who is at present in medical charge of the troops stationed in St. Helena, has unearthed the diary of Napoleon's undertaker, Andrew Darling, which he copied and transmitted to Dr. Arnold Chaplin, the leading authority in all that pertains to Napoleon's last and

complex illness. The diary, Dr. Chaplin states, was printed in the *St. Helena Advocate* in 1851, but no copy was known to exist in Europe. Unfortunately, it does not help the historian very much. We find that Dr. Rutledge relieved Dr. Arnott in the watch over the body—thus explaining the discrepancy between the statements of some recorders, who said that watch was kept by the first, while others give only the name of the second. "Dr. Rutledge had orders not to let his heart be taken out of the room, I having received the same orders, the reason of this, as I was informed, was owing to Dr. Antro Marchi *(sic)* wishing to have his stomach in his own possession to take to Europe with him." It is quite evident that Antommarchi—whom Professor Keith suspects of having abstracted the pieces of bowel now in the College of Surgeons—had no scruples about taking *post-mortem* specimens—when it was possible. The undertaker also gives two other items which are of interest. Dr. Burton accused Antommarchi—probably on good grounds—of having stolen the mould of the well-known mask of Napoleon from him, but that he (Dr. Burton) retained a part. One suspected that a complete mould of the head had been taken, Antommarchi taking away the face part and leaving merely the occiput with poor Dr. Burton. From the diary just published we find that such was the case; a mould of the whole head was taken. We believe that the occipital part—which was in Dr. Burton's possession—is now lost. It is said to have been broken by him in a moment of irritation after he had failed to compel Antommarchi to restore the cast of the face. As plaster-of-Paris was not to be got in St. Helena at the time, Antommarchi attempted to make a mould with the powder obtained by grinding down some small images. This attempt failed for the reason mentioned by Dr. Chaplin in his interesting letter published in this issue (p. 552). The cast was actually made by Dr. Burton with powder prepared from a gypsum rock native to St. Helena. St. Helena records are notoriously contradictory, and Mr. Darling's diary forms no exception.—*British Medical Journal*, October 9, 1915.

Fasting treatment for Diabetes.

The daily press, misinformed and optimistic as ever in matters of medical and surgical treatment, has quite recently announced a "reported cure for diabetes," alleged, as is so often the case in such matters, to have emanated from America. The cure is said to be based on "bicarbonate of sodium with a small amount of salt." It is added that "in extreme cases the treatment is given hypodermically." This, we take it, is a reference to an interesting article on "prolonged fasting in diabetes" recently published in America by Dr. F. M. Allen. As the result of the treatment of 44 patients suffering from severe forms of diabetes mellitus at the Rockefeller Hospital in New York, Dr. Allen is able to speak highly of the treatment of the condition by prolonged periods of fasting. Fasting is not a new thing in the cure of diabetes, having been recommended empirically by many writers in succession, from Nannyn to Guelpa. In the present instance, however, its utility was foreshadowed by certain experiments upon animals, and its application to man was based directly on these experiments. Dr. Allen's experience indicates that the glycosuria in cases of even the severest type of diabetes may with advantage be cleared up by one initial fast, lasting if necessary, as long as eight or ten days. In one instance it was found that a diabetic patient's total metabolism was 8 per cent. above normal, and that no sugar was being burned in the tissues at all. After a nine days' fast the total metabolism had fallen to 20 per cent. below normal, and the respiratory quotient showed that the sugar formed from the tissue protein was being burned. This shows the great improvement that may take place in a weakened metabolic function—namely, the utilization of sugar—when a course of complete rest is prescribed to that function. When the fast is over, the next step is to introduce protein, fat, and carbohydrate into the diet in such a way as to maintain freedom from glycosuria and urinary acidosis, a matter of careful experimentation in each patient. The reappearance of glycosuria is an indication for a day of fasting; indeed, routine fast days once a week may be prescribed with advantage, even in the absence of glycosuria. Two main principles are enunciated by Dr. Allen here: the patient should be kept permanently below weight, and the fat in the diet should be restricted. Both are new ideas, comparatively speaking, in the dietary

treatment of diabetes; both are designed to minimize the strain placed on the weakened pancreatic function by the taking of food. Both from his own experience and from that of other medical practitioners who have adopted this starvation treatment in diabetes, Dr. Allen is able to speak very highly of the new method. Its immediate results are most encouraging. As for the remote results a longer experience is naturally required before any authoritative statement can be made; the cure is yet in its infancy. It removes glycosuria and acidosis more quickly and more surely than has been the practice heretofore, and it is common knowledge that diabetic patients do better when they are allowed to continue. Dr. Allen gives no specific indications as to the particular articles of diet given when the fasting is over, or their quantities; these details are to be stated in a later publication. No mention is made of the administration of either "bicarbonate of sodium" or "small quantities of salt" in the treatment, whether by the mouth or hypodermically, in the American journal. But it is clear that the fasting treatment of diabetes has a rational experimental basis, and its further exposition and developments will be awaited with interest.—The *British Medical Journal*, October 23, 1915.

The Forceps in the Nineteenth Century.

Arluck and Girsdansky have issued a report on the indications and contraindications of the obstetric forceps, based on six thousand cases at the Jewish Maternity Hospital, New York. Since the introduction of pituitrin in 1909 the authors have been able to dispense with forceps in a large majority of cases. It is not a panacea, and the authors limit its use to cases where the cervix is dilated or dilatable, the presenting part well engaged, the bony outlet normal, and the fetal heart sounds audible. It acts best in dystocia due to dry labour, and posterior or parietal positions where no disproportion exists. The total percentage of forceps cases at the hospital was 5·3, or 334 out of 6,083 labours—a very low rate, but the patients as a rule were not pampered, and hence there were few "forceps of convenience" cases. The high forceps (32 cases) have been practically eliminated as an operative procedure, thereby materially decreasing the infant mortality. Caesarean section and pubiotomy have proved admirable substitutes, and with more experience and improved technique are

giving better results. There were 63 Caesarean sections, the mortality 6·3, per cent., and 15 pubiotomies with a mortality of 6·6, per cent. In the hospital series of "twilight cases," introduced in 1914, the use of forceps was markedly increased. Induction of labour, the most rational procedure in the treatment of contracted pelvis, offering on the whole of best results to mother and child, was always substituted if possible for the use of the high forceps, when the case could be seen early. Krause's method (the passage of a bougie or large rectal catheter, unkinked, between the posterior uterine wall and the membranes, which must not be ruptured) was usually practised. But hospital patients are not careful about coming back punctually to the date recommended to them after a careful examinations, therefore statistics taken from public institutions are, excepting as regards technique, of little value to the practitioner.—*The British Medical Journal*, October 23, 1915.

Plague and Rat Destruction

Some interesting facts and figures are given by Dr. H. M. Crake, health officer to the Calcutta municipality, in a report recently issued recommending the abolition of rat destruction. Last year 115,561 rats were destroyed, the average number during the last seven years being about 100,000 per annum. Rats are drowned in disinfectant solution and then incinerated. The annual amount expended during the last few years has been about Rs. 6000. "My reasons," he writes, "for recommending the abolition of rat destruction are (1) the vast majority of rats are caught in a few *dal* godowns which simply swarm with rats—in fact, the supply seems inexhaustible; (2) there is absolutely no relation between the incidence of plague in a given district and the number of rats caught; (3) there seems no doubt that the epidemic of plague is disappearing spontaneously. In 1912 there were 1831 deaths; in 1913, only 852. In 1914 a further reduction to 442 deaths occurred, whilst this year there have been only 190. Last year the city was free from plague for three months, and this year there seems every prospect of it remaining free from the epidemic of plague for six months or more." After some discussion the committee decided that rat destruction should be continued, but that the health officer should be asked to formulate a more effective plan of dealing with the problem.—*The Lancet*, October 23, 1915.

Gleanings from Contemporary Literature.

HEADACHES: SOME POINTS IN THEIR ETIOLOGY AND TREATMENT.

By PERCY HALL-SMITH, M.A., M.D., B.C., Cantab.

I suppose headache is one of the commonest symptoms met with in general practice, and the various conditions with which it is associated are exceedingly numerous. Moreover, the cause of its manifestation is often a problem of peculiar difficulty. Nevertheless, the correct diagnosis of the cause of this symptom is of the greatest importance, as it may be the first indication calling attention to the existence of grave organic disease.

It is unfortunately only too frequent that treatment of a headache as such precedes a careful enquiry into its cause, and an increased risk may thereby be incurred by the patient through failure to recognize some serious underlying conditions. This is a matter to which homœopaths should pay particular attention, as their method of cure tends towards the interpretation of symptoms in terms of curative drugs rather than of the underlying disease.

It is difficult to explain the mode of production of the pain known as headache. The brain substance itself is insensible to mechanical stimulation, but the meninges are supplied with sensory nerves, and abnormal stimuli received therefrom reach the cortex and give rise to the impression of pain. The pain caused by abnormal states of the intracranial blood-vessels is more difficult to explain, as it is uncertain if they have any sensory nerve supply. Probably the headache produced by increased vascular tension is a pressure effect acting on the brain as a whole, or on its coverings, the meninges.

The pain is always perceived in the sensorium, but the place of its production is undoubtedly very variable, *e.g.*, it may arise (1) from a condition of the nerve cells of the sensorium or of the blood-vessels supplying them; (2) through irritation of a nerve at any part of its course, usually by pressure; or (3) more commonly in the nerve-endings, not only in the neighbourhood of the head, such as the scalp, meninges, or organs of special sense, but in more distant parts of the body, such as the gastro-intestinal tract and the organs of reproduction, especially in women.

The causes of headache have usually been divided into organic and functional. This is rather a hard and fast classification, and it is probable that with improved methods and more exact knowledge, the class of functional disorders, with the exception perhaps of those due to reflex irritation, if such be included, will gradually disappear. An important factor in the production of headache is undoubtedly the quality of the sentient mechanism of the individual. One constantly meets those who will say that they have never had a headache in their lives. On the other hand, in some individuals, the slightest elevation of temperature will be associated with headache, whereas in others quite a high temperature will cause no pain. Headache is more frequent in people of nervous temperament, and in consequence women are more liable to this form of suffering than men. As regards age, headaches tend to recur with diminishing frequency and severity as life advances, probably due to the general blunting of the sensibility, both of nerve-centres and end-organs, which gradually takes place. Often more than one cause may be at work in the same case, *e.g.*, in fevers there may be present the factor not only of hyperæmia but of toxæmia.

In diagnosing the causes of headache, the age of the patient should first be considered, and the closest attention should be paid to the character, situation, and time occurrence of the pain, as well as to the accompanying symptoms. Homœopaths are especially trained to an enquiry of this nature, but it is more often approached from a standpoint of treatment only, in the search for the indicated remedy, than for the sake of diagnosis. The ideal is undoubtedly to utilize this method of interrogation of the patient, not only to discover the curative remedy, but to unravel the cause of the disease. It will thus be possible to interpret symptoms, not only in terms of drugs, but also in terms of disease causation, and as a result correlate and unify the apparently divergent methods of homœopathic prescribing, viz., that based more particularly on pathology on the one hand, and on symptoms pure and simple on the other. Any such means of correlating symptoms would be of inestimable value in consolidating and unifying the practice of homœopathy, particularly in respect of organic disease, as the drug selected would be chosen, not only from a survey of the symptoms as such, but from the reference of those symptoms to the underlying pathological condition and the known

action of the remedy in causing that condition. For example, as regards the character of the pain, whether throbbing, paroxysmal, or affected by movement or position, it is known that headaches associated with alimentary disturbance and raised blood-pressure are often throbbing in character, are relieved by rest in the recumbent position, and are increased on movement, whereas severe paroxysmal attacks would suggest a neuralgia. In the former condition, we should probably all think of bryonia, which, in addition to satisfying the symptoms as such, we know has a distinct action on the alimentary system, and from my own personal experience has proved efficacious in relieving high blood-pressure.

As regards the situation of the pain, it may be frontal, vertical, occipital, or unilateral, and in organic disease of the cerebrum or cerebellum may be an important indication and aid in localizing the position of the lesion. In renal disease, the headache associated with chronic uræmia is usually frontal, but may be occipital. It is vertical in the "bilious" headache and in constipation. It may be unilateral in migraine, tumour, abscess, otitis media, or occipital in cerebellar disease. Occipital headache may also be simulated by myalgia in the muscles and tendons of the nape of the neck, a condition more common than is usually recognized.

The time of occurrence is again of importance in arriving at a diagnosis of the cause. Headache due to toxic or functional causes is relieved by rest in a horizontal position, whereas that associated with organic disease of the brain or its meninges often persists, or becomes worse at night, and may wake the patient from sleep. Whenever, therefore, the pain in the head disturbs the patient's sleep, there should be grave suspicion that the headache is organic in origin. A headache experienced on rising in the morning is often the result of liver disturbance or constipation, but may be due to an ill-ventilated room, or to slight degrees of combined astigmatism and hypermetropia, or to faulty adjustment of the pillows, which, if piled too high may interfere with the cerebral circulation and produce headache. Again, if the brain circulation is at all sluggish or congested, the sudden assumption of the erect after the recumbent position may result in headache until the circulation has found its equilibrium, a condition which belladonna will often relieve. Persistent morning headache also frequently occurs in chronic nephritis, and in all such cases a careful examination should be made of the patient's urine. Evening headaches are most often due to mental overstrain, or eye-strain, especially if some visual defect be present.

A satisfactory classification of headaches is rather a formidable undertaking. The quondam division of headaches into "organic" and "functional" is not altogether satisfactory in the light of modern knowledge, especially as regards the latter, for undoubtedly, with careful methods, a definite cause can often be ascribed to head pains, which otherwise would be loosely described as "functional." I propose to consider the causes of headache under the following divisions, viz.: (1) Intracranial disease; (2) cranial and pericranial affections; (3) reflex irritation; (4) toxæmia; (5) circulatory disturbances; (6) migraine, and (7) atmospheric conditions.

(1) Intracranial Disease.

Intracranial disease would include the following conditions: Acute and chronic inflammation of the meninges from syphilis, gout, rheumatism, tubercle, chronic renal disease, general paralysis and other forms of insanity. Encephalitis, hydrocephalus, intracranial hæmorrhage, abscess, or tumour. Small hæmorrhages and slowly growing tumors are not usually accompanied by pain. When pain is present, however, it is usually due to increase of intracranial pressure, direct involvement of membranes, or direct implication of the fifth nerve. Head injuries occasionally produce headache for a long time after the injury without there having been an external mark.

(2) Cranial and Pericranial Affections.

Under this heading must be considered any disease which produces pressure on nerve trunks or twigs as they pass through foramina in bone or membrane, such as syphilitic, rheumatic and malignant diseases of bone or pericranium. Other causes would be erysipelas, wens, pediculi, and tight or too heavy head-dress.

(3) Reflex Irritation.

(*a*) *The Eye.*—Muscular and retinal strain in a healthy eye, such as results from a visit to a cinema or other place of entertainment, or from the effect on the retina of glare as from sea or snow. The presence of glaucoma or iritis must be borne in mind, and the ocular tension should always be carefully tested. Errors in the optic mechanism, which produce fatigue, will frequently cause headache, such as errors of refraction, particularly hypermetropia and astigmatism, or from weakness of the ciliary muscle as after diphtheria or in presbyopia. Again, the powers of fixation may be impaired from an excessive or deficient action of the muscles acting on the globe.

(*b*) *The Nose.*—Adenoids are the most common form of nasal disease producing headache, but acute congestion of the frontal or accessory sinuses, particularly after influenza, will often cause severe frontal headache.

(*c*) *The Ear.*—The commonest facters are wax in the meatus, otitis media, and cholosteotoma in the mastoid antrum. Ear disease will often cause pain in other parts of the head rather than in the ear itself.

(*d*) *The Teeth.*—Headache may be traced to the eruption of teeth, particularly of the wisdom teeth, and especially if the jaw is small or the teeth impacted. Caries is also a factor, especially in teeth of the upper jaw.

(*e*) *The Digestive Tract.*—Headaches may come on after or be aggravated by the taking of food. Dilatation of the stomach causes headache probably through the production of ptomaines; the same may be said of an overloaded rectum and colon, though hæmorrhoids will produce it by reflex irritation. Tape-worms should also be borne in mind as a possible cause.

(*f*) *The Reproductive System.*—There is no doubt that congestion and displacements of the uterus sometimes give rise to headache, especially at the time of puberty and the climacteric.

(*g*) *Spinal irritation* is a condition that will commonly give rise to headaches reflexly It is a factor to which much too little attention has been paid by the medical profession, whose education regarding the derangements of the spinal muscles and vertebræ has unfortunately been somewhat neglected. I am quite satisfied that slight misplacements of vertebræ either as the results of accident or from impaired muscular action or nutrition, as well as unhealthy conditions of the spinal muscles themselves, lie at the bottom of a vast amount of chronic ill-health. Thus the pressure of misplaced vertebræ or congested spinal muscles on delicate nerve-endings, or even on the spinal nerves themselves, more particularly in the neck, will often excite very severe headache reflexly, albeit the primary cause of the muscular congestion is mainly toxic. I have several times succeeded in relieving such headacaes by manipulation of the cervical spine and its muscles, and am quite convinced that there is a vast field of useful work and study in this connection.

(4) Toxæmia.

Toxæmic conditions are undoubtedly very commonly responsible for severe headache. They may be divided into two groups, in one

of which the toxic influence is acquired from without, or is exogenous, the other in which the disturbing element is produced within the body, or is endogenous.

Those of exogenous origin are such factors as foul air or close, ill-ventilated rooms, poisonous gases, such as CO_2, CO, chloroform, ether, &c., drugs, *e.g.*, quinine, opium, lead poisoning, tobacco, and alcohol.

Those of endogenous origin are such conditions as uræmia, cholæmia, gout, diabetes, gastro-intestinal disturbances, dyspepsia, constipation, Toxœmias, specific fevers, suppuration, &c.

Uræmia stands out as one of the most important causes of the headache which results from substances produced within the body, and as it may be met with in all degrees of severity, the possibility of this cause should be borne in mind when dealing with a persistent headache, and such manifestations as vomiting, drowsiness, dyspnœa, affection of vision and retinal changes should be looked for.

Errors of diet are responsible for many headaches of toxic origin, and especially the consumption in excess of such foods as contain or break down into purin bodies, which through not being sufficiently dent with by the liver, get into the circulation and produce what is sometimes called uric acidæmia. It must be remembered, however, that this condition is not necessarily or entirely due to excessive consumption of such foods, but as often as not to insufficient elimination of the end-products of proteid metabolism, and hence the importance of ensuring thorough elimination of such materials not only by satisfactory bowel action but by attention to good skin activity. Again, the production of ptomaines or other toxic substances from digestive disturbances, and particularly as a result of sluggish activity of the colon and constipation, to which so large a section of mankind is prone, is undoubtedly a very common cause of chronic ill-health, a common symptom of which is headache. It should be remembered that the liver, the largest gland in the body, stands at the portal between digestion and circulation, and in deranged conditions is liable to allow the passage of ptomaines. Moreover, the liver may be deranged without necessarily giving rise to prominent digestive symptoms.

(5) Circulatory Disturbances.

Headache resulting from circulatory disturbance may be divided into those due to hyperæmic conditions and those associated with anæmia and nervous debility. Under hyperæmia must be included

such conditions as acute congestion in encephalitis, plethora, menstrual suppression, increased action of the heart, violent exertion, and mental excitement. We must also include passive congestion from certain diseases of the circulation and pressure of tumours on great veins leading from the head.

Under the heading of anæmia is included chlorosis and the various diseases which produce general anæmia and thereby debility of nerve-centres. Other causes are over-work, prolonged lactation, exhaustion, mental anxiety, hysteria and neurasthenia. High blood-pressure is often a cause of headache, usually of a throbbing character and accompanied by a sense of fulness in the head. It tends to come on towards evening and after meals. Headache associated with low blood-pressure or cerebral anæmia is usually found in some forms of morbis cordis with feeble heart action, and is relieved by rest in the horizontal position. Venous conditions may cause headache. Such usually met with in heart disease with failing compensation.

(6) Migraine.

Migraine or megrim is a paroxysmal form of headache allied to epilepsy and other nervestorm diseases. It requires rather special notice, as it differs materially from other forms of headache. It is usually hereditary, occurring in families of nervous constitution and particularly in those who are intellectual and studious. A family history of epilepsy, chorea, insanity and nerve weakness is often present. It usually commences about puberty and diminishes in frequency and severity as age advances, being rarely found in old age. About the menopause it may become temporarily aggravated. A marked characteristic is the periodicity of the attacks, either once a week or at longer intervals, while in women it frequently occurs at the menstrual period or just before it. An attack may last from a few hours to several days, usually about one day. Prodromal symptoms frequently occur, such as malaise, sleepiness, constipation, or dimness of vision, flashes of light, hemianopia, &c. The attack generally commences in the early morning, either on awaking or soon after with throbbing pain in one or both temples and pallor or flushing of the face. In bad attacks the patient must rest in a darkened room, the pain being continuous and often agonizing. Nausea and vomiting occur and are often followed by an amelioration of the symptoms, but it may recur and become bilious. According to Haig, the excretion of uric acid during the prodromal period is diminished and during the attack is increased

beyond the normal. There are many theories as to its causation. Haig believes uric acidæmia is to blame; some locate the cause in the nervous system, some in the circulation, while others consider the digestive system is at fault. Uric acidæmia only produces migraine in cases with a peculiar nervous system. It is more reasonable to regard the circulatory phenomena, sickness, &c., as incidents in the attack rather than the disease itself; and it is probable that in migraine there are at least three factors concerned, viz.: (1) a peculiar constitutional condition of the nerve-centres; (2) a morbid or toxic condition of the blood, and (3) some peripheral irritation which acts as an exciting cause, and includes such factors as overwork, excitement, worry, powerful impressions on the special senses, optical errors, or digestive derangements.

(7) Atmospheric Conditions.

Atmosheric conditions may be responsible for a condition of headache, the most common being electrical disturbances, as before or during a thunderstorm, or it may occur as a result of exposure to the hot sun, as in heat-stroke.

Treatment.

The discovery of the cause will often indicate the means of cure. No pains should therefore be neglected to arrive at a correct diagnosis of the cause and of removing it where possible. For example, if the nose be at fault, the diseased condition must be treated; if an error of refraction be to blame, it must be corrected by the necessary glasses. Also conditions of the teeth, such as caries or impaction, should not be overlooked, and if present appropriately treated. In every case of severe headache, the patient should be put to rest and all sources of peripheral irritation removed. In some fevers and inflammatory conditions it may be necessary to remove the hair and apply Leiter's coils or ice-bags intermittently. Headache from congestion of the frontal sinuses will often be relieved by the frequent application of very hot compresses to the forehead. In simple congestive headache, the simple expedient of keeping the head high and putting the feet in a mustard foot-bath will generally suffice. In nervous debility, in addition to the medicinal treatment, diminution of work is necessary, and in school children it will be advisable to curtail the amount of home work. In severe cases, a complete change of air and scene with open-air exercise and nourishing diet may be required. Where headaches are traced to an intestinal toxæmia, so often associated with a loaded colon, consti-

pation, or colitis, local treatment in the form of colonic irrigation is a very useful and often necessary accessory to drug treatment. It is best carried out by passing a long rubber tube similar to a stomach tube as far up the colon as possible, at the same time injecting up to four or even six pints of warm water. This may be repeated from one to three times continuously, according to the state of the contents of the colon, it being preferable that the last washing should come away clear. Needless to say, this is not a process to be repeated too frequently, as it is somewhat exhausting although the after-effects are most beneficial. It is astonishing what a quantity of stale fæcal matter will be removed by this means, even when the daily action of the bowels has been fairly normal and regular; how much more necessary therefore is such a treatment in cases of severe constipation, where the toxins generated from retained fæcal matter are among the most common causes of headache. I verily believe that the majority of mankind would benefit from an occasional treatment of this nature. But I am digressing.

Dietetic Treatment.—In certain types of headache, particularly those of rheumatic or gouty origin, a carefully regulated diet will be of great assistance to the usual medicinal treatment. Where there is hyperacidity of the tissues or acidosis, a condition so common in rheumatic and gouty conditions, a partial or even complete vegetarian regime will be of great benefit. In any case red meat should be avoided and fish and chicken substituted, or better still all foods of animal origin discarded, and even certain vegetables, such as peas, beans and lentils, are better avoided, as these also contain purin bodies. The necessary proteid should be obtained from grains and cereals, eggs, cheese, and nuts. Wheat is especially rich in protein, but must, of course, be given as wholemeal bread, or one of the many excellent cereal preparations from the whole grain now obtainable. In headaches resulting from hyperacidity, all sources of fermentation should be guarded against. Sugar should be eliminated from the dietary as far as possible and in any case is better not taken with fruit. Furthermore, fruit and vegetables should not both be taken at the same meal. Where headaches are associated with nervous debility, however, no such restrictions in diet are necessary; in fact, the more nutritious and liberal the fare the better will be the progress of the patient.

Medicinal Treatment.—I must now pass on to the most important and by far the most adequate means of treating headaches, and the method which is undoubtedly of the greatest interest to those here

present, viz., by means of the indicated remedy selected according to the law of similars enunciated by Samuel Hahnemann. It is in these so-called minor ills, among which headache is usually classed, that the brilliance and power of homœopathy has so often shown itself. Whereas such drugs as our colleagues of the orthodox school are in the habit of prescribing for headache are mostly palliative in effect, I think that homœopathy may rightly claim that, given a careful selection of the remedy, the results are infinitely more beneficial and in the majority of cases definitely curative. The number of drugs in the homœopathic pharmacopœia that may be indicated in the various forms of headache is so great that the best I can hope to do in this paper is to give the leading indications for the most important ones. Although it would be most interesting to work out the relation between the symptoms resulting from the proving of each remedy with the various pathological conditions underlying headache, such a work is much too comprehensive to come within the scope of a general paper such as this, and I therefore propose simply to consider and compare the proved symptoms of each remedy as such, and make but a scanty reference to their pathological basis; for, after all, the provings of our drugs are the only sure foundation upon which we as homœopaths can build up really scientific work, in our application of the law of similars.

Belladonna is one of the first remedies in headache and is usually associated with those of congestive type. Its keynote is "throbbing," and the patient must sit up, can bear neither light, draught, or noise, and is particularly aggravated by jarring. The face is flushed, pupils dilated, the whites of the eyes become inflamed, and there may be jerking of limbs or twitching of individual muscles. It is a picture of cerebral irritation. Belladonna runs closely alongside sanguinaria, but the latter is more useful in the gastric form of headache. In belladonna you almost always find cold feet with the hot head, and the patient is not relieved by lying down, while sanguinaria has relief from lying down, and the symptom of the pain coming over the head from the occiput is more marked than in belladonna. Glonoin is about the only remedy with throbbing so marked as in belladonna, but its effect is more transitory, it is more relieved by motion, while the face is less flushed, and there is an aggravation from bending the head backwards. These points will help to distinguish the two remedies.

Bryonia is useful in catarrhal and rheumatic headaches or those occurring in the course of acute fevers; the characteristic symptom

of aggravation from motion is the keynote to the drug; even a movement of the eye-balls increases the pain, which begins either in the occiput, or in the forehead and goes back to the occiput. It is worse in the morning after anger or from stooping, and is often excited by exposure to heat, and especially moist heat. Its nearest remedy is gelsemium, which has the same soreness of the eyes on moving them. Natrum mur also has aggravation from movement, and in many respects may be considered the chronic remedy of bryonia.

Nux vomica is one of the remedies most often indicated in headache, and is especially associated with that resulting from digestive troubles, constipation, bilious derangement, and the excessive use of alcohol, tobacco and coffee. It suits the gouty and is one of the most useful in migraine. The pain is situated either in the occiput or over one eye, usually the left. The pain generally begins in the morning and increases until night, being accompanied by sour or bitter taste in the mouth, flatulence or retching.

Sanguinaria is most useful in genuine sick headache and gives a typical picture of migraine. The pain begins in the morning in the occiput, comes up over the vertex and settles in the right eye. It increases in severity and is associated with bilious vomiting, which often relieves. The patient cannot bear noise, light, or odours, and is annoyed by the slightest jar, and must lie absolutely quiet in a darkened room. A profuse flow of urine will often relieve the pain, as with gelsemium and silicea.

Iris versicolor is also a most useful remedy in bilious headache which commences with a partial blindness or blurring of vision, like gelsemium. The pains are sharp and throbbing, and vomiting is apt to be copious and extremely sour. The headaches tend to be periodical, recurring especially on Sundays, a similar periodicity being also found in arsenicum. The pain is aggravated by cold air and coughing, but relieved by gentle open-air exercise.

Gelsemium has a headache commencing with blindness, and is especially associated with eye-strain, in which ruta may be compared, when the ocular muscles are at fault. The ache commences in the neck or occiput, and spreading over the vertex, finally settles in the eye as in sanguinaria. It is usually worse in the morning, the patient being unable to think effectively or fix his attention. The pain is relieved by a discharge of pale urine. It corresponds to a condition of passive congestion, and there is great soreness and aching in the eyes.

Cocculus has chiefly an occipital headache extending to the nape of the neck, and is nearly always associated with vertigo and sometimes with head retraction; it should thus be thought of in meningitis. There is often an opening and shutting sensation. The head feels numb, empty, and stupefied, and the pain is accompanied by almost constant nausea. The headaches of cocculus are worse from mental effort and night watching, and are often brought on or aggravated by riding in tramcars or trains.

Cimicifuga is suitable to the neuralgic form of headaches, especially those of students or the nervously exhausted. The patient feels he will go crazy and the pains are sharp and lancinating in and about the eyes, and shooting to the top of the head. There is a sensation of undulation in the brain and there may be a sharp pain from the occiput through to the frontal region, as if a bolt were driven through the head. As with sepia, its headaches are often reflex from uterine irritation.

Spigelia has a purely neuralgic headache, having a similar relation to the left side of the head as sanguinaria has to the right. The pains settle over or in the left eye, which often feels too large for the orbit; they tend to follow the sun, getting gradually worse towards noon and thereafter gradually subsiding. Noise and jarring aggravate the pain as in the case of belladonna and sanguinaria.

Let us now consider some of the more deeply acting remedies in their relation to headaches

Sepia headaches are nervous, bilious, periodic, and violent, and involve the whole head. They are relieved by violent motion and by sleep, but they are aggravated by ordinary motion, jarring, stooping, or coughing. The general symptoms are of the greatest importance in distinguishing between the more deeply acting remedies.

Natrum mur. has a headache as if little hammers were beating in the skull, and aggravated from moving the head and eyes. It is worse from any use of the mind The pain is at its worst about 10 o'clock in the morning, being often preceded by partial blindness as under iris and gelsemium, or other optical phenomena such as flashes of light or hemiopia. The tongue is dry and often mapped, and there is great thirst, the patient being depressed, aggravated by heat and consolation and desirous of being alone. The pulse is almost always intermittent, which helps to distinguish it from sepia.

The headache of natrum mur. resembles that of arsenicum and china, neither of which, however, have a dry tongue and intermittent pulse.

Silicea is characterized by a headache which is so sensitive to a draught of air that the patient likes to wrap the head up in something warm, a useful keynote which I have often had the opportunity of verifying. It is a nervous headache brought on by excessive mental exertion and made worse by noise, motion and jarring. The pain is usually most severe over the right eye, coming up from the back of the head. Argentum nit likes the head tied up tightly, but that is to get relief from pressure rather than from heat.

Phosphorus is a most valuable remedy in chronic headache, but should be prescribed more particularly on its general symptoms. It has a headache attended with increased sensitiveness to odours, the sense of smell being very acute, especially to flowers. The headaches are congestive and throbbing, being relieved by cold, but worse from heat, lying down, motion, noise, and light. Warm food and warm surroundings will increase the pain, and the headaches are often attended or preceded by hunger. There is also a great soreness of the scalp, as if the hair were pulled.

I have outlined above only a few of the many remedies suitable to headaches, but I believe I have included the most important ones. Let me say, however, that to achive the most brilliant results, the general symptoms of the patient should be most carefully ascertained and studied, as these will often suggest a remedy which will cure his headache, although one might not have thought of it for a headache pure and simple, e.g., a lady, aged 45, consulted me recently complaining that she had suffered from headaches all her life, which would recur two or three times a month, accompanied by vomiting, and incapacitate her for at least twenty-four hours. They had been distinctly worse since the menopause, which occurred six months previously. The headaches always commenced on first waking in the morning, being accompanied by the following symptoms: chilly feelings all over the body but great flushing of the face, throbbing pain behind the eyes, worse in a close atmosphere, and palpitation and "creeps" at night. During the headache, she must loosen all her clothing, as she could stand nothing tight about her. In addition to the above symptoms, she was very talkative and her face was deep red almost to purple. This is a typical picture of lachesis,

one dose of which in the 200th potency I gave her, followed by placebo. A single dose of lachesis 200 has been given three times since, with the result that the headaches have gradually diminished in frequency and severity, and she has now been free from any such attack for five weeks, besides feeling infinitely better in her general health.

This example shows what excellent results can be obtained in the treatment of headaches by paying chief attention to the general symptoms of the patient, rather than by considering merely the local head symptoms. In fact, in my experience, the best results are obtained, at all events in chronic headaches, by occasional doses of the indicated remedy, selected chiefly on the general symptoms of the patient, and the modalities of the pain, and given in a moderately high potency such as the 30 or 200.

In conclusion, I would urge that homœopathy has nothing to fear from any other known form of treatment of headaches, and if great care and patience are devoted to the selection of the most similar remedy, the results will often be startling, or, to say the least, brilliant.—*The British Homœopathic Journal*, October, 1915.

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THE RELATION OF DRUGS USED IN HOMŒOPATHIC PRACTICE TO INTERNAL SECRETIONS.

By THOMAS G. STONHAM, M.D. Lond.

MR. PRESIDENT, LADIES, AND GENTLEMEN.—When some months ago I promised to read at our Annual Assembly a paper on the above subject I felt that I was not acting with quite my usual caution, and the further I proceeded in my attempts to render myself competent to fulfil that promise the more conscious I became of my rashness and the more doubtful of my ability to produce anything worthy of your consideration.

The subject of the internal secretions has become rather suddenly prominent during the last two years, and a great deal more is becoming known of their physiological importance. But the treatment of the disorders of the endocrinic glands and the symptoms and diseases arising from their altered secretions has scarcely kept abreast with our increase in the knowledge of their normal functions. There is one exception to this remark, and that is the treatment of disorders due to deficient thyroid secretion by thyroid extract. As our advance in knowledge of the part the thyroid secretion plays in the body economy has progressed so has the number of morbid

conditions known to be due to its default been increased and the administration of some form of thyroid extract as a therapeutic measure been extended. It is not till one's attention has been drawn to the subject that one becomes aware how very commonly patients suffer from a condition of subthyroidism, and how readily the symptoms arising therefrom are removed by the appropriate dose of the deficient secretion; and however aggrieved you may feel that this paper should be inflicted on you, it has at least had this good effect upon myself, that it has compelled me to pay an amount of attention to the subject that I should not otherwise have given to it, and has in consequence enabled me to treat successfully more than one case who I am afraid would otherwise have been unbenefited.

Thyroid extracts are, of course, used by homœopaths in their practice, and their consideration would come under the title of my paper, "The Relation of Drugs Used in Homœopathic Practice to Internal Secretions." The relationship in this case is that of supplying a deficiency. The outcome of that relationship is the direction: Where symptoms are due to deficient thyroid secretions give thyroid gland, or some other preparation containing thyroid secretion. This is so obvious that we need spend no further time over it, and I will say no more concerning the use of thyroid in its crude state. We homœopaths, however, sometimes use thyroidin, or thyroid gland potentized. This is made from a trituration of the fresh thyroid gland of a sheep or calf, or of a liquid extract of the gland, and is frequently carried to the 30th or higher potency. The symptomatology is derived from persons suffering from overdosing by thyroid extract taken for the purpose of reducing obesity. There is an injurious influence on the nervous system, manifested by tremor, tachycardia, optic neuritis, and sometimes prominence of the eyeballs. Insomnia is a frequent symptom, and there are also gastric disturbances and wasting. These are the symptoms of Graves's disease and thyroidin in potency has often been used for this complaint.

I cannot say that I have myself seen much benefit from it, but it, is one of the points on which the experience of the meeting will be valuable. This complaint is not so frequent that the experience of one individual in general practice can be worth much, and perhaps the reason why I am not disposed to value thyroidin highly in Graves's disease is because I have seldom used it.

The functions of the thyroid gland so much over-shadow those of the other endocrinic glands, and their disturbances are so much more common that my paper will necessarily be largely taken up with the relationship of certain drugs to the secretory activity of the thyroids. The others, however, will not be omitted. But it will, I think, be less convenient to approach the subject from the point of view of the glands than from that of the drug, and I will accordingly take seriatim the drugs which seem to have a relationship to any of the glands in question, and will begin with the one of longest repute, viz., belladonna.

Belladonna.

In the September Number, 1910, of the *Journal of the American Institute of Homœopathy*, Dr. Howard P. Bellows published an article showing the parallelism of the symptoms of belladonna with those of exophthalmic goitre. The belladonna symptoms were collated from the exhaustive proving of that drug, made under the auspices of the Ophthalmological, Otological, and Laryngological Society. An onumeration of them will show the close similarity of the drug to the disease. The heart symptoms caused by belladonna in the words given by the provers were "palpitation of the heart on going upstairs"; "drug affects heart, feels short of breath on going upstairs"; "pulse-rate increased, increased in thirty-five provers, decreased in five provers, increased to 100 or over in ten provers"; "pulsation over entire body standing or resting"; "throbbing all through the body"; "temporal arteries beat quite noticeably"; "vessels in head, arms, temples beat strongly"; felt as if his heart would stop beating"; "heart

beats irregularly"; "heart seems to flop as if startled, with pulse soft and irregular"; "pulse unduly quickened and weakened by exercise"; "dicrotism was very pronounced in three provers, as recorded in sphygmographic tracings with very marked primary crest, not sustained, followed by strong dicrotic wave"; "heart seems too large"; "at various times during the day sensation as if heart were enlarged; seemed as if it were actually undergoing dilatation." It will be acknowledged that all these symptoms are found in exophthalmic goitre. The eye symptoms of belladonna show an equally striking similarity. They are: "Sensation as though eyes were too large"; "sensation as though right eye expanded and protruded"; "sensation as though eyes pushed out from their sockets"; "eyes staring"; "eyes look suffused, staring and wild"; "sensation as though eyes were half closed.

It is true no prover exhibited actual proptosis, but the subjective symptoms accompanying proptosis were present. The ophthalmoscopic appearances seen in Graves's disease, viz., tortuous and dilated retinal veins, with, in some instances, visible pulsation of the retinal arteries, are matched by the following belladonna symptoms: "Fundus congested"; "vessels injected"; "veins full"; "veins tortuous"; "vessels of fundus, both sides slightly tortuous"; "vessels of fundus full, and veins tortuous on both sides." The same similarity exists in the general symptoms, which in belladonna are: "Disposition irritable"; "very irritable, and made nervous on slight provocation"; "sensitive to noise which irritates nerves"; "inclined to cry from irritability"; "great depression without sufficient cause"; "cannot keep mind on one subject"; "markedly forgetful, starts to tell a thing and forgets particulars"; "felt hysterical"; "globus hystericus"; "frightened feeling"; "distinct, and often terrifying hallucinations"; "delirious, talks wildly, eyes look staring and wild"; mania may occur both in Graves' disease and in belladonna poisoning; 'restlessness, constantly changing position"; "cannot sleep for restlessness"; "sensation of trembling in the hands, increased by

anything exciting"; "marked trembling of hands"; "trembling of hands"; "trembling in limbs"; "cramps and spasms in various parts of the body"; "twitchings in various parts of the body, disturbing sleep"; "twitching and jerking in individual muscles, especially in legs"; "in walking, limbs feel shaky"; "knees would give out with a jerk in walking"; "dizziness"; "ringing and buzzing in the ears"; "skin hot, dry, and red"; "face flushed"; "dermographia"; "sensation of burning heat all over the body"; "nose bleeds"; "shortness of breath"; "feeling of suffocation"; "breathing oppressed as if from asthma"; "increased thirst"; diarrhœa and vomiting were very frequent symptoms in the provers of belladonna, as they also are of the symptomatology of Graves's disease, and transitory albuminuria occurs in both.

This is a long list of similar symptoms and one would expect from it that belladonna would be a favourite remedy with homœopaths for Graves's disease, as, indeed, it has been from the time it was recognized as a clinical entity. One of the earliest recorded cases is that of Dr. Joseph Kidd, related in the *British Journal of Homœopathy* (vol. xxv, p. 187): "Miss E., aged 25, lymphatic, nervous temperament, of a highly hysterical disposition. Some months after returning from Paris, where she spent the winter, noticed a soft swelling of the neck; soon afterwards her eyeballs began to look distended and projecting, gradually she suffered from throbbing headache and vertigo, and sense of fulness and beating in the eyes and head. She consulted first her family doctor and afterwards Sir B. Brodie, who prescribed iodide of potassium. No relief being obtained she consulted Dr. C. J. B. Williams, who prescribed iodide of iron, which made her worse as it increased the throbbing and headache. In despair she abandoned all treatment, but continuing to suffer most severely came to consult me in the winter of 1858. Recollecting Dr. Graves's admirable description of exophthalmic goitre, I at once recognized the case as not ordinary goitre but vascular enlargement of the thyroid. With the stethoscope I heard a soft vesicular or blowing sound all over

the swelling. The distended prominent eyeballs seemed ready to push out of their sockets. Every symptom seemed to me to correspond to belladonna, which I prescribed in the 1x dilution, five drops to be taken three times a day. The effect was immediate and most satisfactory. It at once relieved the throbbing of the eyes and the headache; little by little the distended appearance of the eyes lessened and the swelling of the neck became smaller. After five or six weeks' use of the belladonna she was perfectly relieved from all distress; the neck became reduced to its natural size, but the eyes ever since have remained rather prominent, although all other symptoms of the disease were permanently cured." Unfortunately, Dr. Kidd does not mention what we should regard as the most important symptom, the tachycardia, but there can be little doubt that the case was one of Graves's disease. But for all its close similarity to exophthalmic goitre belladonna is in nowise a specific for the disease and one is often disappointed with it. There is no proof that it has any direct influence on the thyroid secretion, and most of the symptoms which so much resemble those of Graves's disease seem to be due to its action on the nervous system, cerebrospinal and sympathetic.

It is interesting to notice the similar action of belladonna and the thyroid secretion in another sphere, viz., on the bladder. Thyroid gland has both caused and cured enuresis, and belladonna is one of our principal remedies for that complaint. Then one may just mention that ablation of the parathyroids will cause tetany, and belladonna is of value in the allied condition displayed in tetanus.

Lycopus virginicus, or Bugle-weed.

This drug exhibits cardiac irritability and palpitation, and some of the more general symptoms present in Graves's disease. The homœopathicity is not very close. It was recommended by Lilienthal for Graves's disease and also by Hughes. Dr. Clarke in his Dictionary relates a case benefited by it.

Iodium.

Iodine is normally found in the thyroid gland, 0·2 per cent. or more being found in the dried gland of the sheep. It seems

to be attached to a protein resembling the nucleo-albumins, thyroglobulin, and the substance so formed is called thyroidine, which contains over 9 per cent. of iodine and is a dark tarry substance obtained by hydrolysis from the thyroid gland. The quantity of iodine present in the thyroid varies with the health of the person and with the time of the year. It is at its lowest ebb during the first four months of the year and is deficient in weakly and debilitated people. It is not known exactly what part iodine plays in the function of the thyroid. It is suggested that albuminoid toxic substances absorbed from the alimentary canal are rendered non-toxic in the thyroid by iodization. It is certain that the thyroid secretion has an antitoxic function, but how far, if at all, this depends on its iodine content is disputable. Sajous considers that the thyroid secretion performs its antitoxic functions by sensitizing the pathogenic organisms, toxic wastes, &c., and so preparing them for hydrolytic digestion. This sensitizing property it owes to its iodine, and this acts by its affinity for the phosphorus always present as nucleo-phosphate in the cells. This is borne out by the fact that iodine and its salts cause excessive elimination of phosphates and phosphoric acid and that thyroid preparations act in the same way. This action of iodine in combination as iodo-thyroidin in eliminating phosphorus is shown by the softening of bones occurring in young cretins from the administration of large doses of thyroid gland, as also by the injurious effects of overdoses on the nervous system and by the rapid reduction of fat caused by them in obese patients. In both the nervous tissue and in fat phosphorus is present in large proportions, and its attraction for iodine leads to its more ready oxidization and elimination.

Iodine is the most potent of all known remedies in the treatment of parenchymatous goitre. In some localities the consumption of waters which contain iodine will prevent the development of endemic goitre. Most goitres when soft and young will be greatly lessened or dispersed by the systematic taking of iodine. The dose recommended by Robert McCarrison is 5 minims of the tincture of iodine combined with 5 gr. of

potassium iodide. This may be gradually increased till the patient is taking three or four times as much. He gives the caution, however, that care must be taken as the indiscriminate use of iodine may precipitate the onset of Graves's disease. The external application of iodine has also been found useful in parenchymatous goitre, either in the form of the tincture or of the biniodide of mercury ointment. The ointment is used in India. The patient is told to rub it well into the neck and then to sit exposed to the sun for one or two hours. There is often a marked reduction in the size of the swelling after one or two applications.

The fact that the indiscriminate use of iodine in the treatment of parenchymatous goitre will sometimes bring on symptoms of Graves's disease suggests the use of iodine in potency for that complaint. Many of the pathogenetic symptoms of iodine correspond to those of the disease. I will mention the mental symptoms, the fear, low spirits, irritability and sensitiveness; the excessive excitability, the symptom "must keep in motion day and night, brain felt as if it were stirred up, felt as if going crazy;" vertigo with throbbing in the head, tremor at the heart, fainting. There are the ocular symptoms "Smarting in the eyes," "Protrusion of the balls," and "trembling of the lids." There is the sense of constriction in the larynx with impeded deglutition. Wasting and emaciation, qualmishness, nausea, vomiting, pulsation in the pit of the stomach, shortness of breath, palpitation, tumultuous action of the heart, rapid pulse with orgasm of the blood and beating in the blood-vessels, subsultus tendinum of hands and feet, chronic arthritic pains, trembling of the limbs, rapid failing of strength, sleeplessness, and the modality Worse in the warm room, better in cold open air.

Notwithstanding this similarity iodine has not played much part in the treatment of exophthalmic goitre. I have not given it often, and have usually been disappointed when I have prescribed it. Perhaps the experience of some here may have been more fortunate.

Iodine has a decided influence on the pancreatic secretion and is a useful remedy in pancreatic diseases, but it does not seem to affect the production of the hormone regulating the glycogenic function of the liver and I have not heard that it is of any service in diabetes.

Iodine acts upon the intestinal glands and probably influences the secretion of the succus entericus, and its ferments enterokinase, erepsin, and sugar-splitting ferments. Its action in this sphere makes it a good homœopathic remedy for enteric fever and for the marasmus of infants. For this last disease there is no surer remedy. A few drops of the 2x or 3x dilution should be given in a little water several times a day. It is disputed, however, whether the succus entericus is a true hormone and can be counted as an internal secretion. If not it does not fall within the title of my paper.

As iodine causes atrophy of the breast and ovaries it must have a depressing effect on the internal secretion of the ovary, and perhaps some of its symptoms are due to that influence. The profuse menses and the menorrhagia caused by iodine may have a relation to some influence exerted by it on the ovarian internal secretion, but this is a subject which my friend, Dr. Neatby, is more competent to deal with than I am. Nor have I anything to say with regard to its possible influence on the testicular secretion.

Calcarea.

The amount of calcium present in the body has a relationship to the functions of the thymus, the thyroid, and the ovaries.

It is found that there is a high excretion of calcium in animals that have had their thymus removed. There is an inability in the tissues to form calcium phosphates and consequently the bones are soft. Thymectomized hens lay eggs without shells. Sajous considers that the diminished number of leucocytes are unable to supply sufficient phosphorus in organic combination, or nucleins, to combine with the calcium of the food to make the calcium phosphate required. However this

may be, there are, when the thymus is absent or deficient dwarfism and rachitis due to deficient formation of calcium phosphate.

With regard to the thyroid, in subthyroidism there is a deficient ability of the system to use calcium, which is shown in children by the development of rickets, and in older persons by many and various functional disturbances, especially of the liver and nervous system. In hyperthyroidism there is an excessive elimination of calcium. Softening of the bones often occurs during the treatment of cretinous children by means of thyroid extract, and decalcification is a prominent feature of Graves's disease in which there is an excessive elimination of calcium in both the urine and fæces. Leonard Williams, who is not enthusiastic about the treatment of Graves's disease, says, in the January number of the *Practitioner*, "I have often thought that patients with exophthalmic goitre have shown very definite improvement after taking chloride of calcium (10 gr. per diem)." This would, if assimilated, make up for the decalcification.

Overdosing with thyroid extract has caused tetany through producing excessive decalcification and thereby removing from the nervous tissues the calcium essential for their stable function. Calcium salts have a sedative influence on nerve tissues and are valuable in tetany. It is well known that removal of the parathyroids causes tetany, and MacCallum's observations appear to show that the parathyroid secretion controls in some way the distribution of calcium in the body; when this secretion is deficient the tissues lose some of their calcium. In this as in other ways the functions of the thyroid and the parathyroids are difficult to separate.

Calcium salts are as valuable in hystero-epilepsy as in tetany. Hystero-epilepsy is also caused by the system being depleted of lime salts, but in this case the depletion is probably due to disorder of the ovarian secretion which resembles the thyroid secretion in causing excessive elimination of calcium. Removal of the ovaries lessens the excretion of calcium, and for this reason their ablation is performed for mollities ossium. We

should expect from the important *role* that calcium plays in the functions of the thyroid and ovaries that there should be a homœopathic relation between the symptoms caused by calcarea and those arising from disorders of the secretions of those glands. We find that there is a great similarity between the symptoms of calcarea and those arising from deficiency of the thyroid secretion. A remark of Hertoge will illustrate this. He says: "In thyroid insufficiency when gloved the soft and infiltrated hand loses its form and on being squeezed conveys the impression of a glove filled with clay. It is possible with very little practice to judge of the degree of thyroid inadequacy merely by squeezing the patient's hand." This exactly resembles the soft boneless hand of calcarea.

It is easy to enumerate a number of calcarea symptoms which present a resemblance to the symptoms of deficient thyroid secretion both in children and adults. Thus the following symptoms, tabulated by Leopold Levi in his article in the *Practitioner* (February), as the signs of uncomplicated slight thyroid insufficiency are all calcarea symptoms. They are: (1) Transitory infiltration—a white indolent œdema which does not pit on pressure appearing temporarily in various parts of the body. It may occur as the result of worry, fatigue, menstruation, migraine, or an asthmatic attack. (2) Caloric disturbance; coldness of the extremities, especially of the feet; localized chilliness; subnormal temperature; hypersensitiveness to cold, the slightest draught causes rheumatoid or neuralgic pains. (3) Vasomotor derangements, such as æro-asphyxia, chilblains. (4) Constipation. (5) General feeling of tiredness and disinclination to move, worse in the early morning. (6) Somnolence, sleepy after meals. (7) Tendency to obesity. (8) Skin rough and dry. (9) Certain developmental processes are retarded, such as dentition, walking, speech. The universal employment by homœopaths of calcarea for these conditions shows that its similarity has long been recognized, indeed before these delayed developmental processes had been recognized to be related to thyroid deficiency. (10) Muscular or articular pain and frontal

and occipital headaches. (11) The nervous symptoms of apathy, indolence, and depression. (12) Attenuation of the vital reactions and diminution of the nutritional exchanges. To those one may add the following: The mental symptoms, melancholy, dejection, apprehensiveness hypochondriacal, the least noise fatigues, absence of will power. The headaches made worse by mental effort. General unfitness for intellectual labour. Falling of the hair. Quivering of the eyelids. Sensation of stoppage in the ears; humming, buzzing, tingling. Swelling of the upper lip. Enlargement of the abdomen; incarceration of flatulence; enuresis, nocturnal. Swelling of the veins of the hands; a sensation as if the parts would burst. Vivid, anxious, and frightful dreams.

Many of the patients with these symptoms to whom we have been accustomed to give calcarea with great success are also benefited by small doses of thyroid extract. I have had several such cases recently and have been quite satisfied with the result obtained by combining the treatments, giving thyroid extract in small doses to supply the deficiency and at the same time administering calcarea in the 30th dilution daily or at longer intervals to make the improvement permanent.

Calcarea also has symptoms similar to those produced by alterations in the ovarian internal secretion. For instance, the swelling and pain in the breasts before menstruation is a well-known calcarea symptom, and its premature or excessive menstruation may be correlated with excessive and its amenorrhœa with deficient ovarian secretion.

Barium and its Salts

Barium resembles adrenalin in its action on the coats of the arteries and like it will produce atheroma. It finds its place in arterio-sclerosis produced by prolonged high tension. Barium acts directly on the muscle fibre of the arterioles constricting them and thereby raising the arterial tension while adrenalin produces the same effect by acting on the sympathetic nerve endings. The action of the two drugs is therefore not identical. It would seem that barium would be more suitable for the

atheroma when produced and adrenalin for the high tension promoting it. Again, we are told that barium corresponds to scrofulous conditions in children and old age; dwarfish children, and childish old people; old people who are fat. This suggests the subthyroid condition.

PHOSPHORUS.

In children and young people the tissues obtain their due supply of phosphorus largely through the influence exercised by the thymus gland. The thymus is concerned in the development of lymphoid cells, which contain a nucleo-proteid rich in phosphorus to the extent of 3·5 per cent., and thereby supply the phosphorus necessary for the building up of the cells in all the tissues of the body. The osseous and nervous systems in particular require phosphorus for their development or growth. Consequently, when the thymus is deficient or absent the development of the brain suffers, as does also that of the bones. The gastric glands are also affected. In children this leads to chronic digestive impairment with marasmus, deficient nervous tone, and feeble mental powers. For this condition, phosphorus given in potency is a good remedy. It is one of our remedies for rickets and suits the thin scraggy child in contradistinction to the fat and flabby child requiring calcarea. In marasmus it vies with iodine. When the marasmus is due to gastric inefficiency with vomiting phosphorus will be indicated, when, to intestinal debility, with diarrhœa, iodine usually answers better.

The wasting present in acute stages of exophthalmic goitre is due to excessive oxidation of the tissues, and this, according to Sajous, is brought about by the increased amount of iodine contained in the excessive thyroid excretion enhancing the inflammability of the phosphorus which all cells contain. There is consequently an excessive elimination of phosphorus and phosphoric acid in Graves's disease. I have found it useful to supply the deficiency thus produced in exophthalmic goitre by giving phosphorus in strong solution, or in some organic combination, such as sanatogen. This does not affect the course

of the disease, but helps to maintain the patient's strength and improve his general condition.

One would suppose from its action in increasing sexual desire that phosphorus may increase the testicular and ovarian internal secretions. It must be remembered, however, that the testicular internal secretion is not the same thing as the spermatic fluid, and the relationship of phosphorus to the internal secretion of the testes is hypothetical only.

The Snake Poisons.

A common symptom of hyperthyroidism is the vasomotor disorder causing flushings. The same symptom is prominent at the menopause, and is then probably due to irregularities in the ovarian secretion. Perhaps when it occurs in hyperthyroidism it is due indirectly to the action of the thyroid secretion on the ovary rather than to any direct action. In either case the snake poisons, and notably lachesis, have a controlling influence. In cases of Graves's disease there are often present symptoms which one may consider to be of ovarian origin. Menstruation is often disturbed or in abeyance and the proximate cause of the disease is frequently emotional distress started by a love disappointment. In one such case I found one of the snake poisons invaluable. The lady had had a disappointment, amenorrhœa followed, and then Graves's disease. It was an acute case. Rapid wasting set in and violent vomiting lasting for some days and which nothing would stop till I gave her crotalus cascavella. This is a snake poison not much used. I was led to select it by the fact that she persistently dreamt of horses, which on referring to my repertory I found to be a symptom of crotalus cascavella. I have used it since in a case of Graves's disease which had not this particular dream symptom. I think it did good, but in nothing like so marked a degree as in the first case. The sensation of constriction of the throat, or strangulation often present in Graves's disease is a prominent lachesis symptom, as are also palpitation and irregularity of the heart beats, faintings, giddiness, and palpitation frequently recurring, trembling of limbs, and jerkings in several parts of the body—all likewise symptoms of Graves's disease.

Arsenicum.

This drug does not appear to have any defined relationship to the internal secretions, but being so important a polychrest as it is it could hardly fail to resemble at some points disorders arising from the endocrinic glands. The dry scaly skin and striated and brittle nails, premature baldness and greyness, the general lowered vitality and prostration of arsenic suggest its use in subthyroidic conditions. The prostration of arsenic, its diarrhœa and vomiting, its cardiac asthenia and pigmented skin correspond to the symptoms of disease of the medullary portion of the adrenals, and it is one of our remedies for Addison's disease. The thymus gland is said to regulate the supply of arsenic to the blood for metabolic purposes, and arsenic is often given for the lymphocytosis accompanying hyperplasia of the thymus.

Natrum Muriaticum.

This is one of the drugs that Lilienthal suggests for exophthalmic goitre. It has become a favourite of my own for that complaint. Nevertheless the symptomatology of natrum muriaticum resembles more the subthyroidic state. Thus subthyroidic patients are subject to muscular and arthritic pains and to frontal headache more severe in the morning. This is characteristic also of nat. mur. Again, in myxœdematous conditions the hair disappears at first from above the forehead and later it recedes from the back of the neck. The margin of the hair on the forehead and the nape of the neck are seats of election of nat. mur. In thyroid insufficiency the nocturnal pains in the back, the cardiac pains, the pains radiating from the brachial plexus in pseudo-angina pectoris remind one of nat. mur. So also does one form of headache, viz., the frontal headache starting from the root of the nose, worse in the morning. Hertoge says "that during the menstrual period, and during that period only, many women present symptoms of subthyroidism, viz., headache, migraine, constipation, &c., with a certain hoarseness denoting slight infiltration of the vocal cords. This is due to the large amount of thyroid secretion taken up

in maintaining the plasticity of the blood—there is not enough to supply the amount required during the menstrual period, and hence a condition of subthyroidism with the above symptoms." For this headache occurring at the menstrual period only, with a generally depressed condition, natrum muriaticum has long been a principal remedy. Nevertheless, as I have mentioned, it has been found useful in the reverse condition of hyperthyroidism. But subthyroidism and hyperthyroidism are not conditions of mere deficiency and excess of the thyroid secretion, they are not direct opposites. Probably the secretion is altered in quality, especially when there is an excess of it. And not only so, but secondary symptoms are produced by other endocrinic glands being affected by the disease in the thyroid. Notably is this the case with the adrenals, which pour a greatly increased amount of adrenalin into the blood in exophthalmic goitre. Sajous says it is doubled and even quadrupled, and to it is attributed the proptosis and the rise in temperature in Graves's disease. The pigmentation that is sometimes present must also be attributed to the adrenalin.

In my experience, natrum muriaticum is one of our most satisfactory remedies to combat the neurasthenic symptoms of prolapsed kidney. The Society will, perhaps, remember a paper read some years ago by Dr. Cash Reed, who attributed the neurasthenic symptoms of prolapsed kidney to pulling on the sympathetic nerves in association with the suprarenal body, which nerves govern the secretion of adrenalin. I have found natrum muriaticum about the best remedy for the treatment of that very unsatisfactory disease from the therapeutic point of view, Addison's disease. So possibly my favourable experience of natrum muriaticum in exophthalmic goitre is due to its action on the adrenals. But I think it has an action also on the thyroid gland itself. The first case in which I used it was that of a cyst of the middle lobe of the thyroid, and which rapidly disappeared under its influence. I do not remember whether there were any symptoms due to disordered thyroid in that case, but they were present in a case which came to

consult me in November, 1913, and which I published in the October number, 1914, of the BRITISH HOMŒOPATHIC JOURNAL. It was that of a young lady who, eight years previously, had been struck in the centre of the throat by a tennis ball. Severe pain ensued and a lump appeared at the site of impact. This afterwards disappeared, but there remained a good deal of pain intermittently in the throat. Two years before I saw her the lump had begun to return and had since increased. This was about a year after an attack of shingles at the back of the neck. When she consulted me there was a cyst the size of a small walnut in the isthmus of the thyroid which was tender, and there was pain in it on swallowing. There were also constitutional symptoms indicating slight Graves's disease, trembling of the hands and eyelids, tachycardia at times, and she was very easily fatigued. She was given natrum muriaticum 200, one dose, and in a fortnight all symptoms of hyperthyroidism had departed and the tumour had decreased by a half. In a few more weeks this also had gone.

In April of this year her mother brought to me Miss J., aged 15½. She had never menstruated and was some-what anæmic. She had lately noticed a swelling in the throat. The pulse was quickened and she became very easily tired on exertion. There was considerable soft swelling of the isthmus of the thyroid. She was given natrum muriaticum 30, two powders, one to be taken at night the other next morning. When she came back a fortnight later, she told me that the period had come on for the first time the previous week, had lasted five days, was fairly copious and unattended by pain. The swelling of the thyroid was considerably less. She had lost her languor and could take good deal of exercise without getting tired.

Another case I have had recently is that of Mrs. L., aged 50, a widow who has had six children. She has during recent years lost her husband and her son, and has had much anxiety. Two sons are in the present War. For the last two years she has noticed her throat enlarged, otherwise has always had good

health, and is tall, strong, and muscular. Till a year ago she was thin, but during the past year has become stouter. Her catamenia ceased two years ago, but each month she is subject to flushings. The eyes are full, but cannot be said to be in a condition of proptosis. The eyelids tremble when closed. She always feels warm and the hands are always warm, but she has a sense of water trickling down her back at times. The skin is soft and moist, the hair falling out. She is active and energetic. She is nervous and apprehensive, but fights her mental fears successfully. Sleeps well, but has vivid dreams and often wakes with a start. She is clairvoyant and musical. The pulse is 96. She feels throbbing in the neck at times. On examination I found a moderate enlargement of the isthmus and right lobe of the thyroid. She feels better than she did a year ago when she was very thin and much weaker. The case is one of thyroid instability, mainly on the side of hyperthyroidism. I gave her two powders of natrum mur. 30, to be taken on the same night, and the other the next morning. She came back in a fortnight with pulse reduced to 84, and the thyroid smaller, no throbbing and greater ease in swallowing. Had had some rheumatic pains in trunk and legs. Repeat medicine. A fortnight later the pulse was 76, felt much better, but had had a burning sensation over cardiac region at times. Repeat medicine. A fortnight later still the pulse was 72, and all symptoms had disappeared.

Dr. C. Osmond Bodman has sent notes of the following case, which is doubly interesting as an instance of the production of hyperthyroidism by the use of iodine and its cure by the use of natrum muriaticum: "Mr. B., schoolmaster, consulted me in November, 1913, with the history that for at least twelve years he had enlargement of the thyroid gland. This, however, had given no trouble till two years previously, when he had taken medicine and applied iodine ointment with the object of reducing the swelling. This was indeed attained, but for six months he suffered from palpitation and nervousness, and lost two or three stones in weight. In the summer of 1913 the

neck was noticed to be gradually increasing in size again, and in September treatment was once more instituted. Again the thyroid swelling became smaller, but the recurrence of symptoms brought the patient to me for treatment. Mr. B. complained of great nervousness and anxiety, severe attacks of palpitation, with inability to sustain any but the most moderate degree of exertion, excessive perspiration, and attacks of indigestion. The hands were markedly tremulous, pulse-rate 104, and tension low, there was general enlargement of the thyroid gland, but no ocular signs were detected. Natrum mur. 200 was prescribed.

"With occasional doses of this remedy improvement was steadily maintained, the patient continuing to attend to his duties, and in April, 1914, he reported that he had had no severe attack of palpitation since Christmas, nervousness very much less, much better able to stand fatigue. Pulse-rate was 84, and hardly any tremor present; the swelling of the thyroid was less. The next month's report was not quite so good, so natrum mur. I m. was ordered, of which four doses have been taken, and for the past six months the patient has remained practically well."

From these cases, and I have had others, it seems that natrum mur. has a decided influence on the function of the thyroid gland. It acts best, as one might expect, in cases of thyroid instability and in the less violent cases of Graves's disease. My own cases seem to show that it may have a special affinity for the isthmus of the thyroid.

Sepia.

Sepia has in most of its symptoms such a close similarity to natrum muriaticum that one would expect it would likewise be useful in thyroid disease. I have no experience of my own to relate, but have seen cases reported where it has been curative; and probably some here will be able to confirm this.

Adrenalin.

Adrenalin and iodothyroidin are the only two principles that have been isolated from the endocrinic glands. Adrenalin is a definite substance formed in the medullary portion of the supra-

renal glands and has the formula $C_8\ H_{10}\ NO_3$ ortho-dioxy-phenyl-ethanol-methelamine. It has been prepared synthetically. It stimulates the termination of the sympathetic fibres in visceral muscles and in glands, and acts on their terminations alone. It generally causes constriction of the arterioles; this is most marked in the abdominal vessels, hardly manifest in the vessels of the lungs and cranial cavity, and in the coronary arteries in the wall of the heart an actual dilatation occurs. By its action in constricting the vessels of the abdominal cavity it raises the general blood-pressure.

Arterio-sclerosis has been produced experimentally in animals by the continued use of adrenalin. Adrenalin is, therefore, a valuable remedy in cases of high arterial tension, and for the arterio-sclerosis resulting therefrom. I can speak well of the 6x dilution in these cases. In Graves's disease there is an excessive secretion of adrenalin and the proptosis of the disease is due to it. An excess of adrenalin also causes a rise of temperature, and possibly the rises of temperature in Graves's disease are due to it. In view of these facts, it is curious that the late Dr. Gibson, of Edinburgh, was a strong advocate for the treatment of Graves's disease by suprarenal extract. Other physicians have not been able to obtain the favourable results noticed by Dr. Gibson. Perhaps it depends on the dose. In my experience adrenalin is a useful remedy in Graves's disease. It steadies the pulse and relieves some of the nervous symptoms. I use the 6x dilution once or twice a day. It is difficult to form any rational theory why it should have any influence in this disease, but I am convinced that in many cases it effects some amelioration.

One would have expected its administration to be of great use in Addison's disease. It has been tried and found wanting.

Adrenalin by its action on the sympathetic in the liver stimulates the conversion of glycogen into glucose and so produces glycosuria, but I am not acquainted with any reports claiming for it a curative influence in glycosuria. It has no effect, so far as I know, on the secretion of Langerhans's islands in the pancreas.

Dr. C. E. Wheeler writes to me that he gives adrenalin for low tension pulse in nightly doses of 1 in 1,000, and that it also often does great good in neurasthenia when there is low tension. He says: "It is not homœopathy, and my theory of using it is that when there is deficiency of an internal secretion, the economy unable to make sure of a supply lessens its natural demand. This leads to a still further lessening of supply, for the mechanism of demand (whatever it may be) is needed for healthy supply reaction. By giving a small dose you reawake the sense of the economy to the value of this substance, which it has learned largely to do without (to its detriment), and the demand mechanism begins again more urgently, and if the power of supply is only dormant it may reawaken it and restore the normal."

Bicarbonate of Soda.

Leopold Levi says that bicarbonate of soda promotes the activity of the thyroid gland. If this is correct it should be useful when given in potency in Graves's disease. I am trying it in one of my cases, but it is too soon, at present, to say with what result.

Secale.

The action of secale on the uterus closely resembles that of pituitary extract, and it is used for the same purposes, viz., to expedite labour and to arrest *post partum* hæmorrhage. It is also said to cause contraction of the muscular fibres of the stomach and intestines, but less vigorously than does pituitary extract. It causes contraction of the arterioles by acting on their muscular coats directly, like baryta, but seems to have a less general and more local effect. By its action on the arterioles it tends to raise the general blood-pressure and therein resembles adrenalin. Secale also causes convulsions, which may be of a tetanoid nature, and in this respect opposes the action of the parathyroid secretion.

This concludes my list of drugs used in homœopathic practice for disorders of the internal secretions. There are probably others which some of you have used, but which have not come within my own experience. The discussion which is to follow will, I hope, fill up the gaps in my paper.—*The British Homœopathic Journal, September, 1915.*

EDITOR'S NOTES.

Ionic Treatment of Pyorrhœa Alveolaris.

A GRAPHIC account of pyorrhœa alveolaris, from the point of view of the patient, has been sent us by Mr. F. W. Fitz Simons, director of the Port Elizabeth Museum, South Africa. The patient's attention was drawn to the gums by bleeding on brushing or on slight pressure. He consulted a medical man, who prescribed astringent mouth-wash and a tonic. Later on a lower molar became loose; a dentist removed tartar and prescribed mouth-washes. A little later another dentist extracted a loose tooth, advised hydrogen peroxide as a mouth-wash, and stated that the disease was absolutely incurable. Injection of tincture of iodine into the gum pockets was next tried, then injections of kolynos and dentinol, with no result except a painful dental abscess. An autogenous vaccine was prepared by the Government pathologist and used for six months, combined occasionally with stock staphylococcus and streptococcus vaccines. This was an unqualified failure. Finally, in consultation with Mr. J. L. Roper, a practising dentist in Port Elizabeth, ionic treatment was tried, a pledget of wool impregnated with 2 per cent. solution of zinc chloride being forced into the gum-pocket and the anode applied with a current of 2 milliamperes for 15 minutes. The strength of the zinc solution was afterwards raised to 5 per cent., and finally to saturation. A single application sufficed to sterilise the less affected gums and repeated application with the stronger solution served to keep the disease in check in the more advanced stages.—*The Lancet*, October 16, 1915.

The Etiology of Typhus Fever.

In view of the recent prevalence of typhus fever in Serbia and the possibility that infection may be conveyed to other countries from this focus, anything bearing on the causation of the disease is of special interest at the present time. The acute and strictly defined course of the affection resembles rather that of a bacterial than that of a protozoon infection; and the experiment of Nicolle, which seemed to show that typhus fever was due to a filtrable virus, has not been confirmed by subsequent observers. A recent paper by Dr. H. Plotz, Dr. Peter K. Olitsky, and Dr. George Baehr records the isolation of a bacterial organism which has serious claims to be regarded as the causal agent. It is an anaerobic organism—which may account for previous failures to identify it—and was first

obtained by the use of Noguchi's methods for the cultivation of spirochætes. It grows best, however, on serum glucose agar, forming opaque rounded colonies at a depth of 3 cm. or more below the surface of the medium. The organism itself is small (0·9 – 1·93μ in length), pleomorphic and Gram-positive. It is not motile and not acid-fast, and has no capsule. It may be straight or slightly curved, with rounded or slightly pointed ends. Coccoid forms are also met with, and involution forms occur early. It does not form spores. It ferments glucose, maltose, galactose, and inulin with production of acid; but no visible gas is produced. Growth in artificial media is very slow, so that cultures from the blood are of little value in the diagnosis of the disease. The reactions of agglutination and fixation of complement are present when the organism and the serum of a patient are brought in contact, and precipitation occurs in a mixture of serum and bacillary extract, after the crisis of the disease has taken place. Monkeys are readily susceptible to typhus infection, which can be induced by injections of a patient's blood both before and after the crisis. Guinea-pigs are also available as experimental animals. The organism has been named bacillus typhi exanthematici at the suggestion of Professor W. H. Welch, the name having been originally suggested by Klebs for the hypothetical infective agent of the disease.—The *Lancet*, October 16, 1915.

Charlatans and Miracles.

A BREEZILY written and entertaining article by Mr. Charles Higgens, reprinted from Guy's Hospital Reports, describes some of the cases which have come under the observation of a well-known ophthalmic surgeon, where disease affecting the eyes has laid its victims open to the wiles of the quack and charlatan. His account of a visit paid by one of his patients to———, a German "specialist," occupying a suite of consulting and other rooms at the——Hotel and bringing thither his secretary and his optician, introduces a type of highly-fed and financially successful adventurer in medical matters, whose task is rendered easy by the credulity of the wealthy and ignorant, and by the extraordinary zeal of some people to push and advertise practitioners of this class, particularly if they happen to be foreigners. Perhaps some of the former patients of ——— will recognise the picture drawn by Mr. Higgens if it should come under their notice and their eyesight should have required his attentions, and to others it will revive memories of visits paid to other

such "specialists" in luxurious consulting-rooms at hotels or in cities that are now "enemy country," in search of relief that never came, except to the patient's pocket. Of the diseases which do not threaten death to those affected by them, those which involve the eyes or the ears perhaps supply the most numerous, as well as the most remunerative, patints to persons who will promise cures by methods claimed as exclusively their own. The complaint may be in fact incurable, or, on the other hand, may be such as might yield to suitable treatment, but threatened loss of eyesight and growing deafness are afflictions which do not prevent anyone from travelling either in his own country or abroad so long as his means allow him and some one will recommend the excursion. The trip is frequently made on the strength of assertions that a person known, generally by repute only, to some gossiping friend, has been cured after all the "regular doctors" or perhaps all "our English specialists" had given him, or her, up. We need hardly say that in cases where the charlatan is credited with success "the giving up by the regular doctors" has usually consisted in recognition of the fact that there was nothing the matter, but unfortunately the patient has not been told so in sufficiently impressive terms. Mr. Higgens tells of the "miracles" wrought by himself upon patients who have endeavoured to simulate disease of the eyes, under the influence of hysteria or otherwise. They were not left by him any opportunity to go away saying that he had given them up. They were told that they had nothing the matter and found that it was true. Sometimes, however, they insisted upon crediting the oculist with thaumaturgy to which he laid no claim, and the father who accompanied one of them actually asked him to remove, miraculously not surgically, a large fatty tumour on the back of his neck. Truly the experiences which have fallen to Mr. Higgens and many other members of the medical profession render us thankful that as a rule the charlatan is not trained to recognise the complete absence of disease *Populus vult decipi*: and it is not to be wondered at if rogues add "decipiatur," and carry out the aspiration. They have a large number of unwise persons on their side, including those who have made the law of libel a standing protection against honest criticism of the dishonest methods of anyone who does not actually infringe the criminal law.—The *Lancet*, October 16, 1915.

A Habitual Criminal.

"You will undergo three years' penal servitude," Mr. Wallace, K.C., said to William Saunders, a prisoner at the London sessions recently, "and probably you will spend the time in the prison infirmary." The man upon whom he was passing sentence was 69 years of age, and since 1861 had been condemned to 23 periods of imprisonment, including ten years' penal servitude meted out to him in 1881, when he was convicted for stealing boots. He must then have been out of prison for some time, as the sentence which immediately preceded was one of seven years passed in 1867. Since 1890, however, when he was sent to prison for 21 days, he had undergone 14 periods of incarceration, including one of five years. The chairman's prophecy that he would spend the next three years in the prison infirmary may have been prompted by his obvious physical incapacity, but it is to be hoped that the mental as well as the physical condition of the convict will receive serious consideration, and that means may be found, if he survives, to prevent his release. Whether mentally defective or not, he is not likely to remain honest if turned loose again when over 70 years of age, and it must be remembered that on 24 occasions honest citizens have had to undergo robbery at his hands and to face the trouble and inconvenience of appearing to prosecute.—The *Lancet* October 9, 1915.

Rancid Butter.

It seems logical to conclude that when a food becomes unpleasant to the taste and develops a disagreeable smell it is no longer fit for consumption. That view, at all events, will surely be accepted in the case of the evil-smelling egg and probably of rancid butter also. The rancidity of butter is due to a change in the composition of the fat, brought about probably by bacterial agencies stimulated by air and light, and likely enough the products are unwholesome. The removal of these products by washing, perhaps with the addition of a little carbonate of soda or other neutraliser, renders the fat sweet and non-acid again. Some months ago a consignment of rancid butter was seized in the metropolitan borough of Bermondsey by the food inspector, who gave it as his opinion that the butter was rancid and unfit for human consumption. This opinion was confirmed by the medical officer of health, Dr. R. King Brown, and the pubic analyst who analysed the butter, and also samples of cake and shortbread which had been made with this butter. A stop

order had been placed on the butter in accordance with the Unsound Food Regulations of the Local Government Board, and eventually a summons was applied for at the Tower Bridge police court in order that the magistrate should decide whether the butter was unfit for consumption. There could be little doubt of its rancidity, since the analyst reported that it contained 3·16 per cent. of fatty acids compared with a figure for fresh butter of well under 0·5 per cent. The magistrate, after hearing chiefly chemical and practically no physiological evidence, decided that the butter was fit for human consumption, and so no order was made under the regulations and the consignment was released. It does not appear to be disputed that the butter was rancid, the question to decide being whether in that case it was unfit for food. Its destiny was presumably cooking purposes, in which its rancidity would become more or less obscured. Having regard to the nature of the process of rancidity, we may be wise in entertaining a suspicion that rancid butter is not a wholesome food It appears that though air plays a part in this process the change is due not directly to air, but to the stimulus of oxygen given to certain micro-organisms, amongst which are included ordium lactis, B. fluorescens liquefaciens, and cladosporium butyri. The fact that such a butter would be objectionable and unpalatable in the ordinary way self-condemns it. Any food, generally speaking, that excites nausea must be regarded as unwholesome.—The *Lancet* October 9, 1915.

Water Drinking With Meals Beneficial.

Recent experiments, clinical and laboratory tend to show that drinking water with meals is beneficial. Cutler quotes experiments by Hawk to the effect that copious water drinking facilitates the digestion and absorption of fat for the following reasons: There is an increased secretion of gastric juice and independently of pancreatic juice as a result of the stimulating action of water. The increased acidity of the chyme brings about a more active secretion of pancreatic juice and bile. There is an increased peristalsis, due to the larger volume of material in the intestine and an increased blood pressure due to the rapidly absorbed water. There is a more complete hydrolysis of the fats by lipase, due to the increased dilution of the medium and the consequent more rapid absorption. The ingestion of large amounts of water with meals not only does not inhibit the normal flow of digestive juices, but acts as an

excitant to their flow. The digestive juices are not rendered less efficient by dilution but, on the contrary, enzyme action is more complete, within limits, the greater the dilution. Even if the food were washed into the intestine more rapidly than usual, contrary to Cohnheim's belief, the greater efficiency and greater amount of the digestive juices would outbalance this.—The *North American Journal of Homœopathy*, October, 1915.

Sanitation in Bihar and Orissa.

The annual sanitary report of Bihar and Orissa makes special reference to the mortality caused by plague in 1914. The number of deaths was 64,334, and it is noted that the males in the return were 27,000, the female portion of the population being as usual the greater sufferers. The highest rate of mortality was in March, when 24,000 deaths were reported. This total has only been twice exceeded; in 1905, when the disease first appeared and was extremely virulent, and again in 1907. Saran, Shahabad, and Patna are always the districts worse affected, the deaths being 20,000 in Saran, 12,000 in Shahabad, and 10,000 in Patna. These were mainly in the villages, though 1,560 were registered in Patna city. Fifteen additional plague medical officers were appointed when the seasonal epidemic began in November, and nine temporary assistant surgeons were later placed on inoculation duty, but the course of the disease could not be checked. The inoculations rose to over 24,300, and considerable success was gained in some districts. The destruction of rats was also carried out and a scheme for extending the rat-killing operations was submitted to Government. The villages of Bihar are, it appears, so built that once plague enters them evacuation is the only remedy, and it is to be feared that the disease will continue to take heavy toll of the rural population. In some of the towns plague can be controlled, as is proved by the fact that Monghyr and Jamalpur practically escaped infection in 1914. Measures taken by the municipalities in Patna, Bhagalpur, and Sahibganj should eventually have a good effect, particularly if special attention is paid to the rat question—*The Lancet*, October 23, 1915.

Enlargement of the Spleen in early Syphilis.

The fact that the spleen is generally enlarged in congenital syphilis was first pointed out by the late Dr. Samuel Gee in 1867 and is now well recognised, but enlargement in the acquired disease has not received much attention, though the first case was reported as long ago as 1862 by a Swiss writer, Biermer. In a woman, aged 28, he found eight months after infection a roseola with marked enlargement of the liver and spleen. Under the treatment the spleen rapidly decreased in size, though the liver remained enlarged But the credit for first calling attention to acute enlargement of the spleen in secondary syphilis belongs to A. Weil, who in 1874 published three cases, of which he was able to percuss enlargement in two and feel a definite tumour in the third. In 1895 an Italian writer, Columbini, stated that he uniformly found enlargement in all cases on appearance of the exanthem. On the other hand, Bruhns criticised his results because they were largely based on percussion and stated that he could find enlargement in only four early cases out of 60. In the *American Journal of the Medical Sciences* of October Professor U. J. Wile and Dr. J. A. Elliott, of the University of Michigan, have published a careful investigation of splenic enlargement in early syphilis. As they point out, the widely varying figures given by different writers are due to the unreliability of percussion as a means of examining the spleen. Not only may differences in the note be determined by the position of the stomach or colon, but splenic dullness may sometimes be impossible to elicit. They relied upon palpation. Their observations were made under ideal conditions at University Hospital, Michigan, where the unusual method of treating those suffering from early syphilis as in patients is adopted. The average time the patients remain in hospital is 18 days, and a large part of this is spent in bed. For investigation 100 cases of early syphilis were selected, of which nine were primary and the remainder in the first months of infection. Definite splenic enlargement was found in 36 cases. The spleen was noted as hard and firm in 17, tender in 6, and very soft in 3. Of the 36 cases the health was definitely impaired in 27 (severely in 4) and not impaired in 9. In the majority the spleen was firm and readily palpable, and resembled the spleen of chronic malaria in consistence. On an average the organ extended two finger-breadths below the costal margin. The softer spleens presented rounded margins and were of the type encountered in typhoid fever and other acute infections. Like the adenitis, the enlargement disappeared much more slowly

than the other early manifestations. In one case the spleen remained enlarged for over three months and in another did not regain its normal size until eight injections of salvarsan had been given. The greater number remained enlarged until three to five injections had been given and mercury had been begun. The softer spleens receded much more rapidly than the firmer ones. Pain and tenderness on pressure were found in six cases and in at least one the pain was exquisite. In this case, although the enlargement persisted for a considerable time, the pain was promptly relieved by antisyphilitic treatment. The time of appearance of the enlargement could not be definitely stated. In all but one case it was found on the first examination. It was also found in two cases of primary syphilis in which the secondary manifestations never developed. These facts pointed to the conclusion that the enlargement precedes the other secondary manifestations. It must not be concluded that only in 36 per cent. of cases of secondary syphilis is the spleen enlarged. This simply represents the number in which it is so large that it can be felt below the costal margin. Professor Wile and Dr. Elliott are inclined to agree with Columbini and Avanzini that the spleen is enlarged during the first months of infection in the great majority of untreated cases of syphilis. In no case was the splenic tumour associated with enlargement of the liver. Probably the splenic enlargement has been overlooked because the spleen is seldom examined in secondary syphilis, as in this disease, unlike typhoid fever, the enlargement is not a point in the diagnosis—*The Lancet*, October 23, 1915.

Gleanings from Contemporary Literature.

A NEW THEORY OF MALARIA.

Important Discovery in the Federated Malaya States.

The following important paper by Dr. G. Strickland, Travelling Entomologist to the F. M. S. Government, containing "certain observations in the epidemiology of malarial fever in the Malay Peninsula," was laid before the Federal Council recently. We quote as follows from the *Malay Mail* :—

It has, of course, been thought from the earliest times that the malaria with which certain countries are afflicted owns its incidence to the existence of swamp. But it does not seem that in any country was this hypothesis elaborated until Dr. Watson in the Malay Peninsula made the observations which he has recorded in his book "The Prevention of Malaria in the Federated Malay States" (1911). In this book two theses stand out before all others, theses which ascribe the incidence of malaria to certain physiographical features of the land. They are, as is well known, that undrained "flat land" jungle, and that the swamps and streams in the valleys of opened-up hill-land are inimical to the health of the people who live near them. Since then also the belief has grown up, perhaps in consequence of Dr. Watson's work, that proximity to jungle is pernicious to health all over the country; and I think that every medical officer who has the care of the health of the people has acted on that belief, and advised that jungle near human habitations should be cut down.

Virgin Jungle Healthy.

Now I wish to put before Government certain observations which I have made that lead me to believe that the swamps and streams of opened-up hill-land are inimical to health because they have been opened up, and that such swamps and streams are of no danger if they are covered in by the virgin jungle The evidence in favour of this hypothesis seems to me to be overwhelming, yet I am diffident of putting it forward as I think thus prematurely, because I think that I have not yet made enough "control observations." The very simplicity also of my hypothesis makes me fear that it may not be correct. Yet in view of the fact that, if my ideas are acted on, the state of affairs resulting cannot be worse than they are at present and the money spent or lost almost negligible; while at the best the

course of malaria will be put an end to—makes me willing that they be put to the test immediately.

The truth of the hypothesis should be demonstrable absolutely by any evidence we can collect on the actual incidence of the disease among people who live near the jungle-covered ravines; and by that evidence alone. But we can, and will, call to our aid another class of evidence, that which is afforded by Ross's great discovery into the part which mosquitoes play in the propagation of malaria. Just as Ross's discovery afforded overwhelming evidence that the ancient theory into the swamp origin of malaria was right, so can be called in mosquito evidence to support the theory that jungle covered ravines are not inimical to health. Nevertheless, of these two classes of evidence, that relating to health seems to be most important, because it is direct and final; the mosquito evidence being negative. I can do no more in this place than give a few examples of the facts which I have collected; the whole theme will be developed in the final report on my investigation to be presented to Government in due course.

Healthy Coolies

In Pahang along the new Kuantan Road live Public Works Department Tamil coolies in lines, who say that they have never had fever, and they are surrounded by forest in every instance. Actually in one case in front of the coolie line runs a stream, and alongside the lines a few yards away runs a tiny tributary to that stream, all covered in by jungle, but all medicine I was asked for was for ringworm on one man's chest; and each protested his freedom from malaria It is impossible to believe that, if this land was opened up to make an estate and the streams exposed, that the coolies in the lines would not be decimated by fever. There is no estate in the country on hill-land, on which the ravines have been opened up, that is healthy, and here we have in Pahang coolie lines every few miles over 140 miles of hilly road which are healthy. Unless there is some virtue in Pahang soil which precludes the incidence of fever in people living on it, whether the ravines are opened up, or left under forest, one must believe that the good health of the coolies along the Kuantan Road is due to the fact that the water near to which they live remains under the luxuriant tropical forest.

Some sort of control is afforded in this instance to my hypothesis by the observation of a Tamil coolie gang, near to Gambang on this

road, who live adjoining a big estate opened up by a Chinese gentleman for tapioca, gambier, and so on; this gang were suffering considerably from fever when I visited them, and many asked me to give them some fever medicine. And instances might be multiplied of observations made in similar circumstances in Pahang—it has always seemed to me that, the more the places had been opened up, the greater the ill-health afflicting the inhabitants.

Kuala Lipis seems to me to afford a striking example of the truth of my hypothesis. Lipis is known to be so free of malaria that most people discard the use of mosquito curtains while there. The European community for the most part live in quarters at the head of ravines which are densely overgrown with tropical jungle, and yet Lipis is considered healthy for Europeans. It must not be argued that the unfortunate deaths of certain Europeans in Lipis lately disproves my hypothesis, for such officers may have contracted their fever elsewhere, or if they contracted it in Lipis, such places as have been opened up over the streams and swamps may have been responsible for the occurrences. Lipis is situated on granite hills, and we know what a terrible place for malaria an estate or other settlement is which has been planted on the granite spurs of our central range; for instance, Ulu Gombak Electric Power Station, Banang Estate in Johore, a coffee estate above Bandar Penggaram in Johore, which had to be abandoned because of its ill-health, certain rubber estates in Kuala Kangsar district, and so on. Every opened-up place in the country which rests on granite rock is unhealthy, while if it is healthy like Kuala Lipis.

Dirt as an Antidote.

I will here only refer to three other facts which are extremely suggestive from the point of view of my hypothesis. They are:—

(1) It is recounted by old inhabitants of Kuala Lumpur that this town was healthy until the jungle was cut down over the ravines, when it immediately became unhealthy.

(2) On a certain estate near Rawang the manager told me at the time of my visit in 1912 that the health had been excellent, and he told me that he had just been clearing away all the blukah from his ravines. I now learn from him that his medical officer has ordered compulsory quinine on the estate.

(3) I know that Dr. Watson has been in the habit of recommending certain estates whose financial position was not very strong to forego any anti malarial measures on their swamps and streams,

because, he said, a swamp left alone was very often less unhealthy than the land was after it was drained. I recommended the same thing myself to the Raub Sanitary Board in 1912. All the evidence points in the direction that dirt is the best antidote to malaria in our hill-land of Malaya.

I now come to the second class of evidence, that afforded by the mosquito. Unless striking evidence, showing that as a matter of fact the proximity of jungle on hill-land was not inimical to good health, had been offered, any facts relating to mosquitoes would have been of far less value, for though it had been proved that no common malaria carriers were to be found in hill-land jungle, yet that would not have proved they did not exist, or that some other mosquito would not carry malaria, or that the jungle did not harbour some other disease-producing agency. But taken in conjunction with evidence of health my observations have been most striking.

They have been that no known bad malaria carrier exists in the forest-clad ravine swamps—umbrosus which causes malaria on the flat-land does not breed in the hill-land jungle; that maculatus does not breed in hill-land jungle; that those anophelines which are to be found are rare, with the exception of aitkeni which is the only one species common enough to be yet named; moreover that aitkeni has never been found inside houses or other human habitations and is so small and delicate that it is unlikely ever to leave the jungle, and it has never been known to bite man. There is therefore nothing in the jungle which might cause malaria, that is if our preconceived notion be correct that only anophelines can cause the disease. Nor do we ever find in human habitations near to jungle any anophelines except those species which we know do not breed in jungle and breed only in those collections of water from which the jungle has been cleared.

On the other hand, in such places all covered in by jungle in which have been made cuttings for the service of man, for means of his communication or for his settlement, it is common to find large numbers of chiefly another group of anophelines (the deuteranophelinæ), of which the most important members are sinensis (a "protanopheline) albirostris, maculatus, karwari, fuliginosus, rossi, and kochi."

The Theory.

Now I say that these species, which include some bad malaria carriers, only exist and live on land which has been cleared of

jungle, and that only by opening up the collections of water lying on the land are they introduced. Whether on the east or west of the Peninsula, the result is the same—always in the hill-jungle aitkeni and a few rare species, always in the opened up land the deuter-anopheljnes. I found maculatus breeding in the pools at the edge of a stream which was merely exposed for a service road on new rail construction in Pahang, but in the jungle pools above the clearing nothing but aitkeni.

If we study the habitants of the mosquitoes for a long time, it is unlikely that we should so arrive at a generalization with regard to them which is at fault; so the only argument, relating mosquitoes, against my hypothesis, remains that aitkeni and those rare species which do occur in jungle do cause malaria, or, if they do not, then the jungle harbours some other disease-bearing agency. This may possibly be so. There is, however, no evidence in support of such a contention. Such are the outlines of the theory, and such is some of the evidence in support of the theory.

Dr. Watson's Hypothesis.

Now Dr. Watson's hypothesis led him to a course of action which was successful in eradicating malaria over an area of about 500 square miles. This action was the feeling and draining of the "undrained flat-land jungle." But on the hill-land "no hope could be held out that any improvement could possibly take place, as long as the present conditions persist."

This is true today—in the hills of Negri Sembilan malaria is rife and persists in spite of every effort to combat it. But I believe that my hypothesis provides a working basis for the prevention of most of the malaria still incident in this country, that is for eradicating malaria from the hill-land as successfully as did Dr. Watson on the alluvial coast belt.

The Remedy.

The remedy of course lies in not clearing the ravines at all within a line several feet outside the bounding hill contour when opening up hill-land, or if the ravines have been already cleared in allowing the forest to grow up again. (Alfred Russel Wallace says it takes 300 generations of tree growth before "primeval forest" is again produced, once it has been cut down—"National Selection in Tropical Nature.") In the latter case this may be difficult, because of the large amount of silt which has raised the surface of the valleys in many cases where the land has been cleared for some time.

Either nothing will grow in such silt, or lalang may have come in, which will prevent the growth of scrub or forest for a generation. Nevertheless the difficulty will probably be overcome by some means or other, which may perhaps be suggested by the Forest Department experts. The truth or otherwise of the hypothesis, will be best tested on land which is being newly opened up.

Before I bring this memorandum to a conclusion I must draw attention to a fact in connection with it which will probably immediately strike anyone who is interested in the malaria problem in this country as remarkable.

Assuming that my hypothesis be correct, then we have the epidemiological paradox that, while on the alluvial coast belt we have malaria incident on proximity to undrained jungle, in the hills and mountains malaria would not appear to be so incident; the converse similarly, health on the flat coast land if the jungle is felled and drained, malaria incident in the hills if the land is cleared and drained.

That is remarkable, because it means that the mosquito umbrosus which causes malaria on flat coast land will not breed in the hills, and that maculatus and others which cause fever in the hills will not breed on the coast alluvium. Exactly why that is so is a point which I am now investigating, and on which I will report in due course.

No Hard and Fast Rule.

I must finally observe that it can scarcely be hoped that one or other of the conditions, or presumed conditions, of which I have given some account above, will be found to exist every-where in this country. It is little likely that a hard and fast dividing line should be found between the two antithetic sets of conditions; we should at least expect an intervening area in which the one set is being gradually merged into the other. That is actually the case, we know that umbrosus is to be found away from the coast belt for a certain distance up the estuarial deposits and even among the low hills near the coast, and it is possible that maculatus may disappear before the coast belt is reached. I am in the middle of my investigation into the details of the health and mosquito distribution of this intervening area, and will report to Government in due course upon it.

In conclusion I beg to reiterate that it is only because every day gained by submitting my hypothesis to the test immediately is perhaps of great value to the country that I here put forward my

views, as I think prematurely—namely, that: Opened-up land in the hills and mountains of the Malay Peninsula is malarious because the ravines and valleys have been cleared of jungle, and these places are not malarious if the jungle over them has not been cut down.—The *Englishman*, Dec. 13, 1915.

THE NEW DISCOVERY IN MALAYA.

By Dr. Malcolm Watson.

The short paper by Dr. Strickland just published by the Government of the F. M. S. will be found, I believe, to be one of the great landmarks in the history of malaria prevention. By his observations Dr. Strickland has not merely rendered a service of enormous practical importance to the F. M. S. and other malarious countries; but he has shown us a method by which we can make the forces of nature help us to control malaria, and so encouraged us to continue on this line of research. The discovery has not been simply a matter of chance or good luck: the belief that such a method of controlling malaria was possible has been the dominant idea directing malaria research in the Federated Malay States during the past half dozen years. Now, after some three years patient, strenuous work, involving much physical discomfort, and carried out in the face of much that was discouraging, Dr. Strickland has shown how this method can be applied to the solution of one of the most difficult portions of the malarial problem; and I would like to place it on record that the discovery is entirely and solely the result of Dr. Strickland's work.

As the real nature and value of the discovery may not be appreciated by many of your readers, perhaps a few lines of explanation will not be out of place; and this can best be given by a short account of malaria prevention since the time of Ross's discovery that malaria was propagated by the mosquito—that the anopheles contracted malaria from one human being suffering from the disease and communicated it to another.

The Engineering Method.

Ross's epoch-making discovery in 1908 stimulated all interested in the welfare of the tropics and the malaria problem in other lands. Various plants—quinine, mosquito-proof houses, oiling, and drainage—were tried; but to cut a long story short only those methods which aimed at a reduction in the number of malaria-carrying anopheles—the procedure specially advocated by Ross—have proved themselves capable of actually preventing infection in large populations, and especially in rural populations. The chief of these

measures was drainage and it was the one adopted from the first in the F. M. S. Large tracts of country have been drained in the F. M. S. during the past 15 years; and it was soon recognised that as the jungle was felled and the swamps were drained malaria disappeared from certain--the flat—portions of the country. It was found that the malaria in the flat land was carried by an anopheles called *umbrosus*; that this mosquito bred in the jungle pools of the flat land, and disappeared when these pools were drained. The mosquito affected certain breeding places and was particularly adverse to breeding in a drain, even if the water flowed very slowly and aquatic vegetation was profuse. It enters house freely, bites human beings readily; but it is essentially a jungle mosquito and can be found in the jungle far from human habitatiions.

For some years the chief malaria problem appeared to be that in the flat land, with its heavy clay soil and high ground water. The hills assumed to be healtheir than the plains, as had been found to be the case elsewhere; and elevation, however, slight, was considered an advantage in selecting a site for a building. So with the discovery of an easy method of eradicating malaria from the flat land, the sanitarian seemed to be on the highway to general success. A very unexpected difficulty, however, lay across his path: for as soon as efforts were made to clear malaria from the hill-land by the drainage of ravines, malaria became, if possible, even more severe than before. The explanation of this strange state of affairs was as follows :—*Umbrosus* lived in the ravines in the hill land and so caused malaria when they were under jungle; it disappeared when the jungle was felled and the swamps drained in the hill land as in the flat land: but in its place appeared another anopheles—*maculatus*, which is never found in the flat land. *Maculatus* delighted in sunshine and crystal streams, and like *umbrosus* was an effective carrier of malaria. Here was a difficulty indeed—if jungle were left there would be malaria from *umbrosus*; if it were cleared away malaria from *maculatus*.

In the course of his investigations in the F. M. S. hill-land some years back the present writer everywhere found *maculatus* and malaria—and thinking that where *maculatus* existed in opend hill-land it had replaced *umbrosus* as had been the case in the hill-land that I had studied for so many years, and never once chancing on a place in hill-land completely free from malaria, I came to the conclusion that the dilemma existed throughout the hill land; and the only remedy appeared to be to clear away the jungle from the

ravines and to put the running water under-ground in pipes—sub-soil drainage—so that *maculatus* could find no breeding place. This has been done successfully in several places in the F. M. S. and may be called the engineering method.

THE BIOLOGICAL METHOD.

Before adopting sub-soil drainage, an attempt to escape the Scylla and Charybdis lying before us was made by searching for another channel. That an alternative course existed was suggested by observations made on the anophfeles of the F. M S generally—for there are a dozen common species—as well as a few rare ones. It had been found that each species affected a particular kind of breeding place—some liked small pools others larger; some clean pools, others dirty polluted puddles, some liked grassy pools, some did not, some loved clear springs and wells, some running water; some shade, some sunshine, and ultimately it was possible to form a pretty correct idea of the inhabitant of a breeding-place merely from inspection. All those various breeding places really formed a series from the crystal mountain stream to the foul polluted puddle, each had its peculiar mosquito inhabitant, and as good fortune had it only the anopheles of the clearer unpolluted breeding-places carried malaria.

With the realisation of this fact arose the idea that by polluting the waters of the ravines we might drive out the dangerous *maculatus*. Of course by pollution we meant only such an alteration in the composition of the water as was necessary to drive out the particular mosquito we wished to eliminate. It did not necessarily imply pollution in the sense ordinarily used by the Sanitarian—indeed the first idea was that the cultivation of rice would be sufficient to drive out *maculatus*. Research showed that there were two kinds of rice-swamps in Perak, those of Krian which were non-malarious, those of Bukit Gantang which were intensely malarious; in neither of these was *maculatus* to be found. Although there were no direct practical results from these observations, they gave us a further hope that a biological method of dealing with dangerous anopheles would be found; in other words that we could make nature do the work for us. Referring to this in a lecture I gave in Kuala Lumpur in 1910 (Malay Mail—21-6, 1910) I said:—

"But when we came to work out the anophelines, it was found that different species were found in the middle of the swamp from those on the hills. Nature has, therefore, carried out a great experiment. There were three groups, of anophelines, one on the hills, one in the rice fields close to the hills, and a third lot in Krian,

far from the hills. Now why do these vary? Clearly on account of something in the water, and it can easily be imagined that only a small change would bring the Bukit Gantang water to that of the Krian rice fields, and then malaria would disappear from Bukit Gantang too. I believe that in this way a great anti-malaria method will be evolved, and I can look to the time when we will be able to play with species of anopheles, say to some "go" and to others "come," and abolish malaria with great ease, perhaps, at hardly any expense. Drainage schemes may become methods of the past, and future generations may smile to think of how their ancestors, who thought they were so clever, burned the house to cook the pig."

It was impossible to utilise this discovery for the prevention of hill-malaria; but it gave us great hope that further knowledge of the details of the life-history of the anopheles would show us some easy and cheap way of overcoming our hill-land malaria. An entomologist who would devote his whole time to the study of medical entomology was required; and in 1912 the Government obtained the services of Dr. C. Strickland who had been engaged on plague research in Professor Nuttall's laboratory at Cambridge. On his arrival this problem was indicated as specially calling for solution; it appeared to be one of great difficulty—no one could say exactly what the solution would be. That there was a solution appeared to be almost certain—and the discovery of swampy ravines in hill-land which were less malarious than drained ravines gave a certain clue. If but some Happy Valley could be found, some town or village in a characteristic malarial country, with a population free from malaria, it would be clear that at all events the association of hill-land and malaria need not be regarded as inevitable. Dr. Strickland's investigations in Kuala Lipis have now not merely shown that such a spot may exist but have suggested to him the explanation of the characteristic conditions with which he is familiar in that instance being unaccompanied by their ordinary consequences; and the explanation is that in certain portions of the hill-land of the F. M. S. *umbrosus* does not exist in primitive jungle, as it does in flat land jungle and in certain other portions of hill-land jungle.

Studying the Peninsula.

Meanwhile evidence to the same effect was being accumulated. It was necessary, of course, in order that he should miss no clue, for Dr. Strickland to visit any place which promised to throw light on any portion of the problem; but on the whole it has been possible for him to keep to a pretty definite scheme of research. After a

preliminary general survey of the F. M. S., he began a detailed study of the country, working up from Malacca into the valleys of Negri Sembilan, Johore and Pahang. In this way it was hoped he would pass through many of the different types of country to be found in the Peninsula, and see what anopheles and what amount of malaria they contained. It was during this study that Dr. Strickland found *Umbrosus* to disappear from the jungle as he passed inland from Malacca—and all work further inland showed the absence of *Umbrosus* to be constant.

The discovery of the long sought "Happy Valley" would in itself have been of the highest importance: but when in corroboration we have a mass of entomological evidence, the case for Dr. Strickland's theory is very strong. Indeed so strong was it to my mind, that as soon as I heard of it, I realised that in the development of a large part—and I hope the larger part of our hill-land—there need in future be no such dilemma as has presented itself in the past.

Dr. Strickland naturally hesitated to give wide publicity to his views until the evidence in their favour was overwhelming. It is, however, some months since they were communicated to me personally and I was given an opportunity to confirm his observations, and for some months past I have taken every opportunity of making observations in hill land on the presence or absence of *umbrosus*. In addition I have paid two visits to Pahang—one up the new railway construction to Kuala Lipis, the other from the Gap to Tras, Bentong and Ginting Simpah—and one in Selangor along the new railway to Batu Arang. The contrast in regard to their anophelline inhabitants between the Pahang jungle and that in Selangor was extraordinary—although both are in undulating and hill-land; for in the two trips to Pahang no adult insects and only two *umbrosus*-like larvæ were found: (the exact classification of several specimens which vary from the *umbrosus*—a matter of the highest practical importance—is not yet completed) while in Selangor jungle the predominent—almost the sole anopheles was *umbrosus*. Its larvæ were found in hundreds;—and some idea of its prevalence will be gathered from the fact that 26 adults were caught in the quarters of the station master at Batu Arang in less than an hour one morning. Batu Arang is three miles from the flat land and travelling by trolly on the railway (through the courtesy of the railway department) Dr. Strickland and I traced *umbrosus* to within a mile of Kuang: that is, for nine miles inland from the flat land. Why these two kinds of hill land should so differ is a matter for further

investigation; the mapping out of them may furnish the explanation. In the meantime we hope that the *umbrosus* free land will be found to predominate and that the Batu Tiga-Batu Arang type of land merely forms a fringe at the junction of the flat and hill land—the narrower the fringe the better.

Three Classes of Land in F.M.S

It is obvious from what has been said that there are now three classes on land in the F. M. S. and not merely (a) flat land which becomes non-malarious when the jungle is drained and felled, and (b) hill land which is malarious whether under jungle or opened up. The third class is hill-land which is only malarious when the ravines are opened up and which will become non-malarious if we allow vegetation to cover up the waters of the ravines. Clearly this discovery is of the highest importance.

There is another aspect of the malaria problem, that of the Malay padi swamps in the valleys of the Peninsula. These are intensely malarious, but Dr. Strickland's discovery gives us additional hope that research conducted on similar lines will solve this problem also.

I have already taken up so much of your space that I must draw to a close. Perhaps some will say that there is nothing new in what Dr. Strickland says—that it has always been known that opening up land produced malaria. But is that statement quite correct? It is certainly not correct of the flat land, and, as we know, some hill lands are intensely malarious before as well as after being opened up. The general statement therefore was valueless from a practical point of view; and it is Dr. Strickland's merit to have suggested a possible explanation of much that was ill-understood and shown us a practical method of escaping from a great evil. His discovery has been no accident, but the reward of hard work carried out on sound, scientific lines; and all who have a heart to be touched by the overwhelming misery that malaria brings on many in this and other lands, will rejoice over his success.—*Straits Budget.*—The *Englishman*, Dec. 11, 1915.

JUNGLE AND MALARIA

By A Correspondent.

Few questions relating to the epidemiology of malaria have aroused so much discussion in every age as the influence supposed to be exerted upon the health of a locality by the presence of growing vegetation. For hundreds of years the existence of woods and forests

in the neighbourhood of a town or village was looked upon as a preventive of malaria, it being thought that trees tended to dry the soil and that the presence of dense vegetation also acted as a sort of filter, absorbing miasma, the hypothetical cause of malaria, and so removing it from the atmosphere.

In support of these views it was pointed out, that localities which had been cleared of trees and undergrowth often tended to become exceedingly malarious, the Roman Campagna, the Tuscan Maremma, many parts of Asia Minor, and Northern Africa, affording, it was thought, striking examples of this fact.

As a result of this belief which continued for hundreds of years we find that many European countries possessed until comparatively recent times the most stringent laws regarding the preservation of forests. For example until the last century it was a penal offence in Italy to cut down the woods which separated a town or village from neighbouring swamps and sheltered it from the dreaded sirocco which was often looked upon as a cause of malaria.

This belief in the efficacy of vegetation as a protection from malaria was current until quite recent times and many medical works published during the last century contain records of outbreak of the disease which were ascribed to the cutting down of woods and the opening up of virgin forests. Hirsch for example in his classical hand-book of the Geography of Disease mentions numerous instances where the clearing of forests was followed by outbreaks of malaria, and it is especially interesting to note that he ascribes the great epidemic which devastated Mauritius and Reunion, during the sixties, to the deforestation of the central portions of these islands owing to the extension of sugar plantations.

Just about the period when malaria became prevalent in Mauritius, many districts of Lower Bengal also were attacked by the disease in epidemic form; Jessore, Nadia, Hooghly and Burdwan in particular suffering very severely. But in this case it was at first believed that jungle was one of the principal causes of the outbreak, and as a result experiments in jungle clearing were carried out by Government on a considerable scale at the instance of medical men and others who had noticed that villages after they had been attacked with the fever often became almost completely buried in dense jungle. But the effect of these experiments was such as to throw doubt upon the value of jungle clearing as a measure of sanitation. This fact is very clearly brought out in a History of the Epidemic Fever written by Lord Ulick Browne, the Commissioner of the Presidency Division

in 1874. According to this officer "Jungle clearing produced no beneficial results whatever." He states moreover that, "The majority of the officers who had anything to do with jungle-clearing, and had opportunities of observing the effects of such operations, probably doubt if jungle is really one of the causes (of the fever) The result, too, of clearing jungle has tended to confirm such doubts." The following passage also which is extracted from his report seems to show that in some cases the clearing of vegetation was immediately following by a great intensification of the disease.

"In the portion of this report describing the operations taken to meet the fever it has been shown that the net result was that jungle-clearing, in so far as it was carried out, was a complete failure as a sanitary measure. This was ascribed for some time to the operations not being sufficiently thorough It was urged that eradication, and not merely surface clearing was the desideratum. But there is a difficulty in finding facts to support this view while there are two prominent cases opposed to it In Halishahar the jungle was so thoroughly uprooted in the beginning of 1863 that, after the rains the place was reported by Mr Garrett to be almost free of it; while in the neighbouring villages it had grown up just as it was before. The epidemic after this thorough clearance of jungle was more virulent in Halishahar than in any of the surrounding villages. It was the same with Kadibaree in the following year. The clearance there was effectual, the village was rid of the jungle, but when its time came the fever struck this village with a virulence unknown in that neighbourhood."

These old observations gain a new interest in view of the recently published announcement that the investigations of Dr. Strickland in the Federated Malay States tend to show that, the indiscriminate clearing of jungle instead of reducing malaria may lead to a real increase of infection

In this connection it may be remarked that jungle-clearing has been advocated by the medical authorities in the Federated Malay States without any qualification as one of the most valuable measures of anti-malarial sanitation.

But now, probably as a result of the experience gained, they have discovered, what we have long known in India, that under certain circumstances the clearing of vegetation may do more harm than good.

It is fortunate perhaps that sanitary experts in this country are inclined to be cautious. At any rate it is certain that they have

never been quite convinced that jungle clearing was as sure a remedy for malaria, as the Malay States enthusiasts would have liked to see them. It was Dr. Malcolm Watson, by the way who compared Bengal, a country of 84,000 square miles, to the tiny district in which he worked, and suggested that the measures which he recommended for the rubber estates there, might, if applied to Bengal, solve the problem of malaria prevention. If we remember rightly, jungle-clearing was one of the measures he advocated very strongly. But it may be observed that he now announces the discovery that jungle-clearing may cause a great increase of malaria, marking an epoch in malaria prevention. The observations upon which this announcement is based are not altogether new. Similar facts have long been known to workers in India. In 1910 for example, Major Christophers, I.M.S., pointed out that, in the Andamans, village in the interior, although often situated in the immediate neighbourhood of uncleared forest, remained free of malaria, whereas those built on clearings near the coast almost always suffered terribly from the disease. Again, Captain Hodgson, I.M.S., in 1912 called the attention of the Madras Sanitary Conference to the fact that the clearing of jungle from the Bela at Delhi, while reducing the number of *Anopheles barbirostris* (a comparatively harmless mosquito which has never been found infected with malaria in nature) on the other hand resulted in a great temporary increase of *Anopheles Stephensi* (a most dangerous malaria carrier) owing to the fact that pools of water formerly shaded by the dense jungle, had been thrown open to the light of day.—The *Englishman*, December 17, 1915.

Acknowledgment.

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