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OF

MEDICINE:

A MONTHLY RECORD OF THE MEDICAL AND AUXILIARY SCIENCES.

तदेव युक्तं भैषज्यं यदारोग्याय कल्पते।
सचैव भिषजां श्रेष्ठो रोगेभ्यो यः प्रमोचयेत्॥
चरकसंहिता।

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

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DYSENTERY.

Dysentery is a common disease of the tropical climate. From the early days of its existence, it has been observed in India. Clinically, we differentiate three forms of the disease. 1. Mucous has only exfoliation of the mucous membrane without any deep seated ulcer. 2. Muco-fibrinous comprehends the mucous membranes in the stools accompanied with blood and shreds of muscular tissue of the intestines. The quantity of the intestinal tissue is small in quantity but the mucous membrane forms the predominant character in the stools. A slight quantity of blood may be present. 3. Fibrinous is the worst form and characterised by the presence of large quantity of the intestinal tissue and blood. In this form there is more colicky pain than in the others. The intensity of the disease is manifested by the wasting of the sufferer within a short time. The quantity of blood gradually increases and the stools assume fœtid smell. It generally runs a chronic course when neglected and then we popularly call it sloughing dysentery (Gridhini) or a bad form of ulcerative dysentery. The sloughs are yellow or blackish in colour and the blood generally appears as washings of meat.

According to the bacteriological classification of diseases, dysentery is divided in two forms, 1. Bacillary 2. Amœbic. A third form sometimes is seen by its presence. It is the mixture

of both. For convenience it is called amœbo-bacillary. Like the old clinical forms the bacteriological characters may be acute subacute or chronic. In the clinical classification the fibrinous is generally considered the outcome of the development of the second that is, the muco-fibrinous. In the recent modification, the bacillary or the amoebic either alone or being mixed up may assume acute, subacute or chronic character. The difference between the amœbic and the bacillary is noted by the following features. The points are from the Hunterian lecture delivered by Dr. F. M. Sandwith. "1. That amœbic dysentery, unless skilfully treated at the beginning, usually runs a chronic course, while the bacillary lasts only from four to eight days in mild cases and from three to six weeks in the serious ones; 2. that in the amœbic form no bacilli can be found unless you have, as is rare, but quite possible, a mixed infection of both amœbic and bacilliary dysentery; (3) that toxic symptoms such as high fever, rapid emaciation, and nerve complications exist in bacillary dysentery, but not usually in the amœbic form; and (4) that liver abscess is a very frequent complication of amœbic dysentery and does not exist in the unmixed bacillary form. The conditions necessary for a certain diagnosis of bacillary dysentery are the positive agglutination reactions of the dysentery bacillus with the blood serum of the patient, or the isolation of the bacillus from the fæces of the patient, or from the organs after death."

The definite period ascertained by Dr. Sandwith does not correspond with our clinical experience. If it be accepted that some bad cases of dysentery are of bacillary origin, then their highest limited period of six weeks is against our observation. The fact is, even the bacillary variety can assume the sub-acute or chronic character and may run more than two months. It should be said that in most cases tormina and tenesmus are accompaniments. If tenesmus is a sign of affection of the lower part of the rectum, then it is generally found in most cases. The sign of ulceration of the lower part of the rectum is adduced not only by the presence of tenesmus but also of blood, pre-

ceded or followed by stool. The washings of the stool necessarily help to form an opinion of the amount of slough and disintegrated matter which are generally found in cases of subacute or chronic dysentery. If opportunity permit they should be examined under the microscope.

Bacillary Dysentery.

In 1899, Shiga, a Japanese bacteriologist, discovered the bacillus of dysentery which prevailed in epidemic form at that time in some parts of Japan. In 1900, Flexner isolated bacillus from cases of dysentery happening at that time in the Philippine Islands. In the same year Kreuse met with Shiga's bacilli from cases in Germany. They are not identical micro-organisms as compared between the bacilli of Shiga and Flexner. Shiga's bacilli do not affect mannite (non-acid test), whereas those of Flexner cultures ferment mannite (acid form) producing acid reaction. It is supposed that there are other varieties of dysenteric bacilli which are closely related but they differ in fermentative and agglutinative qualities. Another noticeable fact is that Shiga's bacilli produce infantile diarrhœa which is generally known as the summer diarrhœa of children. It was supposed that like cholera bacilli, dysenteric orgnisms are disseminated by contaminated water. Cases have been observed by Shiga which have confirmed the supposition. Contaminated wells, tanks and rivers have been observed to create foci for the spread of the infection. The bacilli may be carried in other ways. One of Flexner's assistants had a severe attack of dysentery from the introduction of a small quantity of fluid culture of the bacilli into his mouth notwithstanding the thorough and immediate disinfection of the mouth.

The bacilli can be better found from the scraping of the rectal mucous membrane than from stools. The tenacity of life of the bacilli is manifest from the fact that a few of them can be found alive even after may weeks of apparent recovery. This fact lends colour to the observation of the recurrence of the disease in many cases and its chronic state. The bacilli are

not apparently found in the general circulation but are sometimes observed in the mesenteric glands and liver.

Amœbic Dysentery.

Though its presence was supposed for a long time, yet before 1883, no one was able to discover it. In that year Koch demonstrated them in sections of intestines from those who died of ulcerative dysentery. After him, Kartulis, a Greek doctor, found the amœbae in several cases of dysentery in Egypt. His observation has been confirmed in many countries including the United States, the Phillipines and India. Schaudinn calls them Entamæba Histolytica. Their action is thus described by Dr. Sandwith: "It is armed with tough pseudopodia, able to attack the epithelial cells of the intestine and to penetrate into the sub-mucus tissue elements and blood corpuscles of the host." This form of the disease was generally supposed to be the inhabitant of the tropical climate as distinguished from the bacillary dysentery which was more observed in the temperate zones. The view has been found to be erroneous. Dr. Sandwith and other medical men found it to be generally associated with liver abscess as sequel to dysentery. But in ulcerative dysentery as found in India, the abscess forms an exception. The amœba can be found in sloughs. From these facts it can be inferred that sloughing dysentery or the fibrinous variety of the clinical classification is generally the issue of the amœbic form.

Treatment.

A little has been said of the homœopathic treatment of dysentery in our books. The cases generally met with are of the bacillary variety. The hospital admissions are generally chronic cases or bad forms of the disease. It is no wonder that even in London Hospitals the amœbic variety largely prevails. It is so in the hospitals of Calcutta. This fact can not lead to the conclusion that the amœbic is far more prevalent than the bacillary dysentery. It can be said that the prevalence of the one over the other depends on the nature of contamination. As far our observation goes we find the bacillary variety occurs much more than the amœbic form. The treatment of dysentery

generally varies on the existence of fever and blood. In ordinary mucous dysentery without fever and blood, Ipecac. commonly holds the ground. In fever, the treatment should begin with Aconitum Ferox and not Aconitum Napellus. Decided success has been observed by the administration of the former. In the bloody form without fever, Ipecac. should be first administered. With these general hints, we proceed with a detailed suggestion of the therapeutic application.

Aconitum Ferox. It holds a high place in the treatment of dysentery. It is not necessary that anxiety, fear of death or restlessness should remain. The principal symptoms are:

Stools: Watery, *blackish, dark, semiliquid,* yellowish; *greenish mixed with blood;* small brownish with bloody discharges; *bloody mucus. Frequent,* painful.

Rectum and Anus. Smarting pain, tenesmus, urging.

Accompaniments. Heat in stomach, rumbling and gurgling in abdomen; fever. Effect of chill or being wet.

Remarks. Useful in all cases of dysentery with fever.

Aconitum Nap. *Stools: Watery, greenish, yellowish; bloody, slimy, mucous; small, brownish, frequent,* involuntary when passing flatus; *white;* clay coloured, *whitish yellow;* yellow water with white foam, preceded by gurgling.

Rectum and Anus. Pain, tenesmus (Caps.); *urging to stool; shootings; painful contraction; pressure; bleeding hæmorrhoids* (Ham., Nit.ac.); *burning and heat in hæmorrhoidal vessels* (Aesc., Sulph.); sensation of warm fluid escaping.

Accompaniments. Fever; burning and cuttting in abdomen, distension of abdomen sensitive to touch.

Remarks. Useful in cases of hard impacted faeces with or without fever.

Aloes. *Stools: Frequent stools of bloody water with lumps of mucus, like jelly;* during stool, fainting or screaming on account of violent pains in the abdomen, especially right side, ceasing after stool; *flatus escapes with the stools; when urinating urging* to stool; green mucus; transparent jelly-like mucus; yellowish; brownish; bloody water; offensive, *foul smelling* (bloody mucous

stools); *semi-liquid;* bright yellow with blood; involuntary with passage of flatus.

Rectum and Anus. Heat; sticking, cutting after stool; burning (Berb., Sulph.); *burning after stool; after emission of hot flatus;* fulness and pressing out; sore feeling (Berb., Aesc., Iris); hæmorrhoids sore and swollen; *weakness of sphincter, so that cleanliness was difficult; tenesmus;* loss of power in the sphincter, so that stools escape easily; in chronic dysentery with flatulence burning in anus and rectum, discharge of jelly-like lumps and intense pain and soreness in rectum after the stool.

Accompaniments. Abdomen distended; motion of flatus (Puls); *gurgling;* emission of flatus; emission of flatus on attempting to go to stool; *rumbling along the colon;* weak feeling as if diarrhœa or dysentery would occur; pain in the small of the back; pain around navel. Aggravation when walking, standing, or after drinking.

Remarks. It is a medicine more for chronic dysentery than the acute form. The principal indications are the urgency of passing stool drives the patient out of bed; insecurity of the bowels worse in the morning; worse when walking or standing and after eating or drinking.

ALUMEN—*Stools: Putrid, fœtid; blood with stool;* watery with blood; mucus with slough; ichorous mixed with offensive matter and blood; frequent; *yellow;* scanty; masses of coagulated blood.

Rectum and Anus: Violent pains going from rectum down the thighs; pains in rectum; tenesmus; after stool, scarcely endurable pain; tenesums of bowels and bladder; no flow of urine except during an evacuation from the bladder; beating in anus after stool. Ulcerative dysentery.

Accompaniments: Exhaustion; *colic;* abdomen retracted better from pressure, worse by walking; *griping;* burning pain in small intestines; burning in the small of the back, can scarcely get up, with feeling as if back would break; intestinal inflammation.

Remarks. It is a medicine for ulcerative dysentery when it has become chronic.

APIS. *Stools: Greenish, yellowish, slimy, mucous; watery with griping;* greenish with red lumps; pappy mixed with mucus and blood; dysenteric stools with tenesmus and crushed sensation in intestines; *bloody. mucus mixed with fæces;* bloody with shreds of intestines, mucus and pus; *bloody stool with but little pain; offensive bloody stool;* painless with slimy mucus; *copious, blackish brown, green and whitish;* watery with jelly-like mucus mixed with blood; *involuntary; constant oozing from anus of which the patient is unconscious* (Phos., Phos. ac.); involuntary and painless, or painful and urging.

Rectum and anus: Great tenesmus as if the intestines were bruised. Electric shock in rectum then urging to stool. Frequent urging. Raw sensation. *Involuntary with every motion, as though the anus stood open.*

Accompaniments: Soreness in the abdomen when sneezing or on pressure. Cannot urinate without having a stool (Aloes). *Pain in the abdomen worse on pressure, touch and horizontal position, with sensitiveness.*

Remarks. Great care should be taken in the administration of Apis, because it can create aggravation. In cases of blood poisoning with acute symptoms, or in difficult cases with the above symptoms, it is well worth administration.

ARGENTUM NITRICUM. *Stools: Green mucus with retching, vomiting of mucus, pain in stomach and abdomen, intolerance of wearing cloth; bloody mucus;* frequent; green mucus with flatulence; shreds of mucus with undigested food and distension of abdomen, the stools are very offensive; bloody slimy stools with ulceration of the rectum; chronic dysentery: *dysentery from excitement or shock with chronic flatulence; dysenteric stools consisting of masses of epithelial substance, connected by muco-lymph red and green, shreddy, frequent, with severe bearing down pain in the hypogastrium; cramp of the rectum;* then unshapely strips pass in masses, with burning, constriction and soreness in the left side of the abdomen; advanced cases of dysentery, with suspect-

ed ulceration; fœtid; painless bloody mucus; involuntary brown liquid with slimy mucus. Chronic dysentery with ulceration.

Rectum and anus: Urging; *itching in anus* (Aesc., Sulph., Zinc.); *emission of noisy flatus; crampy pain in the rectum;* bearing down pain in the hypogastrium; constriction and soreness in the left side of the abdomen; ulceration in the rectum.

Accompaniments. Nausea after meal; *retching; vomiting;* flatulence; *desire for sugar in children; aggravation after taking sugar; aggravation after drinking.*

Remarks. Several cases of dysentery in children have been cured by the medicine, having the aggravation after taking sugar. Dysentery with green mucus associated with flatulence is another keynote. Ulceration of the rectum in dysentery has been healed by its use. Indiscriminate use of the medicine has aggravated many cases. Cases in which Arg. nit. may be used do not often happen.

ARNICA. *Stools:* Dysentery with *cutting* in *intestines;* with tenesmus suitable in low cases; frequent with necessity to lie down after every stool; small consisting of mucus; *brownish with blood; purulent;* involuntary during sleep; painless; *offensive;* purulent bloody stools; frequent, scanty, small, mucous stools. Hæmorrhagic dysentery.

Rectum and Anus: Tenesmus; urging; pressure at anus; bruised pain in back; rumbling; burning in anus with shooting (Sulph). Prolapsus ani.

Accompaniments: Repugnance to food, to meat and broth; fœtid breath (Nit. ac., Sec.); putrid, slimy taste and eructation, offensive flatus (Sulph); distention of abdomen with frequent urging to stool. Swelling of the right side of the abdomen.

Remarks. Arnica is capable of being used in cases where offensive nature of the discharge is manifest. It has fœtid breath, putrid taste and eructation and offensive flatus and stool. They show the nature of the putrefactive process. Low cases of dysentery with offensive stools and blood are the other indications. The prostration is shewn by the necessity to lie down after every stool.

ARSENICUM. *Stools. Watery; mixed with blood and water;* offensive; painful; frequent; profuse; yellow mucus without pain or tenesmus; yellow, scanty with tenesmus, and colic around umbilicus; greenish mucus; *greenish with bloody water; black fluid burning the anus;* tenesmus; *abdominal pain; tearing cutting in abdomen; dark bloody-coloured; black mucus with persistent vomiting; frequent, violent, offensive black; yellowish mucus with tenesmus and burning pain in rectum and anus* (Aloes); discharges fœtid and foul; fluid fæces mixed with blood, chocolate coloured; slimy morning and afternoon. *Before stool,* torturing sensation as if the abdomen were constricted; griping. *During stool,* a feeling of contraction of the rectum. *After stool,* straining; tenesmus with burning in rectum and anus; exhaustion. Stools containing grumous particles; prolapsus of rectum, shootings in hæmorrhoidal tumour.

Rectum and Anus. Painful spasmodic protrusion of rectum; hæmorrhage from rectum; *burning with weakness and trembling after stool;* smarting; *urging to stool;* ineffectual urging; *tenesmus, with burning, pain and pressure* (Sulph., Nit. ac.); hæmorrhoids, blind, painful, with slow hot prickings; hæmorrhoidal tenesmus causing burning pain; burning hæmorrhoids burning like fire, better from heat; tenesmus; a feeling of contraction of the rectum; straining; prolapsus of rectum; shootings in hæmorrhoids.

Accompaniments. Great restlessness and tossing about in bed; sensation as if the abdomen would burst; great exhaustion; palpitation of the heart and distention of the abdomen; thirst or want of thirst; face sunken; great anguish; frequent weak pulse; fœtid urine; skin icy cold covered with clammy sweat; the patient complains of intense burning heat internally; cold, sticky perspiration.

Remarks. Arsenic has sometimes done wonder in hopeless cases. It is generally indicated in watery, bloody, mucous, painless and offensive stools. The medicine should be administered in cases when the acute stage has suddenly merged into the condition of collapse, shewing the critical state. It should

not be often resorted to and without proper selection causes more harm than good.

BAPTISIA TINCTORIA. *Stools: Papescent stool with much mucus, but no real pain; discharges of pure blood,* with very little mucus; bloody mucus; dark brown mucus and bloody stool; brown, thin, watery mixed with blood; small stools, all blood, not very dark, but thick; dysentery with acrid faecal discharges, frequent, small and offensive; *very offensive; often painless;* dark thin mixed with blood; *bloody discharge with slight tenesmus, but not painful.*

Rectum and Anus: Tenesmus during stool; violent colicky like pains in the hypogastric region before stool; hæmorrhoids; upwards drawings in the rectum.

Accompaniments: Rigors; pains in limbs and small of back (dysentery); great prostration; unusual prostration in proportion to the attack; brown tongue; low fever; fœtid breath; urine and perspiration extremely offensive; typhoid symptoms.

Remarks: Baptisia is indicated in cases of dysentery with low fever, the prostration is more profound than the severity of the attack. Thin, bloody, offensive, but almost painless stools, with typhoid symptoms, call for its use.

BELLADONNA. *Stools: Greenish, slimy, bloody, with great tenesmus;* frequent inclination to evacuate, with tenesmus, but ineffectual; *frequent small evacuations with mucous stools and tenesmus; hot stools;* only mucus *without blood;* stools watery or slimy; thin greenish stools with mucus; frequent; small; bloody mucus like meat washings; foetid; *involuntary from paralysis of the sphincter of the anus;* granular mucus; papescent with mucus; sometimes foetid. *Before stool. Perspiration;* sore aching in the upper part of the abdomen; constant pressing towards the anus and genitals as if everything would be pushed out; griping. *During stool.* Shooting in the rectum; *Tenesmus;* nausea; aching pain in the stomach; *shuddering; tenesmus so severe as to cause shuddering. After stool. Tenesmus;* shuddering. Sometimes cessation of pain; rather sleepy.

Rectum and Anus: Shooting; *squeezing constrictive pain in the lowermost intestines, alternately with shoots or jerks in the direction of the perinaeum. Tenesmus, a constant pressing and urging towards anus and genitals, alternating with painful contractions of anus. Straining to stool, then scanty evacuation, then increased straining.* Constant desire for stool. *Urging to stool, which is thin with mucus. In dysentery, the mucous membrane of the anus is swollen and everted, with excessive tenderness.* Bleeding hæmorrhoids. Prolapsus ani.

Accompaniments: Delirium; stupor; lethargy; fever; urine scanty or suppressed; nausea; vomiting; abdomen tumefied with tenderness to touch; pain in the abdomen as if sore and raw; tenderness on pressure; feeling of distension, with constrictive pain in the abdomen below umbilicus, the latter coming in jerks and obliging bending double; feeling of fulness in the abdomen worse after stool; in abdominal affections characterised by extreme sensitiveness to touch, intolerance of even the clothing, with great heat; pains of constrictive character, relieved by bending forward.

Remarks: Belladonna is applicable to cases of dysentery with intestinal inflammation taking the character of enteritis. The small intestines are more or less involved. The inflammation of the anus with swelling and eversion of the mucous membrane also helps its use. In dysentery with hot stools it has a place.

Brucea. There is no separate proving of Brucea, which is no other than the Nux Vomica bark. Symptoms of proving of the Nux Vomica bark has been mixed up with those of the Nux Vomica seed. The following symptoms are taken mostly from clinical cases cured by the tincture of the Nux Vomica bark and Angustura Spuria.

Stools: Dark; green; slimy; offensive; mostly mixed with blood; sometimes *yellowish mixed with mucus and blood; whitish mixed with tenacious mucus and streaks of blood; thin bloody mucus;* frequent; *small;* scanty and corrosive; passing of blood before, during, or after stool. Sqeezing as from claws, in the

abdomen followed by frequent, small, slimy evacuations. The pains in the abdomen cease after the first evacuation; shootings in the umbilicus after the evacuation. Dysenteric stools with colic and flatulency.

Before stool: Backache; constant urging. *During stool.* Backache; tenesmus. *After stool.* Cessation of pain and tenesmus. Sometimes alleviation and not cessation. Ulcer in the rectum.

Rectum and Anus. Constant urging and tenesmus.

Accompaniments. Aggravation either in the morning, after food or in the evening. After abuse of alcoholic drinks or taking narcotics. Ganja smoking, etc. Painful pinching in the abdomen.

Remarks. Good effect has mostly been derived by the use of Brucea in cases passing blood before, during or after stool. In simple mucous dysentery it has little effect. In ulcerative dysentery when the case has not sufficiently advanced, it is worth a trial. In ulcers of the rectum it has proved efficacious.

BRYONIA is used in cases where dysentery has been caused by the impaction of hard fæces. Mucus and blood preceded by hard stool is a leading symptom. The aggravating symptoms are that the pains and discharges are brought on from motion, even after turning in bed, raising the arms or bending the toes. A slight change of position brings on the urging to stools. Tenesmus after passage of hard balls is a painful symptom. Sometimes the large balls are so hard that they do not come out of themselves unless broken into pieces or scooped out.

CAMPHOR. It is a medicine for dysentery and applicable to cases of severe type where there is fear of impending collapse. In cases protracting for a long time without sloughs, its administration is necessary to arrest the further development of the micro-organisms.

The form in which it can be best administered is in water. Aqua Camphor is better applicable than the tincture with absolute alcohol or rectified spirit. Its efficacy has been observed

in many cases. In children, the best form of administration is in globules touched with tincture camphor.

It cannot be doubted that Camphor has a suitable place in dysentery. In both the bacillary and amœbic varieties it is applicable. In severe types of either form of the disease, it should be used. In chronic amœbic cases, it is worth a trial. In cases of severe urging or tenesmus, it serves the purpose of an intercurrent remedy. In dysentery with hot stool before Sulphur and Belladonna it should be administered.

CANNABIS SATIVA (Bhang or Siddhi) has largely been used by the Kabirajes to cure dysentery, and sometimes they can do so with great success. For the following symptoms it has been used with efficacy :

Severe tenesmus; sensation in anus as if he were sitting on a ball, as if anus and part of urethra were filled with a hard ball; frequent urging; cutting colic; *ulceration in rectum;* urging; urging with much straining.

Remarks. It has sometimes been used dry fomentation in the form of a small bundle covered with cloth in the anus, when tenesmus is severe or feeling of great soreness exists after frequent stool.

CANTHARIS. *Stools:* Dysentery, *with burning in anus;* rectal irritation; *stools consisting of blood and mucus* (Caps., Merc. c. etc); only white mucus; green mucus; watery brown or yellow stools mixed with mucus and blood; cutting in abdomen after each stool; biting pain in anus; frequent stools with colic; *bloody; skinny; sloughing; putrid; like washings of meat;* bloody mucus; corrosive; *scrapings from bowels;* hæmorrhagic dysentery. *Before stool.* Colic; urging; griping. *During stool. Cutting; burning like fire in the anus; urging extorting cries. After stool. Tenesmus;* cutting in abdomen; *burning, biting and stinging in anus; chilliness;* shievering.

Rectum and Anus. Cutting with urging to stool. Burning. *Tenesmus* (Caps., Merc. c.). Frequent urging; passage of pure blood from anus and urethra. *Pain in perinaeum, seeming to arise from the neck of the bladder rather than from the root of*

the penis. Tremendous burning pain through the whole intestinal tract from the bowels down to the anus, with painful sensitiveness of the abdomen to the slightest touch; itching in perinæum.

Accompaniments. Disgust for food; nausea; vomiting; abdomen distended; tympanitic (Terebinth); *cutting during stool, afterwards shivering* (caps.). Griping. Inflammation of the whole alimentary canal. *Burning along the alimentary canal.* Abdomen very sensitive to touch.

Remarks. In severe forms of acute dysentery when the whole intestinal tract is involved, Cantharis has a suitable place for administration. Burning along the whole intestinal tract, burning in anus and passing of stools with mucus and blood, scrapings of intestinal muscles and discharges like washings of meat form the principal character of the case. The disproportionate collapse is another indication. It should be said that cases rarely happen where Cantharis can be safely administered. Special care should be taken for the selection of the remedy.

Capsicum. *Stools: Small; frequent passages, consisting of mucus, at times mingled with blood and causing tenesmus.* (Merc. c., Canth.) *preceded by flatulent colic in hypogastrium;* dysenteric stools, then tenesmus; *urging to stool after drinking, passing little mucus; mucus with tenesmus; small stools of only mucus; very frequent stools, streaked with black blood, with violent tenesmus and burning both in the rectum and bladder;* thin, adhesive, slimy, mixed with black blood; shaggy, slimy and bloody; expelled with great force; *drawing pains in the back, which with the tenesmus are continued after the stool,* which consists of adhesive slime, mixed with black blood, with twisting pains above the navel, small and frequent; nocturnal diarrhœa, with burning pains in the anus; *stools bloody, tenacious, mucous, with excessive burning and tenesmus, also, associated with tenesmus of the bladder* (Canth., Merc. c); *also, particularised by excessive thirst, with shivering from drinking* (Ars.), *and by severe pain in back after the stool* (Nux v). *Before stool. Flatulent*

colic; twisting pains about the navel; urging to stool after drinking; drawing pains in the back; *tenesmus. During stool. Twisting pains about the navel;* drawing pains in the back; *tenesmus;* burning in anus (Berb., Sulph.); strangury; biting-stinging in anus; pain in blind hæmorrhoids. *After stool. Tenesmus; burning in anus; thirst and after drink shivering;* drawing pains in the back.

Rectum and Anus. Tenesmus; urging to stool after drinking but only a little mucus passed; feeling as if he would have stool as soon as he drank anything (Crot. t.) *but only a little passed every time.* Hæmorrhoids itching at times; blind hæmorrhoids paining severely during stool; discharge of blood; burning in anus (Berb., Sulph.); biting-stinging in anus, with dysenteric stools; itching in anus; tenesmus; hæmorrhoidal tumours with burning, (with burning bleeding); burning in lower part of rectum, with sensation of rawness and throbbing and pains in the back.

Accompaniments. Feeling in abdomen as if distended, even to bursting causing suffocation. *Colic, with cutting twisting about navel and passage of tough mucus, at times mixed with black blood, after every stool thirst, and after every drink shivering* (Ars., Verat.); drawing and twisting, with and without diarrhœa; tension, especially in epigastric region, between pit of stomach and navel worse on motion with tension in lower part of back; tensive pain extending to chest as from distension of abdomen; strong pulsations in blood-vessels; warmth in intestinal canal; pain in hypogastrium as from flatus; tenesmus of the bladder; taste like putrid water; pains aggravated by currents of air, though warm; aggravation after drinking.

Remarks: Capsicum is suitable in dysentery with small, frequent stools mixed with blood and colic before and during stools and burning in the rectum and anus. The aggravation after drinking with shivering is a keynote which is rarely met with. Severe tenesmus and burning in anus are the leading indications. It has urinary tenesmus shewing congestion not only of the rectum and anus but also of the neck of the bladder, on account of the contiguity of tissue the portion of the organ is affected.

Meteorological Observations taken at 8 A.M. at the Indian Association for the Cultivation of Science, Calcutta.

For the Month of November, 1907.

Date.	Barometer.	Wind.		Temperature.		Humidity.	Cloud.	Rainfall in inches of past 24 hours.
		Direction.	Velocity per hour in miles.	Maximum.	Minimum.		Proportion.	
1	29·930	S	1·0	85·8	72·0	84	*Nil*	
2	29·968	W	1·3	86·0	72·0	82	,,	
3	30·010	W	1·1	85·0	72·5	87	,,	
4	30·010	S	0·9	86·0	73·0	84	,,	
5	29·992	Calm	1·4	87·8	70·8	70	,,	
6	30·021	E	1·7	87·5	69·8	59	,,	
7	30·063	W	1·2	86·8	69·0	72	,,	
8	30·005	Calm	2·3	85·6	71·0	79	,,	
9	29·981	N	2·1	85·0	70·2	79	,,	
10	29·999	E	2·3	84·2	70·2	72	,,	
11	29·981	E	1·7	84·8	70·0	72	,,	
12	29·974	N E	4·4	85·5	69·0	72	,,	
13	29·995	E	3·2	84·8	68·0	72	,,	
14	29·934	N	2·3	84·0	67·5	61	,,	
15	29·868	E	1·3	83·5	67·4	67	,,	
16	29·860	E	1·4	83·0	66·8	65	,,	
17	29·894	Calm	1·2	82·2	67·0	80	,,	
18	29·946	N W	1·1	83·0	67·2	72	,,	
19	30·036	Calm	0·8	84·0	68·5	93	,,	
20	29·998	Calm	0·9	85·0	66·0	95	,,	
21	29·977	E	1·6	83·8	65·5	57	,,	
22	29·998	Calm	0·7	82·0	64·0	70	,,	
23	30.009	E	1·4	81·8	64·0	57	,,	
24	29·994	N	3·6	80·8	65·4	64	,,	
25	29·967	N	3·2	82·0	68·0	71	5	
26	29·967	E	1·5	82·0	66·8	76	4	
27	29·969	N	0·9	82·6	66·5	75	3	
28	29·981	E	0·9	82·5	67·0	78	*Nil*	
29	29·991	Calm	1·3	82·6	67·0	90	,,	
30	29·949	N	0·6	81·6	67·0	85	,,	
Mean	29·976	N N E	1·6	84·0	68·3	75	*Nil*	

No rain.

Remarks: The mean atmospheric pressure of the month of November was 29·976 as against that of the month of October

which had been 29·842, shewing an increase of ·154 inches. The mean direction of the wind was N N E, shewing its current from the north as opposed to the south-eastern direction of the last few months. The struggle between the north and the south winds was decided in favour of the north manifesting the approach of the cold season. The mean velocity of the wind was 1·6 miles per hour against 2 miles of the month of October, shewing comparative calmness. The mean maximum temperature was 84 degrees. In the month of October, it had been 90·5. The mean minimum during the month was 68·3 degrees. During the month of October, it had been 79·9. The difference of the two mean temperatures of the month was 15·7. The mean humidity was 75.

During the last month, the noticeable feature was the gradual increase of the mortality from cholera. In the week ending the 26th October the mortality rose to 75 in number. In the week ending the 2nd November it was 70. During the week ending the 9th November it lessened to 83. During the next week ending the 16th November, the number of deaths suddenly rose to 114. In the week ending the 23rd November the mortality came down to 108. During the last week ending the 30th November, again there was a sudden rise of mortality, shewing 143 deaths. The sudden rise and fall are inexplicable except on the assumption of more or less contamination.

The mortality from plague was only 4, the lowest recorded in the week ending the 26th October. During the week ending 2nd November, the mortality rose to 12. In the week ending the 9th November, it remained to 12. In the week ending the 16th November, it rose to 22. During the week ending the 23rd November the mortality was 18 and in the week ending the 30th November it remained to 18.

Mortality from smallpox never rose to more than three in a week. During the week ending the 9th November it was totally absent.

Deaths from fever during the week ending the 26th October were 177. During the week ending the 2nd November, the mortality was 166. In the week ending the 9th November, it was 199. During the next week ending the 16th November

the mortality rose to 203. In the following week ending the 23rd November it was 209 and in the last week ending the 30th November it was 196.

The highest number of deaths in a week during the month of November was 100. The gradual rise of mortality from September was most noticeable.

The total number of deaths in a week was gradually increasing. The respective figures during each week of the month were 633,685,784, and 871, making up 2973 deaths, among the population of 8,47,796. The ratio of deaths during the period was 45·55 per thousand population. In comparison to the ratio of mortality of the four weeks of October, there was an increase of 13·15 per mille.

EDITOR'S NOTES.

Duration of the "Lying-in" Period.

The *British Homœopathic Review* for December writes the following suggestive note:

"Dr. P. Jousset discusses in *L'Art Medical* the question of how long a woman should lie in bed after her confinement. He had always opposed the practice of not allowing her up till after three weeks, which has been the dominant teaching in the French school. Recent authorities state that involution of the uterus is complete by the ninth or tenth day, and that a sojourn in bed prolonged beyond this period gives rise to conditions favourable to displacement. In women who nurse their offspring involution is much more rapid than in those who do not, and early movements and changes of position facilitate uterine involution and have a favourable influence on the milk."

The Indian practice is to confine a woman in the lying-in-room for one month. What we have practically observed is that discharge from the uterus continues for a long time if not sufficient period of rest is allowed. At least, three weeks are necessary to stop the discharge by itself. Further, we have not seen frequent displacements in cases, when the females take rest for so long a time in the lying-in-room.

Aconite, Camphor, Veratrum viride.

The following useful hints in the *North American Journal of Medicine* for October, have an importance which does not require any comment:

"The pains of aconite are numbing, tingling, pricking, lacerating, stinging, formicating and what not. Each tissue in pain, cries out in its own language as the serus stich-pain, muscular aching-pain nervous shooting, lacerating pain, etc. So the pain of aconite, in being indicated in the congestion of may tissue, always depends upon, the tissue or tissues most involved. Whatever else they are, to accord with the aconite condition, they are bound to be violent and sudden in their appearance.

There are two other drugs which occupy common ground with aconite, as often indicated in the inception of such diseases as are characterized by the suddenness and virulence of their development. These are camphor and veratrum viride.

CAMPHOR. This drug is indicated very often in the initial stage of disease characterized by intense and sudden internal congestion. But it is the circulatory disturbance ushering in conditions of shock, looking for cause in :

First—Traumatism, sufficiently severe to destroy the harmonious action of the vital organs.

Second—The chill ushering in an attack of cholera, or yellow fever, or the ingestion of severe concentrated poison.

CAMPHOR	ACONITE
Vascular relaxation.	Arterial tension.
Mental torpor.	Mental anguish.
Cool, pale surface.	Hot, dry, red surface.
Weak, irregular pulse,	Full, bounding pulse.
	Suppression of all secretions.
	Constipation.
	High temperature.
	Suppressed urine.
	Watery diarrhœa.
	Subnormal temperature.

In short, aconite presents to our eyes a condition of over-nutrition, of exaggerated functions, while camphor gives us intense and alarming vital depression with under-action of all the vital organs—really opposite conditions.

VERATRUM VIRIDE gives us a nearer approach to the aconite conditions, but its action is confined to the organs supplied by the pneumogastric nerve, giving us with the fever and vascular tension a cerebral congestion, with nausealess vomiting of cerebral origin and dull, torpid brain. The pulse is full and tense but slower than normal. It is often indicated in the congestive stage of pneumonia, presenting at the same time symptoms of vital depression and a tendency to spasmodic symptoms, indicating it in diseases with are ushered in by clonic convulsion, showing great systemic disturbances, with no tendency to reaction".

Australian Snakes.

The *British Homœopathic Review* for December thus speaks of the Australian Snakes :

"We learn from a newspaper cutting sent to us by William George Watson, M.A., M.B., of Sydney, New South Wales, that though there are some very venomous snakes in New South Wales the

death-roll during the past fifteen years has averaged only four or five per annum, and that of a total of 190 cases of snake-bite the gross fatality rate was but 16·3 per cent. Five species are included in the category of "deadly snakes," viz., the death-adder (*Acanthophis antarctica*), the tiger snake (*Notechis scutatus vel Hoplocephalus curtus*), the black snake (*Pseudechis porphyriacus*), the brown snake (*Diemenia textilis*), and the superb snake (*Denisonia superba*). Most bites occur during the hotter months of the year. With regard to treatment, Dr. Tidswell, the author of a work on "Researches on Australian Venoms, Snake-bite, Snake Venom and Antivenine," thinks there is no proof that strychnine exerts any beneficial influence, and that "the antivenines hitherto obtained were only effective against the venoms with which they were prepared, so it followed that a separate serum was necessary for every kind of snake venom. Thus snake-bite would appear to be for the moment beyond the sphere of practical serotherapy." He condemns the giving of the large quantities of alcohol, which is the popular treatment, and considers that lay treatment should be confined to the application of a ligature, followed by scarification and sucking of the bite, or to excision when a ligature cannot be applied, and to the giving of stimulants in small quantities if the patient is faint."

Death from the bite of venomous snakes are so frequent in India, that it requires a special study. After the efforts of Drs. FAYRER and SIRCAR, little has been done to further our knowledge of the venoms of Indian snakes. The last research is by captain S. P. JAMES, a medical officer of the Indian Government. The antivenine of Dr. Calmette has succeeded in a few cases of bite of the Krait serpent (Bungarus Cerulaeus), but an extended experiment is necessary to decide the applicability of the antivenine in all cases of serpent bite. The reasonable possibility is that one kind of antivenine will not suit for all cases of serpent venoms. As the action of the different kinds of poisons essentially differs from each other, so it is possible that different antivenines will also differ in their mode of action.

Tests of Cardio-vascular Efficiency.

The *New York State Journal of Medicine* of November, has the following interesting note:

"The present methods in vogue for making examinations of the heart seem satisfactory enough if some gross lesion which is easily

discovered exists; but the physician sees many cases in which as a matter of fact he really is able to discover nothing, but still in which he regards the heart as not altogether normal. We may learn something of the functional power of the cardio-vascular apparatus by certain inquiries as to shortness of breath upon exertion, the number of pillows one requires in sleeping, the presence or absence of palpitation, the matter of cyanosis, cough, etc. Cabot and Bruce have supplemented their inquiries by further studies of the general condition of the patient and by observations of certain signs. One of the valuable tests to which they call attention is the effect of changed position. The normal difference between the pulse rate in standing and the lower pulse rate in the recumbent position disappears when the heart is seriously weakened. In healthy individuals there is a normal slowing of seven to fifteen beats per minute produced by recumbency. This number they find is reduced or altogether lost in cases of uncompensated valvular disease, and when the heart is seriously weakened.

Herz's test (Selbsthemmungsprobe) consists in counting the pulse over a sufficiently long period to assume a reasonably constant rate per minute. The patient then is made to sit down and very slowly flex and extend the right forearm, putting his full attention upon the movement, and endeavoring to avoid any contraction of the muscles. The physician all the while supports the patient's elbow with his left hand, while with his right hand grasping the patient's wrist, he directs the slow movements of flexion and extension, without, however, assisting or hindering them in any way. In the normal heart it seems that this procedure exerts no influence upon the pulse rate, but in the weakened heart the rate is notably slowed. Certain hearts which show no other evidence of disease are slowed from five to twenty beats. In carrying out this test extension and flexion each should consume a full minute.

Katzenstein's test consists in compressing both femoral arteries just below Poupart's ligament and noting the effect upon systolic blood pressure in the brachial artery. In normal persons this procedure causes a rise of 5 to 15 mm. of mercury in the systolic pressure within two or three minutes. If the heart is weakened from any cause the pressure will be less elevated or not at all.

The test to which Cabot and Bruce have given the most attention is that elaborated by Graupner of Nauheim. He found that after the pulse rate has risen as a result of exertion and again fallen to normal, the systolic blood pressure begins to rise, reaches its maxi-

mum some minutes later than the pulse rate, and gradually falls thereafter to normal or sometimes below normal. This phenomenon is observed in normal cases. In weakened hearts, if the damage is but slight, this still occurs, but is delayed or diminished. In seriously weakened hearts it does not occur at all, the blood pressure declining from the start, and then gradually reascending to the normal. This can be easily tested by the healthy person who will run up a couple of flights of stairs and then count his pulse. After the immediate acceleration has passed or during the slowing of the pulse following, it will be noted that the heart beat and strength of the pulse become much exaggerated. One feels the thump of the heart against the ribs more strongly after the pulse has almost or quite reached its normal rate than during the preceding period when the pulse is most accelerated. Graupner, in making his test, employs a weight-and-pulley ergometer.

Tests such as these are of much value, for in the diagnosis and prognosis of cardio-vascular disease the functional ability of the organs is the main thing, and is really of more importance than discovering the anatomical changes which have heretofore received so much attention."

The cardio-vascular efficiency is not generally taken into consideration in weakened hearts. The palpitation which means extra effort of the heart to propel blood indicates deficient power of the heart for ordinary work. It may also be due to nervous influence. The great difference of the pulse rate on motion and in rest is surely an indication of weakness of the heart. The continued palpitation even after rest is a significant indication that there is something very wrong in the action of the heart. The disclosure of undetected valvular inefficiency is mostly manifest after a little work or even slight movement. But the two conditions should be separately taken into view. Cardio-vascular inefficiency is distinct from valvular inefficiency. The first generally implies functional derangement, whereas the latter is mostly organic.

The India Office and Mr. W. M. Haffkine.

The *Lancet*, November 30, writes:

"We are glad to announce that the matters at issue between the India Office and Mr. Haffkine have been settled in a manner that is honourable to both parties. Mr. Haffkine has received a letter from the India Office saying that the Secretary of State recognises

that, though the views on the matter are not unanimous, an important body of scientific opinion is favourable to him in the question of the origin of the Malkowal disaster, and adding that the Secretary's own attitude is indicated by the offer of employment upon honourable terms. To this letter from the India Office Mr. Haffkine has replied expressing gratitude for the expressions contained in it, accepting the offer, and stating his intention of proceeding to India at the earliest date by which he can get ready the apparatus necessary for his work. The details of this sad affair have been published in our columns so fully and recently that we are sure that readers are familiar with them. They may think that the measure of justice done to Mr. Haffkine is scant as is unfortunately almost always the case with the defendant in a prolonged dispute—a verdict in the end can never repay him for the anxiety of time of arraignment. Mr. Haffkine has borne his trial with the greatest dignity, and we congratulate him heartily upon the recognition which his work has received from the India Office, and upon his resolution to take up that work unaffected by the troubles that have now passed."

The Malkowal disaster of fourteen deaths from tetanus after inoculation of the anti-plague serum prepared by M. Haffkine is a tragic event which we cannot easily forget. It is said that this disaster is one of the causes of the unrest in the Punjab. Taking into consideration the sober facts concerning inoculation of the anti-plague serum, it can be said that the Haffkine inoculation has failed to prevent the spread of plague especially in the Punjab where many cases of inoculation have been practised. The Government of India may resort to this fruitless procedure in the absence of any better method adopted by the dominant school, but it seems that it is wasting money in a scheme which has not proved effective in ten years.

Mr. Haffkine has been extricated by a few specialists in England with regard to the fault of producing tetanus by his serum, but it can be said that the fatal results were not accidental. If it were not Mr. Haffkine's fault, the enquiry of the disaster has not given out the name of the careless person for whom so many deaths happened. It seems that almost all disasters in India are accepted as accidental and the India Government has imbibed the fatalistic idea which is concurrent among the people of the country. The white-washing of Mr. Haffkine has been done, but the fourteen deaths still disclose an amount of carelessness which cannot be hidden from public remark.

CLINICAL RECORD.

Foreign.

CHELIDONIUM IN BILIARY CALCULUS AND COFFEE POISONING.

By Myra L. Hewitt, M.D.

Mrs.——, age 28, had been an invalid for several years, though around the house most of the time. She had frequent sudden attacks of pain in right hypochondriac region, extending through to back and up back toward shoulders. The condition had at various times been diagnosed "liver trouble"—floating kidney—gall stones—inflammation of bowels—and "female trouble," and she had been treated for each of the diagnoses, the pain controlled each time with morphia hypodermic and the attack followed by three or four days in bed.

When first seen the patient had suffered the usual attack of pain two days before. She had taken hot whisky at the time, and by keeping quiet and applying a hot water bag over side had managed to worry through the worst pain. I found her in a state of great mental excitement, though too weak and tired to keep going. She was nervous, sleepless, faint and trembling, pulse fluttering, neuralgic pains she could not describe, headache worse for motion, noise, light and draft of air, face yellowish gray. Said she could not stop *thinking* all night long enough to get to sleep. Great sensitiveness over liver and gall bladder. I gave Coffea crudum c c and asked for report the following day, but did not hear from her again for a week.

At that time I found the excited condition no better, face was more yellow though not jaundiced, right hypochondrium tense and painful to pressure, pinching pain in stomach, ameliorated by eating, liver somewhat enlarged and sensitive, appetite absent, some nausea without vomiting. The coffee symptoms still seemed prominent, but she had not improved under Coffea crudum. Upon inquiry I learned that the state of excitability and sleeplessness had persisted for something less than two years. She had been married and housekeeping a few months more than two years, so I asked "How much coffee do you drink?" "O," she said, "I keep the coffee-pot on the stove all day, and whenever I feel tired from my housework I drink a cup of coffee." She had been drinking probably eight or ten cups a day, but said if there was promise of being better of the old trouble

she would do anything I advised. The coffee was stopped, and she was put upon Chelidonium c c with marked improvement before a week passed. It is now nearly two years since the Chelidonium treatment was begun. She received in all eight prescriptions, and with the exception of an attack of grippe, and a slight menstrual trouble, she has been well and is now rosy and gaining in flesh. Five months after beginning treatment she had a recurrence of gallstone colic, relieved by Colocynth 1m, and has had no other attack since. She had previously suffered these attacks every five or six weeks, until she had despaired of ever getting well.

This was a case worked out by Repertory, and for the satisfaction of any who might think that sometimes the work with Repertory takes more than the proper time allowable to a *single* case, I want to say this one satisfied patient since her cure has brought to me eight other patients.—THE *Medical Advance*, October, 1907.

THE HISTORY, STUDY AND TREATMENT OF A CASE.

By MAURICE WORCERTER-TURNER, M.D.

Miss R., nearly sixty years old at the beginning of this illness, is of medium height, with brown hair and eyes, swarthy complexion. For a clear presentation of her case it is necessary to give in chronological order her family and personal history.

History: First as to her twin sisters, one married and had two daughters, soon after the second was born she became insane and died; the other sister was sent to Westboro Insane Hospital about sixteen years ago; she recovered but had to be taken there again three years later, and died of Cerebral Hæmorrhagic Pachymeningitis as the autopsy revealed.

Then Miss R's father and later her mother died; they were both very old and perfectly sound mentally.

One of her nieces is happily married and the mother of several children. After all of her pregnancies she was a "little queer." The other niece is unmarried, very erratic and unreliable. She has given Miss R. much worry for the last four or five years on account of her eccentricities.

About five years ago Miss R. had nervous prostration, not severely but associated with much vertigo. The condition lasted about four months and gradually yielded to Cocculus indicus. Afterward she seemed as well as ever.

All the care of the property has fallen on Miss R., and as she never was much of a business woman it has not only been difficult for her but another source of worry.

In the summer of 1905 Miss R. went with friends to Europe. While away only three months yet she reported on her return that she had slept in thirty-five or thirty-six different places, an average of only three days in each place. She was much exhausted by the trip; her home-coming was not happy as none of her family seemed particularly glad to see her, and as a result she was much depressed; then the work of opening her house and trouble with servants increased the dejection and she became insomnic.

Some of Miss R.'s friends, as had been their habit for several years, came to live with her through the winter. They are of the Christian Science fold and have considerable influence over Miss R. who was told that she was better, or that nothing was the matter with her and so forth.

Symptoms. By Christmas she was worse, slept but little and most of the day and night walked about wringing her hands, groaning and muttering to herself. Fortunately her appetite remaining good she was well nourished.

At this time I was asked to interfere, and after telling her niece's husband, who lived some distance away, about her condition, he acted at once and miss R. was taken to the house of a friend who was willing to have her and a nurse. If this refuge had not offered and it had been necessary to take Miss R. to a sanitarium surely it would have been more difficult to cure her.

The change was made none too soon, as her appearance and actions were those of one distracted. She constantly walked around and groaned, could not answer the simplest question without taking time to think and even then the answer was incomplete and very slowly and disconnectedly given. At times she answered 'no' to all questions. Her memory was much impaired and for some things destroyed, for example, she had great difficulty in remembering words and names. She also feared to see people yet was afraid to be alone. Often in the midst of her walking she would stop and listen, asking those present to hush, as if she heard voices; besides she was timid, suspicious and fearful that something was about to happen.

While Miss R. knew where she was yet she was sure we were going to take her away and at each of my visits she would say several times: "You know, you know," and then after a pause, "where I ought to go," and would get no further. At first I asked, "where,

to a sanitarium?" and the answer came with great reluctance and difficulty—"no, no, to, to prison," as she had a fixed delusion that she had misappropriated money she held in trust and ought really to be punished.

There were other delusions, one that the medicine was to poison her, so she refused it and we had great difficulty in persuading her to take it.

For several days she hardly slept at all and at first would not go to bed, finally when she did go she would sit bolt upright in bed and wanted the lights burning all night.

Her hands were always busy fumbling with her buttons or picking things of her dress.

In manner she was often excited and then the mutterings would increase and she would say things which suggested that she had thoughts of suicide and fear of being insane as were her sisters. She said once, "you know how Minnie went (the sister who died at Westboro), and I shall go the same way."

Study of the Case: On account of the wish for light, the fear of being alone, together with the mild character of the delirium, the confused memory, the flushed face with staring eyes, the restless state in the day and in bed, and the weeping, I lost some time over Stramonium given in the 200th. After it was repeated without effect I realized it was inappropriate and looked over the case again.

After several unsatisfactory studies I began with the remedies under "groaning," page 57 Kent's repertory, (which also includes Stramonium in the list), and then took "memory, weakness of, for words," page 71.

This gave five remedies: Baryta carb., Com. ind., Kali brom, Lach., Plumb. met. Then looking up these medicines in the materia medica there was no difficulty in selecting Kali bromatum which seemed to cover perfectly.

Miss R. was given two doses, dry, twelve hours apart, of the 1000th Fincke. Improvement began at once but she retrograded on the fourth day and the remedy was repeated then and again at the end of another week for the same reason. Then she went four weeks getting better all the time, then a slight relapse and the Kali bromatum was given once more. The remedy, except the first time, was given in single doses and always a powder dry on the tongue in the 1000th potency. All her delusions had now disappeared and she regretted not having come for care earlier. Some little agitation on meeting even friends remained, and when tired her head felt confused.

On April 4th, 1906, six weeks had elapsed since the last dose of medicine. Now, as headache and some confusion had returned, another powder of the 1000th was given. The same state of things appeared for the last time on June 12th, and Miss R. then received a powder of Kali bromatum, so that this remedy "held the case" with a satisfactory lengthening of the intervals between the necessary repetitions. At present, May 1st, 1907, she is in perfect health.

I wish also to call attention to the fact that Kali bromatum, while hardly to be classed as an anti-psoric nor a long-acting remedy, was itself sufficient to complete the cure.

Addenda: Of the foregoing case the following symptoms in whole or part are to be found in the "Guiding Symptoms" and also in Kent's Repertory.

Groaning, p. 58, K.
Memory, weakness of for words, p. 71, K.
Restlessness, general rubric, p. 77, K.
Speech, hesitating, p. 85, K.
Speech, slow, p. 86, K.
Weeping, general rubric, p. 95, K.
Insomnia, general rubric, p. 1187, K.

These are in the "Guiding Symptoms" and not in Kent's though in the latter they might be added tentatively in rubrics on the pages given:

Answers slowly, p. 13, K.

Afraid to meet people
Afraid to be alone } Company, aversion to yet dreads being alone. } p. 21, K.

Delirium; muttering to himself, p. 28, K.
Compare muttering to himself, p. 73, K.
Compare muttering, General rubric, p. 73, K.
Compare moaning, general rubric, p. 72, K.
Delusions, hears voices, p. 43, K.
Excitement, p. 48, K.
Fear of being insane, p. 52, K.
Fear of being poisoned, p. 53, K.
Fear of being spoken to, p. 54, K.
Restless in the night, p. 77, K.
Suspicious, p. 89, K.
Timid, p. 92, K. (given in K. as "Kali b.")
Eyes staring, p. 263, K.
Face flushed, p. 359, K,

And these are neither in the "Guiding Symptoms" nor in Kent. The proper pages in the latter are indicated:

Answers, disconnected, p. 13, K.
Answers, monosyllabic, "no" to all questions, p. 13, K.
Fear of having committed a crime, p. 50, K.
Fear as if something would happen, p. 52, K.
Wringing of hands (see gestures), p. 57, K.
Light, desire for, p. 68, K.
Restless in day, p. 77, K.
Suicide, thoughts of, p. 89, K.

The next two came under rubrics a little differently expressed, the first is found in the "Guiding Symptoms," the second not. Pages in Kent suggested:

Walking about constantly, comes under "Restless" in general, p. 77, K., but does not occur under restlessness at different times of the day.

Hands busy, fumbling; compare "Picks at bed clothes," p. 57, K.

And lastly three new rubrics which do now occur in the "Guiding Symptoms" nor in Kent, pages for the latter given:

Delusion of being a thief or of having stolen, p. 42, K.
Slow thought, pp. 85, 91, K.

Lie down, will not, sits up in bed, p. 1297, K.—The *Medical Advance*, October, 1907.

PAINFUL CRAMPS IN WHOOPING-COUGH.

L'Art Medical for July contains an account of a case of whooping-cough in a man of 45, in whom the attacks of coughing (12 to 15 in the 24 hours) were not very severe, but accompanied generally by a very painful spasm of some of the neck muscles, notably the trapezii, causing marked extension of the head on the spine. Simultaneously temples, ears, and the top of the head (the patient was bald) became of a bright scarlet colour; the spasm and the congestion lasted several minutes after the cough ceased, and vertigo was often experienced when the spasm passed off. *Nux vomica* 6, followed by *Cuprum* 12, produced little or no improvement. *Naphthalin* 6 cleared up the whole condition in a few days.—The *Homeopathic World*, October 1, 1907.

VARIOLOUS KERATITIS; FREQUENT RELAPSES.

Reported by Dr. F. H. Bodman.

Another case of keratitis may be of interest in comparison with the one reported in September :—

Laura H., aged 37, single; first attended the Hahnemann Hospital as an out-patient, August 22nd, 1904. She had quite recently been an in-patient in a first-class eye hospital for five weeks, and had attended there as an out-patient for many years, but she had obtained little or no relief from this treatment.

The history she gave was that she had small-pox when she was about 18 months old, and during this illness her eyes were inflamed and ulcerated, that from that time she had been blind, and that there had been more or less pain in the eyes and intolerance of light ever since; but that every now and then these symptoms would be much more severe for some weeks. The eyes had been worse lately than they used to be. There had also been chronic otorrhœa and loss of smell since the attack of small-pox.

The condition on coming under treatment was as follows: There was intense photophobia and spasm of the eyelids; there was much congestion of the conjunctival and circumcorneal blood-vessels; there was diffuse opacity of both corneæ. The tongue was coated with yellowish fur. Medicines ordered: *Conium* 3x and *mer. sol.* 3x, every two hours alternately.

August 29th.—Condition the same. Intense photophobia. *Conium* 1 x and *merc. cor.* 3, 2nd hour alt.

September 5th.—Better. Repeat.

September 19th.—Still much pain at times, but better on the whole. Repeat.

September 26th.—Has had much pain in the eyes. *Ars. alb.* 6, *t.d.s.*

October 3rd.—Has had more pain. *Ars. alb.* 30, *t.d.s.*

Solution of *dionin* (gr. i. to ʒi. distilled water) to be used for eye-drops once a day.

October 10th.—Less pain. The drops give relief. Repeat *ars.* Use eye-drops three times a day.

October 17th.—Decidedly less pain. The drops cause a good deal of smarting for about ten minutes; after that there is decided relief. Repeat.

October 31st.—Better; can open the eyes better than for a long time.

November 28th.—Much better lately; still gets the pain in the eyes at times, but much less. *Gutt. dionin p.r.n., variolin* 6, *b.d.*

December 5th.—Continuing better. Repeat.

December 19th.—Better than she has been for more than a year. The eyes are less painful and there is much less injection. The corneal opacity of course remains the same. Repeat.

December 4th, 1905.—The eyes have been free from inflammation since the last attendance nearly a year ago. Has now come for treatment for cold in head and discharge from the ears.

July 16th, 1907.—The eyes have been rather imflamed and painful again the last week or two, but previously had been continuing comfortable. *Ars. a.* 6, *t.d., gutt. dionin.*

July 30th.—Decidedly better. Repeat.

August 13th.—Eyes comfortable again.

Remarks.—This case was an example of the destructive keratitis that occurs in some of the severer cases of small-pox; irrigation of the conjunctival sac with warm antiseptic lotion during the attack much lessens the liability to this serious complication.

Dionin (or *ethyl morphine hydrochloride*) is a useful anodyne in many cases of glaucoma, corneal ulcer, &c. It is also said to clear up recent corneal opacities. It is generally used in solutions of 1 to 5 per cent., but this case shows that it may be used conisderably weaker with good results. Sometimes it causes a good deal of irritation and chemosis, and therefore needs to be used cautiously at first. In this case it gave the patient great relief, and she came to have great belief in its value.

The lasting character of the relief experienced in this case points to the conclusion that it was not wholly due to the *dionin* drops; besides, this drug was almost certainly tried at the eye institution where she was formerly under treatment for so long as I happen to know that at one time they were giving it extensive trial there.

I think it is, therefore, fair to conclude that the *conium, merc. cor.*, and especially the *ars. alb.*, and perhaps the *variolin*, were responsible for much of the improvement which took place. At any rate the patient had no hesitation in saying that she had derived far more benefit from the treatment as an out-patient at the Hahnemann Hospital than she ever did either as in or out-patient, at the rival institution where homœopathy is not recognised.—*The British Homœopathic Review*, November, 1907.

A CASE OF POST-PARTUM METRORRHAGIA.

By Lawrence M. Stanton, M.D.

Before beginning it will be well to go back to the patient's confinement, and before finishing it will be necessary, as you will see, to go still further back.

Delivery had been difficult, and in the end it had been necessary to use the forceps. An hour after the child was born the placenta still remained in utero, despite efforts to secure it by usual methods. The patient was exhausted, was bleeding very freely and hovered between consciousness and unconsciousness. The urgency of the situation was plain. It seemed necessary either to introduce the hand into the uterus and deliver the after birth, or to try again Crede's expression with gentle traction on the cord. The latter was finally successful, but from the small and ragged appearance of the placenta I judged that a portion of it had remained behind. The perineum being torn I sewed immediately after the birth of the placenta.

The next few days were uneventful. Then the lochia became exceedingly offensive, and shreds of placental membrane were frequently discharged. There could be no doubt that some of the placenta was still adherent. This condition continued for the next few weeks. The temperature during this time ran only a little elevated, a trifle over or under the hundred mark. There were no signs of sepsis. Gradually, either with time or because of the several remedies given, the lochia diminished, becoming less offensive, and the membranous shreds disappeared. But as the lochia ceased a discharge of blood took its place. It was not profuse or continuous, occasionally a day or two passing without any. An examination revealed nothing; the lacerated perineum had healed; the cervix was intact; the uterus was involuting; there was no tenderness over the uterus. The temperature was now normal. The patient presented no pronounced symptoms, and the choice of a remedy was an unsatisfactory matter. Occasionally the patient would seem to improve, then back would come the discharge of blood. In this way we had arrived at the eleventh week since confinement. The condition of the patient at this time, in addition to the metrorrhagia, was as follows:

She did not regain her strength, and had to be on the bed the greater part of the day.

She felt worse in the morning on waking and better as the day advanced.

She had a great deal of headache, mostly a dull aching, coming and going, more pronounced in the forehead and vertex on the left side. She sometimes described it as a feeling as if the top of the head were strapped down. It was at its worst on waking in the morning; worse after sleep at any time and worse in a warm room. It was better after eating and in the air. In addition to this character of headache there was shooting pains in the occiput, also worse in the morning on waking. When tired she had a pulled back feeling in the occiput.

Palpitation and shortness of breath on going upstairs.

Such were the patient's symptoms.

The seemingly indicated remedy had helped but little. It is indeed true that "our observations are so meaningless until we are given the thread to string them on." As yet, then, I had not been given, or had not found, the thread for my observations in the case.

A new complaint fortunately now appeared which threw light on the dilemma. Yet not a new complaint, rather the reappearance of one from which the patient had suffered on and off for some years—a diarrhea. The symptoms of the diarrhea were these:

Urgent desire in the morning before getting up; a sense of weakness and insecurity of the rectum; the diarrhea painless; a scraped feeling in the rectum after a movement; each stool first solid, then liquid.

What was the remedy? Not Aloes or Sulphur. I had given them in the past with indifferent result. Besides it was not now merely a matter of the diarrhea. Here was the patient's whole condition to be met and the metrorrhagia as well.

What was the patient's remedy?

With the hint the diarrhea had given me I now felt that I had found it, yet wondered whether in my notes of the patient's history I should find further corroboration.

First, as to the diarrhea in the past. The attacks were essentially like the one from which the patient now suffered, the early morning aggravation being always marked, and the stools being first solid then liquid in character. Then, all her life the patient had been subject to troublesome urticaria. My notes also reminded me that in summer there was a tendency to a vesicular eruption on the hands.

Did these things confirm the remedy in mind? Yes, decidedly yes; and surely the remedy was Bovista. So it proved. The cessation of the metrorrhagia and diarrhea; the disappearance of symptoms; the regaining of strength, color and appetite—all this the

remedy accomplished in a most satisfactory manner. In due time regular menstruation, the baby having been put upon artificial food, came on and was quite normal. Whether the tendency to chronic diarrhea will be cured by Bovista I shall not yet venture to say.

Let us for a moment study the case and the remedy together, where the one touches the other.

First, then, the metrorrhagia. Bovista ranks high among the remedies for menorrhagia and metrorrhagia, especially where the flow is more marked at night or in the morning. In this case the metrorrhagia, however, was not worse at these times.

In general the patient was worse in the morning. That a morning aggravation is strongly characteristic of Bovista needs mention only.

The Bovista headache is worse on waking in the morning and worse after sleep at any time. This was the case with the patient's headache. Again the Bovista headache is worse in a warm room and so was the patient's. Her headache was relieved by eating. Bovista has many symptoms relieved by eating warm food. Its colic is better after eating.

In the diarrhea there are several points of interest. It occurred in the early morning, sometimes driving the patient out of bed: there was a sense of insecurity about the rectum; a feeling in the rectum after stool as if it were scraped; the stool was first solid then liquid. Bovista has stools in the early morning, driving out of bed, first part hard, last part thin and watery; after stool tenesmus and burning of anus.

The patient had all her life suffered from urticaria. Bovista has lots and lots of urticaria; urticaria with disposition to diarrhea, too.

Every summer the patient was troubled by a vesicular eruption on the hands. The Bovista eruption is worse in hot weather, and Bovista has moist eczema on the backs of the hands.

That Bovista, once we have the clue, strikingly resembles the symptoms presented by the patient is perfectly evident.

Yes, our observations *are* meaningless until we can thread them; and then, when we can, our former blindness is equally incomprehensible.

How eagerly in an obscure case must we watch for anything that may throw light upon it. Perhaps we shall be able to turn to account the recrudescence of old complaints, or perhaps in going back to the patient's past we may find that yesterday will suggest the remedy in a tight place to-day.—The *Medical Advance*, October, 1907.

Gleanings from Contemporary Literature.

THE LEFT HEMISPHERE OF THE BRAIN.

Its Influence on the use of the Arms and Hands.

By Dr. H. Liepmann.

The discovery, made by Broca about forty years ago, of the connection between the power of speech and the left hemisphere of the brain is properly regarded as one of the most important contributions ever made to our knowledge of the mutual relations of body and mind. It was the first instance of the localization of a mental function in a definite area of the brain. That the aphasia, or loss of the faculty of intelligent speech, which follows serious injury to Broca's convolution is not due merely to paralysis of the vocal muscles, is evident from the fact that the ability to write and read is also more or less affected. Hence it may be inferred that a person thus afflicted—with motor aphasia, to use the technical term—has to some extent lost the memory for words, for if the muscles employed in speaking were alone affected, the patient should still be able to write words, and to recognise written and printed words.

But only a part of the memory of the word is lost, for the patient still understands what is said to him. The memory of the sound of the word remains intact, but the memory of the muscular movements required in articulation is gone. The latter is that part of the verbal memory that is built up in childhood by continual practice in enunciating words and which makes possible the knowledge of the syllables and letters of written language.

Ten years after Broca's discovery, Wernicke studied a patient afflicted with sensory aphasia, that is, one who could not understand spoken words, and traced the difficulty to an injury of the left temporal lobe of the brain. The memory of the sounds of words was thus localized in the left cerebral hemisphere.

There are still many mooted points in the theory of aphasia, which has been built up by the labors of numerous physiologists during the last half century, but one fact, at least, is universally recognized—the great predominance of the left hemisphere of the brain in controlling the function of speech.

The study of other motor phenomena of complex character was long neglected. The theory of paralysis and cramps of the limbs was developed and later, that of a more special motor disturbance, ataxia, which is betrayed by sudden, convulsive and ineffectual movements. It was observed, also, that many persons suffering with brain diseases, though free from both paralysis and ataxia, performed many absurd actions, such as using a tooth brush, for example, as if it were a cigar. This condition to which the name apraxia was given, is

often the result of mistaking one object for another, and it was generally attributed entirely to this cause.

In 1900 I had occasion to observe a very peculiar case. The patient had no paralysis and he recognized objects perfectly, but he used them improperly. His gestures of greeting, threatening, beckoning, and other actions in which no objects were employed were equally grotesque. To this condition I prefer to give the name apraxia, while I designate as agnosia that perversion of actions which is caused by failure to recognize the character of objects.

In apraxia, as I define it, the patient is unable to move his hands and other members so as to perform acts properly, that is, he cannot make them obey his will. The most striking phenomena of both diseases may be comprised in the statement that the ability, acquired during life, to make various purposeful movements has been lost either because the movements have been forgotten or because the muscles cannot be induced to execute them. The arm and leg muscles are affected in apraxia much as the muscles of speech are affected in aphasia. In both cases the muscles have not lost their mobility but the co-ordination of impulses required for the performance of a complex action has become impossible.

My patient of 1900, like many other apractics had lost the power of speech. Only the right half of the body was affected with apraxia to any great degree. With his right hand he did almost everything wrong. He would stick a comb behind his ear as a pencil is ofen carried, wipe his nose with a handkerchief in which he had been asked to tie a knot, and grope wildly in the air in the attempt to remove his eye-glasses. But when the right hand was held, so that he was compelled to use the left hand, he did almost everything correctly. He could even write fairly well with his left hand, though the letters were reversed. This proved that he understood commands and recognized objects and consequently that he could decide to perform the acts requested, but he could not control the right half of his body. This right half behaved like that of an idiot, but the man was not an idiot. Nature had performed an exceedingly instructive experiment on the poor fellow, and I studied him very attentively during the two remaining years of his life.

My conjecture regarding the character of the brain lesion was confirmed by the autopsy. The nerve center which controls the right arm and leg and which is situated in the left hemisphere of the brain, had been deprived, by a process of fatty degeneration, of its many natural connections with the centers of sight, hearing, etc., in both hemispheres. Hence the directive impulses which are normally sent from the various special sense centers to the hand center were transmitted imperfectly or not at all.

I and other physiologists soon discovered many other cases of apraxia which differed greatly in detail. It was founded that apraxia "is as

common as aphasia in diseases of the brain, and that its study gives an insight into the dynamics of cerebral processes and the psychology of the most important phenomena of life. It is especially interesting because it is intimately related to certain phases of insanity and because the explanation of the mechanism of elementary acts brings us a step nearer to the understanding of the higher abnormalities of conduct which we observe in the insane and which are not directly connected with apraxia.

The recognition of the condition of apraxia also leads to other results. For the benefit of non-medical readers I will premise that the right half of the body is governed by the left cerebral hemisphere and the left half of the body is governed by the right cerebral hemisphere. For example, an electrical stimulus applied to a certain region in the left hemisphere produces contraction of the right arm and leg. Such a region is called the "center" of the member or function which it governs. Paralysis of the right arm is produced by serious injury to the arm center in the left cerebral hemisphere and conversely.

Now my observations of more than 150 cases of brain disease have led to the following remarkable results. Those patients whose left arms had been paralyzed by lesions in the arm center in the right cerebral hemisphere could use their right arms and hands as well as ever. But about half of these patients whose right arms were paralyzed had more or less completely lost the power to use their left hands, except for such common and simple operations as conveying food to the mouth, buttoning garments, etc., which nearly all of them contrived to accomplish with their left hands. Only about half of these persons with paralyzed right hands could use their left hands successfully in beckoning, threatening, or other expressive gestures, in turning a crank, knocking on a door, counting money or writing down figures from memory. Some went badly astray in handling objects. One patient set his eyeglasses on his protruded tongue instead of his nose, another in trying to seal a letter put the hot sealing wax in his mouth, a third put a match between his lips, like a cigarette, instead of striking it, etc. Attempts to imitate the actions of other persons were equally unsuccessful and often ludicrous. In short, the left hands of these persons with paralyzed right hands were more or less affected with apraxia, which in many cases was revealed only by special tests like those mentioned above.

The degree of this partial apraxia, or dyspraxia, of the left hand, was not a matter of chance, but was found to increase with the proximity of the seat of disease to the cortex of the brain and the number of interruptions in the connections between the cortical layers of the right and left hemispheres.

This dyspraxia of the left hand may occur when the right hand is not paralyzed, but only apractic, and even when the right hand is

entirely normal. In the last case those connections between the hemispheres that traverse the so-called corpus callosum are interrupted, as has been proved by series of sections of the brains of three persons so affected.

These facts explain the slight but unmistakable symptoms of apraxia observed in the left hand of my first patient, who had complete apraxia of the right side of the body, and they give us a new insight into the relation between the cerebral hemispheres. We knew that the right arm and hand are usually stronger and more skilful than the left, but we believed that the left hand was governed entirely by the right brain. We see now, however, that the left brain exercises a sort of suzerainty over the right brain in regard to many of the powers of the left hand. The right brain is dependent upon the left brain for the memory, design, and performance of complicated movements executed for specific purposes. Certain regions of the left hemisphere are already known which govern both conscious and unconscious preparation for action. If these centers are injured or if their connections with the right brain, by way of the corpus callosum, are broken, the right brain is left without a leader and betrays its incapacity to direct the delicate work of the hand.

It appears, then, that the left hemisphere predominates in the government of the hand as it does in that of speech, though to a less degree and, probably, with greater individual variations in degree.

In addition to distinctly left-handed persons, who constitute four per cent of the population, there is a yet unknown number of ambidextrous persons who form exceptions to the rule that the functions of speech and language are localized in the left brain, and it is probable, that the exceptions to the localization of the functions of the hands in the left brain are still more numerous. The independence of the right hemisphere in this respect will be conditioned by the capacity and education of the left hand and therefore of right brain. This factor and the situation and extent of the brain lesion determine the degree to which the utility of the left hand is impaired by diseases of the left brain.

Many ingenious explanations of the predominance of the left hemisphere in the control of speech have been suggested, but the problem has not been completely solved. That this predominance is associated with right-handedness has been known since Broca's researches. To me, the predominance of the left hemisphere in directing the hands appears to supply a connection between right-handedness and the localization of speech in the left brain. The functions in which the insufficiency of the right hemisphere is most strongly marked are concerned with actions which depend on memory and are not suggested by the sight and contact of material objects. We have seen that in most cases the incapacity of the left hand is most evident in actions of this character. Now, speech is such an action. In chew-

ing, the muscles of the tongue, lips and jaws are stimulated by contact with food; but in speaking no such material stimulus is present, and the control by the ear is not exercised until after the action has commenced. Hence we may group the peculiarities of speech and manipulation together in the statement that the right brain is especially unfitted for the conduct of actions that are wholly remembered and not at all suggested by material objects.

Another step in advance could be taken if we could accept Max Muller's synergastic or co-operative theory of language, which regards verbal roots as sounds which in the infancy of civilization, were habitually uttered by number of men engaged in rowing, hammering, pile-driving, etc. If the first words of primitive man were such rhythmical accompaniments of arm and hand movements which, as we have seen, are directed chiefly by the left brain, the fact that the production of speech is governed by neighboring regions of the same hemisphere becomes less astonishing. I advance this hypothesis with some diffidence as I do not know how much vitality is retained by the co-operative theory which, I believe, has been abandoned by the majority of philologists.

A practical conclusion may be drawn from the facts described above. The exercise and education of the left hand have already been recommended on various grounds, but principally for the reason that two skilful hands are better than one. But there is a stronger reason. Concepts of motion form the basis of all our concepts of space and constitute an essential part of that which we call intelligence. The idea that the co-operation of an educated right brain with the left brain may increase the precision, permanence, and availability of our spatial concepts and thereby improve our intellectual ability in general, is, at least, worthy of consideration.

We find, furthermore, no difference between the cerebral hemisphres in animals even of the highest species. Monkeys and apes are ambidextrous, and there is no one-sidedness in the talking parrot. The superiority of man to brute is associated with an accumulation of special faculties in the left cerebral hemisphere, but it is due to the positive improvement of that hemisphere, not to the mere fact of inequality or the undeveloped state of the right brain. It is conceivable that in a more advanced stage of human evolution the right hemisphere may be able to relieve the left of the government of the hands and tongue and leave it free for the exercise of still higher functions, the advent of which is expected by all believers in the theory of evolution.

To return to the present and immediate future, the study of apraxia will give us a deeper insight into the psychology and physiology of manual action and the dynamics of cerebral processes. Anatomically, no definite center controlling the actions here considered appears to exist. They seem to depend upon the harmonious co-operation of many parts of the brain with the hand and arm center in the left hemisphere.

This center and its immediate vicinity are consequently of paramount importance, especially the region behind this center, traversed by the principal connections between the center and the temporal and occipital lobes of both hemispheres. Lesions in this region are the most conspicuous in practice because injury to the arm center itself usually causes paralysis, by which the apraxia is masked. Hence the commonest cause of apraxia is a lesion in the left parietal lobe of the brain. The eventual partial compensation will depend on the condition of the corpus callosum and other connections. It has already been pointed out that the usefulness of the left hand, in particular, depends upon the integrity of the corpus callosum as well as upon that of the left brain area under consideration.—*Scientific American Supplement*, October 12, 1907.

THE INJURIOUS EFFECTS OF LIGHT UPON THE EYE.

By Dr. A. Birch-Hirschfeld.

That strong light may injure the eye has probably been known from remote antiquity. Even a brief glance at the sun may permanently affect the sight. On coming into broad daylight after a long sojourn in a dark room we feel pain in the eyes and involuntarily close them, and eyes accustomed to diffused day-light are similarly affected by looking long at the sunlit surface of snow or water or at bright artificial lights.

Two distinct varieties of partial blindness are caused by exposure to light, one by luminous, the other by ultraviolet rays. The type of the first variety is the sun blindness which is produced by looking at the sun with the naked eye. Many such cases occur at every solar eclipse and Galileo's blindness has been attributed to his observation of sun spots.

The symptoms of sun blindness are very characteristic. Soon after the exposure the sufferer notices that objects which are looked at directly are indistinct, veiled or quite invisible, while the rest of the field of view appears as usual. On looking at a white surface he sees a dark spot surrounded by a shimmer.

In mild cases the ophthalmoscope reveals no change, but in severe cases a pale gray circle fringed with pigment cells is found in the place of the "yellow spot" in the center of the retina. In many cases the sight gradually improves, but as a rule it remains permanently more or less impaired, and total blindness sometimes results.

My experiments on animals show a progressive lesion of the retina, beginning with the superficial layer, and consisting of œdema, exudation of fluid, and atrophy of the nervous tissue, due to disturbances of circulation in the choroid and retina.

Sun blindness is evidently caused by the luminous rays. Sunlight, except on high mountains, contains few ultraviolet rays and these are largely absorbed by the lens and humors of the eye. In animals the symp-

toms can be produced by luminous rays alone but not by ultraviolet rays alone. Ultraviolet rays cause blindness of a different character.

Slight sun blindness caused by reflected sunlight is of common occurrence. There is no serious impairment of vision but the eyes are abnormally sensitive and there is a feeling of fatigue and pain. Individual differences in quantity of pigment and size of pupil here come into play and general bodily weakness may so affect the retina that it is injured by an illumination that is harmless to a normal eye.

Night blindness is a peculiar condition which is caused partly but not wholly by exposure to light. The patient sees very well in strong illumination but cannot detect slight differences of shade in a dim light. The same condition occurs, transiently, in normal persons on going from a highly lighted room to a dark street. Night blindness is usually epidemic and chiefly affects young persons who are overworked and insufficiently nourished. It is very common among the Russian peasantry after the rigid Lenten fast, and Vaucel tells of a French garrison town where a search party was sent out every evening to bring in soldiers who were helpless after nightfall.

The explanation of night blindness is that the visual purple, which gives the retinal rods sensitiveness for very weak light, has been bleached and destroyed by light and has not been restored, owing to malnutrition. Practically, it is found that attention must be given to the general health. Cod liver oil is said to be very beneficial, and in many parts of Russia it is known as "oil for blindness."

We come now to the effects produced on the eye by ultra-violet rays. The crystalline lens strongly absorbs these rays, and thus partially protects the retina from their action. An eye from which the lens has been removed (in cataract or extreme myopia) is far more sensitive than a normal eye to ultra-violet rays. Glass also absorbs these rays—a fact of great practical importance—and so, to a great extent, do the lower strata of the atmosphere. Injury to the eyes due to ultra-violet solar radiation, therefore, occurs chiefly at great altitudes.

In comparison with sunlight, the radiations emitted by the electric arc, the electric spark, the magnesium light, and the mercury vapor lamp contain a very large proportion of ultra-violet rays.

The injuries caused by ultra-violet rays include snow blindness, electric light blindness, lightning blindness, and erythropsia or "seeing red."

Medical records contain few cases of severe snow blindness, but the less serious and unrecorded cases must be far more numerous. It is most likely to occur at high altitudes where, as we have seen, sunlight is rich in ultra-violet rays. The principal symptom is a violent inflammation of the conjunctiva, cornea, and iris, often accompanied by aversion to light, tears, cramp in the eyelids, and intense pain. In severe cases the cornea ulcerates. Disturbance of vision often occurs. Reich, who studied

seventy-three cases in the Caucasus, found the retina and optic nerve congested with blood.

The effects produced by powerful electric lights are very similar to the above. Little discomfort is felt at first, but after a while all objects appear red, and six or eight hours after the exposure the conjunctiva becomes red, swollen, and inflamed. The pain increases, and the sufferer feels as if grains of sharp sand were rubbed under the eyelids. These symptoms abate in the course of days or weeks, but the partial blindness persists much longer, and in some cases through life. Terrien, in his examination of forty-five cases, found that in many the retina and optic nerve were greatly inflamed, while in others their appearance remained normal, although the sight was greatly injured. In no case did he find the circumscribed blind area which characterizes sun blindness.

As lightning is an electric spark of great intensity and peculiarly rich in ultra-violet rays, we should expect its effects to be similar to those of the electric light. A discrimination must be made, however, between true lightning blindness and direct injury to the eye by a stroke of lightning. The former is exactly similar to electric light blindness, but the turbidity of the lens and the profound inflammatory changes in the choroid that sometimes lead to complete atrophy of the optic nerve must be attributed chiefly to the direct mechanical and electrolytic action of the discharge, rather than to the ultra-violet rays of the flash.

A fourth effect of exposure to ultra-violet light is the condition known as erythropsia, in which all objects appear red. It occurs as the first symptom of electric light blindness and also the other cases. Tourists who arrive at an Alpine shelter after a long tramp over snow and ice are often surprised to find that all light-colored objects look red to them. The condition is transitory and the sight is not injured. Fuchs, who produced the phenomenon repeatedly in himself, explained it by assuming that the visual purple of the retina was greatly reduced by the prolonged action of the ultra-violet rays of sunlight at great altitudes, and that the entrance into the hut was immediately followed by a rapid formation of a layer of fresh visual purple over the retina. But the center of the retina (the yellow spot) contains no visual purple, and yet erythropsia can be produced in an eye of which all except the central portion is protected by a screen. It is noteworthy that eyes from which the lenses have been removed are particularly susceptible to erythropsia.

The differences between sun blindness, on the one hand, and snow blindness, electric light blindness, and lightning blindness, on the other hand, are very clearly marked. In addition to differences in the disturbance of vision, sun blindness is characterized by the limitation of the effect to a small central area of the retina and by absence of the serious inflammation of the front of the eye, the erythropsia and the long interval between exposure and effect that occur in the other three forms, all caused by ultra-violet rays, as Midmark has proved by experiment.

I have discovered some other interesting facts by employing modern methods of staining nerve cells after exposing the eye to ultra-violet light. The nerve cells of the retina, like those of the brain and spinal cord, contain a granular and scaly deposit, known as the "chromatic substance," or chromatin, which takes a deep stain from certain dyes. In the normal retina these grains and scales are regularly arranged and sharply bounded. They appear with especial distinctness and abundance in the retina of an eye that has long been kept in darkness. The quantity of chromatin is diminished by exposure to bright daylight, and far more rapidly by exposure to light which contains a large proportion of ultra-violet rays.

The normal chromatin structure is regained in the course of a few days, but exposure to intense ultra-violet radiation causes the nerve cells to wither and disintegrate, and permanent injury results. The effect of ultra-violet rays is distributed over the entire retina and is most marked in its inner layers, while the atrophy associated with sun blindness is confined to the superficial layer of the center of the retina.

Light, radiant heat, and ultra-violet rays have been held accountable for other diseases of the eye, including gray cataract. This disease is said to occur more frequently and earlier in life in the country and in the tropics than in cities of the temperate zone, and it is notoriously common among glass blowers and other workers with fire, but exposure to radiation is only one of its causes.

Roentgen and radium rays may also produce very injurious effects, both inflammatory lesions in the front of the eye and disintegration of the nerve cells of the retina, though the chromatic structure is less affected by them than by ultra-violet rays. In working with Roentgen and radium rays the eyes should be protected by screens of sheet lead or lead glass, and the rays should never be sent directly into the eye.

The best protection against solar and other luminous rays is given by smoke-colored glasses. Blue glasses are less effective, as they transmit the short waves which exert the strongest chemical action. When the eyes are exposed directly to intense light, as in observing solar eclipses, tending arc lamps, etc., very dark glasses should be used. Glasses of lighter shade afford sufficient protection against reflected sun-light.

As a protection against ultra-violet rays the color of the glass is less important than its thickness, as all glass strongly absorbs these rays. But as no glass stops them completely, Schulek has devised hollow eye glasses containing a liquid which is entirely opaque to ultra-violet rays. Such complicated devices, however, are neither practical nor necessary.

Eyes already diseased and the eyes of sensitive, nervous, anæmic, and ill-nourished persons especially require protection. Such persons should avoid intense light, and wear dark glasses when they are necessarily exposed to it. Reading and working in direct sun-light should be absolutely forbidden. Good results often follow the use of colored screens, for some colors are more acceptable to one person, others to another.

Yet we must not forget that excessive sensitiveness to a degree of illumination that is borne by a normal eye without inconvenience is often only a symptom of a constitutional disease, which calls for diagnosis and treatment. It is certainly wrong to accustom the eye to darkness, for the eye requires light as the stomach requires food. Hence a weakened eye should be gradually accustomed to stronger illumination until it can endure full daylight, as weakened muscles are strengthened by judicious exercise.—THE *Scientific American Supplement*, November 16, 1907.

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

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