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Original Communications.

A CASE OF TIC.*

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The term Tic means a "jerk" or "twitch," and has been applied to so many different conditions of twitchings that the whole nomenclature of the various forms of the trouble is chaotic. To the French school we owe the credit of producing some order out of this chaos. They group all the tics into four classes, and these classes have been adopted by Dr. Risien Russell in Clifford Allbutt's "System of Medicine" in his admirable summary of the whole subject, of which I have made free use in the following notes. These classes are as follows:

1. Simple Tic, which includes all cases characterized by tic-like movements unaccompanied by psychical manifestations. The case to be presently noted belongs to this class. The condition of habit spasm—in which, as a result of imitation or of irritation, some twitching occurs and persists involuntarily after the cause has ceased—clearly comes under this first heading. One may give as an example of this the blinking of the eyelids, which has commenced during an attack of conjunctivitis and persists for years after the irritation has ceased.

2. Convulsive Tic ("Maladie des Tics convulsifs"), in which, in addition to the motor disturbances, explosive utterances and imperative ideas appear. Russell considers that the condition called the "Jumping Disease of Maine" is of this nature.

3. Co-ordinated Tics.—Here, instead of the ordinary jerking or twitching which characterizes the first two classes, we have

*Read before the Toronto Clinical Society, March 6th, 1901.

more complex and co-ordinate movements, similar to those executed in ordinary life, but differing from them in that they are more or less involuntary. Examples of this class are very commonly met with, and many of them could scarcely be considered diseased states; thus the various attitudes unnecessarily assumed by orators, some of which become characteristic of the men, might fairly be placed under this heading.

The following are a few examples given by different authors. Sinkler records the case "of a girl who when walking would stop, rub the toe of one boot against the calf of the other leg, and then go on as if nothing had happened."

Noir gives descriptions of co-ordinate tics in feeble-minded children. "Among the more common movements in such cases are balancing, jumping, rolling the head from side to side, striking the chest with the chin, and hitting the head or chest with the hand. Dr. Osler considers that the disorder described by Dr. Gee as "head banging" comes also within the same category. He also regards as an exaggerated example of co-ordinated tic, Weir Mitchell's case of a man who, "unless completely at rest in the recumbent posture, would strike his side by a pendulum-like action of his left arm. This movement he repeated about 150 or 160 times a minute in regular order."

4. Psychical Tic.—Charcot has said "Il y a des Tics dans la pensée comme dans le corps," and the class consists of those cases in which, instead of sudden twitchings and co-ordinate movements of the muscles, there are imperative ideas. These compel the patient to emit certain words or expressions frequently of an obscene nature (*caprolalia*), or to count a certain number before doing something (*arithomomania*). As with the other classes, the sufferers here may be so slightly afflicted as to scarcely be called diseased, or these imperative ideas may be so strong and uncontrollable as to make their lives miserable.

If one should venture to suggest any improvement on the classification of the tics into four groups, it would be in the direction of advising that this fourth class, containing the purely psychical cases, be omitted altogether from the tic group—their nature is so far removed from the primitive idea of twitching or jerking that it would seem simpler to only place in the tic category cases presenting motor symptoms.

Case.—J. B., aged 57, complains of twitchings of the muscles of the face and neck which have lasted about sixteen months. He is a laborer; has been married seven years, and has had no children. His wife has had no miscarriages. Is a very moderate smoker and drinker.

Family History.—Father died of "old age," aged 81. Mother died from the same cause at the age of 78. Three brothers

one alive and well; one died of "heart disease," and the other of a "paralytic stroke." Three sisters alive and well; two died in infancy. There is no history of spasms of the face or elsewhere occurring in any member of the family.

Previous Health.—Patient was a strong man, and is so still, except for the spasms complained of. He has had an easily reducible inguinal hernia since boyhood, dating from a fall he had from a horse at the age of 12. He suffered from influenza 10 years ago, and from inflammation of the lungs 2 years ago. No history of venereal disease.

Present illness began gradually about 16 months ago with involuntary winking of the eyes; he had no disease of the eyes, nor can he give any reason for the onset of the affection. The winking was worse at first when he was walking about, and was nearly absent when sitting or lying down. Some three months later he had a fall from a sleigh, striking the back of his head on the road, but he was only stunned and the twitchings did not seem to have been made worse by the accident.

The twitchings gradually increased. He first came to my clinic at the General Hospital in March, 1900, that is, about six months after the commencement of the illness, when I made the following note: "26 Mar., 1900. Patient is a healthy looking man; every now and then a spasm of both orbicularis palpebrarum muscles comes over him, lasts for a few seconds and passes away. No pain is present at the time. Bright light and walking brings it on. No other symptoms. No soreness of the eyes."

He attended for some weeks, during which time a variety of drugs were tried without any benefit being produced. He then was lost sight of until December last, when he returned decidedly worse; now the spasms were almost constant even when sitting, and they involved most of the muscles of expression. The health was otherwise good. The appetite and bowels were normal.

In the end of January I examined him in detail, and found the condition to be as follows:

Patient is a well nourished man; nothing abnormal discoverable in the muscles below the level of the neck. When sitting quietly with the eyes closed he is pretty steady, but the eyelids twitch slightly in a rhythmical manner at the rate of about 120 per minute. When he tries to open the eyes he partially succeeds, but almost at once a series of spasms of the eyelids, face and neck set in: the eyes are closed firmly and spasmodically, the forehead wrinkles up and relaxes, the condition of *risus sardonicus* is assumed—his jaws clench and his teeth are heard to grate, the strands of the platysmæ, stand out like cords, the

sterno-mastoids are felt to be rigid, and twitch in a clonic manner, as do also the muscles of the back of the neck. The chin is occasionally drawn downwards, and slightly to the right side. The tongue is not affected and no difficulty is experienced in swallowing. If the eyelids be forcibly separated, it is seen that the eyeballs roll about, showing that the extrinsic ocular muscles participate in the condition. When he stands, and especially walks, the spasms are worse, and so close his eyes that he becomes practically blind and has to be led about. His head rotates from side to side, and he endeavors to hold it still with both hands. There appears to be a serous discharge from the nose when the spasms are on, and the saliva seems to increase in amount; as a result of the former the patient continually sniffs, and this symptom appears to be a very constant one in cases of tic.

Dr. R. A. Reive kindly examined the eyes and reported as follows:

JOHN BURCHARD, age 57.

V.O.D. 20 l (Hp.) + 1.00, spt. 20 xx +
O.S. 20 l xx + 1.25, spt. 20 xx +
Fundus Ocl., normal.
Field " "
Tension " "
Muscular balance, normal.
Slight chronic conjs., and slight photophobia.
Have ordered correcting lenses.

The spasms completely cease during sleep; they are very little affected by heat, cold, or light, although it was noticed in March that bright light brought the spasms on. As already stated, they are at their worst when the patient walks about, and are nearly absent when he sits or lies with the eyes closed. When he opens the eyes the spasms set in whether he be in the dark or in the light. By firm pressure on the affected muscles he can slightly control the spasms, but otherwise they are entirely beyond the control of the will. Romberg's sign is absent, but the knee-jerks appear to be gone. There are no sensory symptoms, except occasional pains in the affected muscles, apparently of the nature of cramp. The urine is normal, except that the sp. gr. is slightly low, 1013.

Remarks.—Here we have, then, a typical case of tic, and from the fact that the movements are unaccompanied by any psychical phenomena, and, further, are not of a co-ordinate nature, it is evident that it belongs to the first of the four classes, viz., that of simple tic.

The only two conditions with which it might be confused would be chorea and paramyoclonus multiplex, but the movements are not of choreic nature at all, and in paramyoclonus

multiplex they are chiefly confined to the limbs, and are under control of the will, which is not the case in this patient.

The case is unusual in the fact that it has commenced so late in life (at the age of fifty-six). Dr. Sinkler states that he never met a case commencing after the age of thirty-seven.

As regards the causation of simple tic:

1. Heredity seems rarely to play a part, and no such flaw was detected in the present case.

2. The disease chiefly begins in childhood, "nearly 80 per cent. commencing betwixt the ages of five and fifteen years." In our patient, however, it did not begin till the age of fifty-six.

3. Habit is often the cause, the condition originating from some irritation, for example, conjunctivitis, and persisting after the irritation has been removed. No such cause could be here traced.

4. Lowered general health.

5. Reflex irritation.

6. Imitation are all given as causes.

7. Optical defects are frequently associated with the disease. "Of forty-nine cases of Sinkler's Series, which were examined by De Schweinitz and Thomson, errors of refraction were found in forty-one of the patients, in two there was conjunctivitis, and in six there were defects in ocular balance."

In our case there was some hypermytropia, but when one considers the extreme frequency of slight degress of errors in refraction, it is not to be wondered at if they are found in even a large proportion of any series examined. The possibility of a central lesion might be considered, but no other evidence of such is forthcoming, and from the bi-lateral and widely spread distribution of the movements such a cause is rendered very improbable.

If all medicine remedies fail, as they have done so far, and the condition persists in its present acuteness, or becomes worse, some surgical procedure, for example diversion of the nerves, might be indicated, but the chances of this doing good seem small in a case where the movements are present in muscles supplied by so many different nerves.

Note.—28th March, 1901.—For the last six weeks this patient has been taking arsenic in full medicinal doses and he has considerably improved. When sitting still he can keep his eyes open fairly well, but the spasms are still severe upon rising or walking.

TENDON TRANSPLANTING IN PARALYTIC DEFORMITIES.

By CLARENCE L. STARR, M.D.,

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The treatment of paralytic deformities, until a comparatively recent period, has been by means of mechanical support, and many ingenious forms have been devised to meet the necessities of individual cases. Where any operative treatment has been added, it has been in those long-standing deformities, with contraction of the unopposed muscles. In these, a simple tenotomy of contracted structures has been done, and then the necessary mechanical support applied to prevent relapse. The outlook for sufferers from this class of deformity was not bright, for if the apparatus provided did furnish satisfactory support it must be continued throughout the entire life of the individual.

It is only within the past few years that attempts have been made to correct or prevent deformity, by re-arranging the attachment of the healthy active muscles so that they may act to better mechanical advantage, and thus give the greatest measure of support possible, with the limited muscular activity.

The first surgeon to successfully carry out this principle of treatment was Nicolodani. In 1881 he reports having successfully transplanted the peroneal tendon into the tendo-Achillis. It is, however, due to the work of Goldthwait, of Boston, that this operation is brought more carefully before the surgeons of this country. He reports a large series of cases with very satisfactory results. One cannot claim that the operation will cure, or is applicable in all cases of paralytic deformities, but it certainly is worthy of a large place in the treatment of these cases, for by its use some are completely cured, and in others, it allows of the substitution of a simple form of support for a more complex one.

The operation is clearly indicated in those selected cases where a group of muscles is left unimpaired, while the opposing group is paralyzed. So far the principle of treatment has been chiefly applied to deformities of the foot and leg, and, as from an anatomical standpoint, these are the most favorable for operation, better results may be looked for here than elsewhere. Goldthwait, however, reports the successful transplanting of the sartorius into the quadriceps extensor.

The large number and compact grouping of the muscles of the forearm render operation in this region difficult, but Tubby reports transplantation of pronator radii teres, by raising its

attachment to the periosteum, carrying it through the interosseous membrane, and re-attaching it to the outer surface of the radius, thus changing its action into a supinator. Vulpius, of Heidelberg, also reports some successful cases of operation on the forearm.

The following four cases are reported somewhat in detail to illustrate the methods employed in operation; but, of course, each case must necessarily be a law unto itself.

CASE 1.—A boy five years of age, acute infantile spinal paralysis at two years, with complete paralysis of right limb. There has been gradual recovery of all muscles, except peronei, which remain inactive. In spite of mechanical support the foot slowly assumed a position of marked equino-varus. At the time of operation equinus deformity was slight but varus so marked that patient walked on outer border of foot entirely.

An incision was made along the posterior margin of the subcutaneous surface of the fibula, the peronei tendons exposed, and tendon of peroneus longus isolated. A second incision was made above the ankle just internal to the crest of tibia and the tendon of the tibialis anticus exposed. This was divided subcutaneously on the dorsum of the foot, and pulled out of its sheath. Next it was pushed through subcutaneous tissue superficial to the extensor tendons into the first wound. A slit was then made in peroneal tendon and tibialis tendon drawn through it and secured by two criss-cross sutures of silk. The wounds were closed and foot put up in plaster. Wound healed perfectly and in four weeks plaster was removed and child allowed to walk. Now walks plantigrade, with very little deformity, and can voluntarily evert foot. Boy is in every way improved.

CASE 2.—Young girl, fourteen years of age, was admitted under my care at the Children's Hospital. She had complete flail condition of left lower extremity, and in right a paralysis of calf muscles, tibialis posticus and flexor longus hallucis, giving foot a position of severe calcaneo-valgus on attempting to bear any weight on the limb.

It was desirable to get a firm base of support in right leg so that a mechanical support might be made use of on the opposite side. An oblique incision was made from above outer malleolus downward and inwards, so as to expose peroneal tendons and tendo-Achillis. After freeing the tendo-Achillis the peroneus brevis was divided, carried under it and attached through a slit to the tendon of the flexor longus hallucis. The peroneus longus was then divided and attached in the same way to the tendo-Achillis. The wound was then closed and plaster applied. Passive motion was commenced in three weeks, and in six weeks patient was able to bear her weight on foot

without it rolling over. Foot developed strength, and now patient is able to walk without crutches, with a support from the perineun on the other limb.

CASE 3.—Young lady aged 18, with well marked valgus deformity, result of infantile paralysis. The shoe was rolled over badly to the inside and walking was very difficult, with stiff awkward gait. The paralysis involved the anterior and posterior tibial muscles. An oblique incision was made over the extensor tendons just above the annular ligament of ankle, and the extensor longus digitorum isolated. Its outer segment and the peroneus tertius tendons were divided, carried over the balance of the extensor tendon and united through a slit to the tibialis anticus. The usual dressing was applied and patient allowed to walk in six weeks. The foot was very much improved, and with the aid of a Whitman spring in the shoe the patient was enabled to walk very well.

CASE 4.—Boy, aged 5, acute attack of polio-myelitis in July, 1899, involving apparently both lower extremities. Right gradually recovered, but the left only partially and foot assumed an equino-varus deformity. On examination January 21st, 1901, the peronei and extensor muscles are found permanently paralyzed, giving no response to faradic current. The anterior and posterior tibial and calf muscles being unopposed, a typical acquired equino-varus deformity resulted. The boy walks altogether on outer surface and dorsum of foot, the plantar surface being turned inward and backward toward opposite foot. There was no power to extend the toes, except the great toe, and foot could not be dorsally flexed on leg.

January 23rd, 1901.—Under anesthetic, a curved incision was made exposing both peronei and Achilles tendons. The peroneus longus was isolated and divided, the distal end pulled strongly so as to correct the varus position of the foot, and then passed through a slit in the tendo-Achillis and held in position by a mattrass suture of kangaroo tendon. The superficial wound was closed with horse-hair sutures. An oblique incision was then made on the anterior surface of the leg, just above the annular ligament, exposing tendons of tibialis anticus and common extensor. The tendon of the tibialis anticus was exposed and the common extensor, just as it divides into separate tendons to the toes. A loop was formed of the latter and drawn firmly through a slit in the tibialis anticus, and sutured as before. The extensor tendon was drawn up sufficiently tight to fully correct the equinus before being fastened. The superficial wound was closed and foot put up in plaster.

The wounds healed by primary union, and the foot was removed from the plaster dressing only a few days ago. The time elapsed since operation is not sufficient to form an opinion

of the final result, but at present there is marked improvement in position and in the stability of the foot. The foot can easily be retained at a right angle to the leg. There is some extension of the toes and the walking is very much improved, the plantar surface coming in contact with the floor at every step. The varus deformity is also largely corrected.

My observation of these cases leads to the conclusion that in this way a great deal may be done for this otherwise hopeless class of deformities, and with greater experience much better results may be expected. It is essential that primary healing be secured, else the operation will likely prove useless.

The tendons should be united by a crucial mattrass suture of kangaroo tendon preferably. Catgut as a suture is too readily absorbed, and silk, in my opinion, is likely to come out sooner or later.

Motion should not be allowed until about fourth week, as tendons unite slowly. The plan of Goldthwait, or dividing the paralyzed tendons and inserting them into the active ones, is probably preferable to the opposite plan, as pursued in first three cases described.

A COMPARISON OF ANTISEPTICS.

By E. RALPH HOOPER, B.A., M.B.,
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Notwithstanding the patient investigations of the numerous bacteriologists in Europe and America, and the clinical observation of surgeons throughout the world, there still exists much contradictory evidence as to the relative merits of our principal germicides. This discrepancy of opinion is owing to at least three causes: (1) faulty methods of research; (2) an inequality in the conditions of experiment, and (3) a variation in the virulence of bacteria. The question of the value of antiseptics will always remain an earnest one till the researches of the bacteriologist, and the clinical experiences of physician and surgeon, have agreed upon the superiority of each agent in that department of germ destruction in which it is best adapted.

With a desire of crystallizing the results of investigation, the State Board of Health of Maine a few years ago published a report of the literature on this subject. From that report the following notes are written in the hope that a brief account of the uses of the more important germicides will be of practical value. As the report is selected from the researches of the

most eminent authorities, it must be looked upon as the expression of reliable evidence, and therefore possessing much weight.

Alcohol.—The experiments to determine the disinfectant and antiseptic value of alcohol, and the conditions under which its use is, or is not, successful, have given rise to diverse conclusions.

Reinicke, Ahlfeld and Epstein in an extended series of investigations, agree that the most important condition favoring the action of alcohol is the presence of moisture. It is, moreover, a valuable auxiliary as Epstein's conclusions, as follows, clearly show:

"That absolute alcohol has no disinfecting power; that 50 per cent. alcohol disinfects better than higher or lower concentrations; that antiseptics which have more or less efficiency as aqueous solutions lose their disinfecting properties when dissolved in high grade alcohol, but that on the other hand, solutions of sublimate, carbolic acid, lysol and thymol have a higher power of disinfection in 50 per cent. alcohol than solutions of the same concentrations in water have." In itself alcohol has not valuable antiseptic qualities, but is useful in that it enhances the antiseptic properties of other agents.

Some writers have suggested that the antiseptic action of alcohol, when used to disinfect the hand, is purely a mechanical one, contracting the skin, and thus temporarily sealing up the bacteria during that period in which their presence would be injurious.

Anytin is a coal-tar derivative and is entitled to consideration in that it intensifies the action of other antiseptics and possesses a neutralizing action on the diphtheria toxin.

The solution of anytin is spoken of as anytol. It has been found that a one-half per cent. solution of cresol-anytol acts as vigorously as a 2 per cent. carbolic acid. A 5 per cent. cresol-anytol killed anthrax spores in forty hours, while the same strength of carbolic acid solution allowed a vigorous growth of anthrax spores. The 3 per cent. cresol-anytol solution is recommended for the disinfection of the hands. Hands were thoroughly rubbed with the culture of Staphylococcus in bouilion, then after Fürbringer's method, brushed with soap and warm water one minute; washed one minute with alcohol; immersed in a 1 per cent. cresol-anytol solution for one minute, and finally rinsed in sterilized water. Even with the 1 per cent. solution the hands were rendered sterile as far as Staphylococcus are concerned.

Boiling.—This convenient method is found to destroy in a very few minutes, most disease germs at a point considerably below boiling. Cholera spirillum was killed at a temperature

of 125°F. in four minutes; Typhoid bacillus at 139° in ten minutes; Staphylococcus pyogenes aureus at 136.4° in ten minutes.

In a comparison of boiling water and steam the former has a distinct advantage in that it more readily absorbs moisture and thus destroys the vitality of the bacteria. The same volume of steam contains 1,700 times fewer molecules of water. Another obstacle which steam encounters in penetrating bacteria is undoubtedly a coating of minute air bubbles adherent to the germs.

Plunged into water air has a tendency to rise to the surface. This is due to the great difference in the specific gravity of air and water. The difference at 100°C. is about 1 : 1,000, with steam it is only 3 : 5. The steam is deprived therefore of this valuable aid in freeing the bacteria from air bubbles.

Carbolic Acid.—This agent is so universally relied on and adhered to by the medical profession that it is well to be aware of its limitations.

Koch says that for the destruction of anthrax spores a 3 per cent. solution must act seven days.

The especial advantage possessed by carbolic is due to the fact that its action is not materially influenced by the presence of acids, alkalies, salts or albumen. In solutions free from the foregoing substances, carbolic acid is much weaker than corrosive sublimate. Uffelman's experiments proving that a 5 per cent. solution of carbolic acid failed to destroy typhoid bacilla in one hour, does not tend to increase confidence in carbolic acid. The most interesting and useful fact about carbolic acid is that certain auxiliaries greatly increase its potency.

A 2 per cent. of crude carbolic acid with 1 per cent. of pure hydrochloric acid, destroyed anthrax spores in seven days, the same per cent. of these solutions separately did not destroy these spores in thirty days. Dr. Scheurlen, in a paper on the molecular conditions of aqueous solutions of disinfectants, as regards their efficiency, states that a 1 per cent. solution of carbolic acid in water failed to destroy Staphylococcus pyogenes aureus in five minutes, but a 1 per cent. solution of carbolic acid with 20 per cent. of common salt, destroyed the same organisms in one minute.

Upon Scheurlen's recommendation certain surgeons have used the one-half per cent. solution of ortho-cresol with 12 per cent. of common salt as a very satisfactory antiseptic. The rusting of instruments in it can be prevented by the addition of 1 : 1,000 of hyposulphite of soda.

It is well to emphasize Koch's statement and Lenti's confirmation that carbolic acid in olive oil or absolute alcohol has no effect whatever.

Comparison of carbolic acid with other coal-tar derivatives.—Various other coal-tar products have been recommended as substitutes for carbolic acid.

Cresol is obtained from crude carbolic acid. Gruber, Behring, Buttersack and others concede a higher disinfecting value to cresol than to carbolic acid, and Grigorjeff's experiments prove that the cresol is four times less toxic than the carbolic acid.

Lysol consists of neutral soap, water and cresols. It is undoubtedly a better disinfectant than carbolic acid and is also cheaper. Gruber found that a 2 per cent. solution of lysol destroyed the Staphylococcus of suppuration as readily as a 3 per cent. solution of carbolic acid.

In Martin's clinic in Berlin, the statistical showing was more favorable after the use of lysol than after that of carbolic acid.

Gerlack, in speaking of its advantages in surgical practice, says that lysol is more efficient than carbolic acid; that the disinfection of the hands is assured by using a 1 per cent. solution without the previous use of soap; that a one-fourth per cent. renders instruments sterile and does not attack the instruments; and that it is eight times less poisonous than carbolic acid, and much less so than corrosive sublimate. The one disadvantage of lysol, namely, rendering the hands and instruments slippery, can be overcome by subsequent washing in sterilized water.

Creolin, an emulsion of the cresols of crude carbolic acid in a solution of hard soap. Creolin has been used as a surgical antiseptic, but other cresol preparations are far superior to it. Its superiority to carbolic acid is doubtful and its toxicity is not as mild as has been claimed for it. When placed in solutions of water the creolin becomes precipitated and an opaque white solution results. This is very inconvenient in surgical work, as it obscures the field of operation.

Solveol is a preparation of cresol held in aqueous solution by means of cresotinate of soda. It contains 27 per cent. of cresol and is used principally as a surgical antiseptic. It forms clear and perfectly neutral solutions in water; solutions of the same strength are twenty times less poisonous and much less caustic than those of carbolic acid; its solutions do not roughen the hands as corrosive sublimate does, nor benumb them as carbolic acid does, nor render them slippery as lysol does, nor obscure the field of operation as the precipitate of creolin does; its odor is less persistent than that of carbolic acid; diluted with calcareous waters precipitates are not formed as with corrosive sublimate and lysol.

It speaks most favorably for solveol that Hammer found .5 per cent. of solveol to act more energetically than a 2.5 per cent. solution of creolin, lysol and carbolic acid.

Hillier considers it the most desirable antiseptic that has come to his hands. An extended experience in obstetrics and gynecologic work has not developed a fact to throw doubt on the efficient and energetic power of solveol.

Solutol is a cresol preparation for general disinfection in which cresol is rendered soluble by the addition of cresol-alkaline. Solutol penetrates very rapidly into the interior of masses of matter and has a great facility for dissolving blood coagula.

In solutol the germicidal effect of the cresol is increased by the strong alkaline reaction of the preparation and is well suited for gross disinfection.

Formaldehyde.—The uses of this antiseptic are too numerous and the results of experiments too unsettled to discuss its uses at any length in the limited space at our disposal.

It may be permitted to refer to the work of Dr. Edward Martin, of Philadelphia, in regard to the value of formaldehyde in disinfecting instruments.

Exposure of instruments to formaldehyde vapor given off by paraform in a closed box at ordinary room temperature proved absolutely efficacious.

Catheters new and old, and these dipped in material infected with pure culture of Staphylococcus pyogenes aureus or colon bacillus and had not been washed, were rendered absolutely sterile. This was proved in upwards of a hundred experiments.

Iodoform.—The question of the antiseptic power of iodoform has called out much discussion. The favorable results derived from surgical practice has not been confirmed by the results obtained by many of the bacteriologists. Some light has been thrown upon the rationale of the antiseptic and therapeutic action of iodoform by the work of some of the investigators. Behring, in writing, says that iodoform exerts its antiseptic action, only when it is decomposed and that from a surgical point of view this is a fortunate peculiarity of this agent. Bacteria which have strong reducing characteristics decompose iodoform and render it active. Iodoform therefore is an antiseptic agent in the true sense of the word.

Iodoform applied to wounds reduces the amount of secretions, increase the diapedesis of the white corpuscles, and does not diminish their vitality as shown by their ameboid movement. It may be stated, therefore, that the natural course of infection in a wound may be hindered by iodoform in three ways: by limiting the development of the microbes; by lessening their virulence; and by neutralizing their toxins.

Light.—In the study of the available means of destroying infection, light and particularly direct sunlight should not be forgotten. The researches of recent years have shown that sunshine has a degree of germicidal value; and the bacteriolo-

gist who is not mindful of this fact may obtain very misleading results.

Without entering upon a discussion of the theories of the action of sunlight it may be briefly stated that it is probably due to two influences: one a change in the culture media and the second due to the formation of hydrogen peroxide.

Mercuric Chloride.—The suitability or unsuitability of corrosive sublimate for certain disinfecting purposes is a question which has been widely discussed.

The inability of 1:1,000 solution to destroy Staphylococcus aureus in less than twenty-three hours is very unfavorable evidence against the sublimate.

McClintock, after a series of experiments is forced to the conclusion that the germicidal power of solutions of sublimate has been enormously over-estimated. He closes with the following summary:

1. The high rank heretofore given corrosive sublimate as a germicide is without warrant and was based upon faulty experiments.

2. Sublimate forms with cellulose, milk, albuminous bodies, with some part of bacteria probably the envelope a chemical compound that cannot be removed by any amount of washing with water. This sublimate when acting on a germ forms a capsule around it, which for a time protects the germ from the further action of the sublimate.

Three objections exist to mercuric chloride being considered an ideal antiseptic in surgical work. Its great toxicity which requires the greatest care in its use; its precipitation of albuminous material: the tarnishing of instruments. A fourth may be added, that of roughening the hands.

Antiseptic Soap.—To Dr. Charles T. McClintock we are indebted for the results of thousands of experiments performed, to make antiseptic soap in which mercurial salts remain in an active form and undecomposed.

A solution of the double salt of mercury and potassium iodide was found to permit the presence of a weak alkali without the precipitation of albumen. If too little alkali is used the metals are attacked, if too much, the mercury is precipitated.

The following conclusions express well the merits of antiseptic soap:

1. In proportion to the amount of antiseptics contained, this soap is at least four times stronger than any known germicide. A 1 per cent. solution of the soap 1:5,000 of mercuric iodide, is at least equal to 1:1,000 of mercuric chloride.

2. It does not coagulate albumens or attack nickeled or steeled instruments.

3. It does not attack lead pipes nor silver and aluminum instruments.

A solution containing one-fourth per cent. of soap or 1 : 2,000 of mercuric iodide has to its credit the destruction of Staphylococcus in one minute.

Space does not permit more than the naming of other agents used in antiseptic work. The iodine trichlorid, the silver salts, the nitrate, the lactate of silver (actol), citrate of silver (itrol), and protargol. phenosalyl, permangates, etc.

In the foregoing antiseptics described, reference has been made, mainly, to their uses in surgical work and their ability to destroy pathogenic bacteria and that *bête noire* of the surgeon and sterilizer, the anthrax spore.

CLINICAL EXPERIENCES WITH CHLORETONE AND MERCUROL.

By C. E. DARCHE, M.D., C.M., Three Rivers, Que.

I have been using these two valuable remedies for a year or more with such gratifying results that I feel it my duty to report some of my experiences.

One night last winter I was called to a case of midwifery. The patient, a primipara, aged 20, had been in labor for nearly twenty-four hours. Examination revealed a rigid os, and concluding that the progress of the case would necessarily be tedious, I considered this an excellent opportunity to make a useful experiment. Having with me a small vial of three-grain chloretone tablets, I began to administer two of these every hour, for the purpose of testing the general anesthetic effect of the drug. After eighteen grains had been given, I decided to resort to chloroform anesthesia; the cervix was artificially dilated and delivery accomplished with the forceps. Although in this case I did not procure the general anesthetic effect of chloretone, I observed that it was necessary to use but a very small amount of chloroform to produce anesthesia, and the patient reacted without nausea and vomiting.

In the case of a large epitheliomatous ulceration of the face, I made local applications of a one per cent. solution in the form of a spray, and found it to be a very valuable antiseptic and deodorant. One day it so happened that, being out of chloretone, I was obliged to treat the ulcer with another antiseptic, which was used for about a week. During that week pus was formed in greater quantity and the odor became almost intolerable, but as soon as the chloretone solution was resorted to again, the quantity of pus diminished and the odor almost

entirely disappeared, circumstances which I attribute entirely to the good offices of chloretone.

The chief use I make of this drug is in an ointment, in which it is sometimes associated with mercurol, and often with boric acid, with exceedingly good results. In November, 1900, I had a case of extensive ulcers of the legs, and over the back, in a two-year old child that was somewhat rachitic. The case had been treated in various ways, and different ointments had been used with no success. I at once prescribed the following:

Pulv. Amyli.
Zinci Oxidi ..... aa ℥ ii.
Mercurolis ..... gr xv.
Chloretoni ..... ℥ ss.
Petrolati ..... ℥ i.

M. et ft. ung. Sig.: To be applied on pieces of lint, constantly re-covering the affected areas.

Prior to the application of this ointment, the pain in the ulcers had been intense and the itching intolerable; the child constantly scratched himself and was very restless at night. When this ointment was applied, the relief was almost immediate, the child began to sleep better, he ceased to scratch his sores, and he became less irritable. Of course, the underlying condition was treated as well. The mother, who was somewhat skeptical as to the value of the chloretone ointment, suspended its use for one night, to her sorrow, for the child was very restless and appeared to be suffering. It was reapplied the next day, and under its soothing influence the ulcers healed in a surprisingly short time.

In December, 1900, a man came to my office suffering with ulcerated hemorrhoids, and stated that he wanted nothing but a palliative treatment. Accordingly, I prescribed the following ointment, which gave him almost immediate relief.

℞ Mercurolis ..... gr. v.
Chloretoni ..... gr. xv.
Acidi Boracici ..... ℥ ss.
Petrolati ..... ℥ i.

M. et ft. ung. Sig.: To be applied three times daily.

I will refer to yet another case similar to the previous one. A young girl came to me having an ulcer of the rectum. I prescribed for her Parke, Davis & Co.'s Elixir Cascara Sagrada, one fluid drachm to be taken each morning and evening according to circumstances, also the following:

℞ Mercurolis .....gr. i.
Chloretoni .....gr ii.
Acidi Boracici .....gr. viii.
Olei Theobromæ. .....gr. xxx.

M. et suppos. no. i. ft. Sig.: To be inserted at bedtime.

The cure in this case was rapid. and the pain disappeared almost immediately.

I have had two cases of pruritus vulvæ in which the very best results were obtained from the use of an ointment of chloretone with boracic acid. I also had several cases of chronic gonorrhea, in which I used bogies of the following composition with perfect satisfaction.

Mercurol .....1 per cent.
Chloretone.....2 "
Boracic acid .....8 "

For the past six months I have treated all cases of acute gonorrhea in this manner: a 1 per cent. solution of mercurol is used as an injection, and calcium sulphide is given internally, *ad saturandum*, and nothing else is done. Whether my cases were of a "mild form" or not they nevertheless ran a mild course, lasting not more than three weeks, and in some instances as short as two weeks. One of these patients, whom I saw on the third day, and who had, in addition to a profuse purulent discharge, a temperature of 101 degrees with chills the succeeding night, told me some time afterward that he was cured before his bottle of medicine was empty.

I have come to realize that the combination of mercurol with chloretone and boracic acid is a very happy one, particularly in the treatment of various acute and chronic affections of the skin and mucous membranes.

Progress of Medical Science.

MEDICINE.

IN CHARGE OF W. H. B. AIKINS, J. FERGUSON, T. M. McMAHON, H. J. HAMILTON, AND INGERSOLL OLMSTED.

The Treatment of the Drunkard.

Dr. John Wetherill, in the *Alkaloidal Clinic* for March, 1901, contends that drunkards are made, not born. They learn to drink, as people learn to walk, by practice. If you take the histories of drunkards carefully, this will become very clear. The author of the article states that he has taken the histories of 632 drunkards. He has had fourteen years' experience in treating drunkards, during which time he has cured over 3,000.

The patient is given 2 to 20 minims, three times a day, of atropia gr. ¼, strych. nitrate gr. 1, aq. destil ℥ i, cochineal to give a pink color.

He is given three times a day the following in 5 to 15 minim doses: Strych. nitrate gr. 1, aq. destil ℥ i.

Both mixtures are given hypodermically.

He is given every two hours while awake a teaspoonful of the following: Ext. golden seal fl. ℥ ii, ammon. choride gr. xxx, aq. destil ad ℥ ii.

For the first six days he is given two heaping tablespoonfuls of Horlick's malted milk in half a glass of hot water, well salted. This should be taken every two hours. The patient may eat anything he wishes.

The patient may carry his own whiskey with him, and use it, but must not frequent places where it is sold. He should only drink what is necessary to keep him up.

If he does not stop drinking by the fourth day he is given hypodermically apomorphia gr. $\frac{1}{10}$ in 15 minims of the atropia solution.

This is to create the impression that he cannot drink any more. The whole secret of success is psychic. The patient must be induced to quit thinking about drink. If he begins thinking drink, his desire for it will return. His whole mind must be educated to think something else than drink.

The Treatment of Rheumatism.

Dr. Frank J. Charteris, of Glasgow, in the *Medical Brief* for April, 1901, attaches very high value to the free use of the salicyl compounds in the treatment of rheumatism.

Twenty grains of the sodium salt may be given in water every two hours. This usually relieves the pain and reduces the temperature in thirty to forty hours. The dose may then be reduced to twenty grains every four hours. In two or three days more, twenty grains a day from this time will suffice. By the end of a week, ten grains, three or four times a day, will be sufficient. It may be well to complete the cure, to change to the salicylate of quinine, which acts as a tonic as well as a remedy for the rheumatism. Of all the applications to the inflamed joints none give as much relief as olerum gaultheriæ. Of this half a dram to a dram should be gently rubbed into the inflamed joint. The joint should then be covered with lint and gutta percha tissue and cotton wadding. Under this local treatment relief is very rapidly obtained. It is well to remember that drunkards do not bear the salicylates well.

The Origin of LaGrippe.

Felix L. Oswald, M.D., writing in March number of *Health Culture*, maintains that epidemic influenza or grip is a disease of Russian origin. In the hovels of the Northern Russian peasants, a most unsanitary condition of affairs is found to exist. When the cold weather sets in, the small window is closed with rags, or great sod; the door is covered with old blankets; the children, dogs and pigs vie with each other in acts of filth. The drunken peasants hang up their wet clothes and sheepskins to dry. Close to the stove, cabbage and other vegetable substances are placed in boxes and barrels to undergo fermentation. From this state of affairs, catarrhs are bred in great abundance. Coughs and colds are the order of the day. Influenza becomes epidemic, and so does tuberculosis in certain conditions. But influenza does not remain epidemic, it becomes national and then international. The contagion reaches the slums of seaport towns. Like other epidemics it grows in virulence, wherever it is fed by proper fuel. It acquires potency enough to start out on its journey of the world.

The Abortive Treatment of Pneumonia.

Current views in regard to the treatment of pneumonia certainly do not include any means for arresting the pneumonic process at its onset, though the possibility of such intervention as a practical therapeutic measure is now receiving a considerable amount of attention. In a recently reported case attention is called to the amelioration of symptoms secured in a case of pneumonia in a baby nine months of age following the administration of three-quarters of a minim of the tincture of veratrum viride combined with a quarter of a minim of the tincture of aconite given in a teaspoonful of water every hour, and the

result is described as extremely satisfactory. This new abortive treatment of pneumonia therefore resolves itself upon examination into a recognition of the well-known physiological effects attending the administration of green hellebore and aconite. With regard to green hellebore, it has been very shrewdly remarked that as it is now very little used, it is probable that the glowing accounts of its usefulness which appeared some time since were very much overdrawn. The efficacy of aconite has long been well-known in connection with pneumonia, pleurisy, and certain other grave inflammatory affections, but the warmest supporters of the use of this drug are bound to accept the objection that aconite weakens cardiac contraction, and to admit that even minute doses will sometimes cause the pulse to become unsteady and irregular. In Allbutt's "System of Medicine" the author of the article on Pneumonia, speaking of abortive treatment, says that there is nothing absurd in supposing that this may one day be done, and he points out that at the present time the manifestations of syphilis and ague, of hydrophobia and of diphtheria can be successfully controlled. It is much to be desired that a really safe and reliable abortive treatment could be found, but it certainly does not appear likely that the combination of tincture of veratrum viride and tincture of aconite will commend itself to most medical practitioners as the best solution of the problem.—*Medical Press and Circular.*

Flechsig's Opium-Bromid Cure for Epilepsy (Ziehen's Modification).

E. Mayer (*Berl. Klin. Woch.*) considers the use of opium and the bromids in the treatment of epilepsy as suggested by Flechsig, and afterwards modified by Ziehen, of much value. The results by the original method were not favorable in the hands of some clinicians; others reported excellent results. The strict regulation of the diet and the use of the cold water treatment, Mayer finds, give marked improvement in the physical being, and cause a decided improvement in psychical condition. The bromids should be kept up at least a year in order to get the best results.—*International Medical Magazine.*

Heredity in Diabetes Mellitus.

J. H. Pleasants, in the *Johns Hopkins Hospital Bulletin* for December, 1900, reports six cases of diabetes mellitus in a single family, occurring in three generations. That heredity has long been recognized as a factor in this disease, is shown by the fact that the first references to it in the literature were in 1696. In 1798 Storer called attention to what he termed

"mild habitual or family diabetes." Modern writers place heredity incidence at from 27 to 5 per cent., the variation probably being due to the different character of the patients who furnish statistics. He is of the opinion that the importance of heredity in this disease has been underestimated. The disease often occurs in an uncle, aunt, or cousin, while the parents escape. In the same way a grandparent may be diabetic, while the parent escapes. When successive generations are affected there is a tendency for the disease to develop at a progressively earlier age. When more than two members in the same generation are diabetic there is a tendency for the disease to appear at approximately the same period of life. Hereditary diabetes developing in the first two decades of life is often of a severe character, while the cases developing later in life are generally of a mild type. In a certain number of cases the disease has appeared in the children prior to its appearance in the parents. There is frequently a neuropathic tendency in diabetic families. Cases are recorded in which several children were diabetic, while the others suffered from various psychoses. Obesity is often a characteristic of families in which diabetes occurs.—*Medicine.*

Croupous Pneumonia.

I have found hot poultices more agreeable than cold. I would resort to venesection when there is an overloaded right heart with threatening symptoms. Digitalis is reserved for an irregular and flagging heart; codeine in small doses for the relief of pain and delirium; strychnine in increasing doses and alcohol for enfeebled heart action; calomel and saline for constipation or sluggish portal circulation; oxygen gas is commenced at the first sign of cyanosis and in quantity sufficient to relieve; and last, but by all means first, the absolute recumbent posture until resolution is established.—*Bridges, Med. Rec.*

The Origin of Parasitic Diseases.

Dr. D. S. Davies, in *Bristol Med. Jour.* for December, 1900, argues as follows on the etiology of infectious and parasitic diseases:

In the case of every parasitic and infectious disease, the parasite must have been evolved from some free living form. The nematoid intestinal worms possess near allies in the free water-living nematoids, feeding on decomposing organic matter. They must often be taken into the digestive canals of animals, and thus gain many advantages of maintaining their existence. Once the parasitic habit has been acquired, the laws of entrance, exit and migration will determine its future.

The entrance of the parasite is usually simple enough. It finds its way into the alimentary canal, but in some cases the parasites do not remain there, but migrate into some other organ of the body. In the case of the bacillus of enteric fever and the spirillum of cholera, they are both suited to an aquatic life. They can live in water, and from this again find their way back into the human digestive canal.

It does not require a great stretch of the imagination to suppose that such forms were developed in the first place from some aquatic form of organism living free in foul liquids. Some of these become adapted for life in the intestinal canal. They could then be carried from place to place by the discharges from the bowels. It is not at all improbable that the enteric fever bacillus is a modified form of the bacillus *coli communis*.

The law of migration may be illustrated by the human tenia echinococcus, which is peculiar to the dog and the wolf. Ripe sections are discharged on the ground by these animals, and taken into the system by various herbivorous animals. The six-hooked embryo migrates, usually to the liver or some other organ. When this is eaten by the dog or wolf, it takes on a new growth into the mature tenia, or similarly so if taken into the human alimentary canal. In the case of the pentastoma tenioides, they get into the nose of the dogs and wolves, and then into the nostrils of these animals, to again be discharged on the grass, and thence taken into the system by herbivora.

Migration is noted in the large group of vegetable organisms capable of causing the exanthemata. The germ is inhaled, but finds its way through the system to the skin, where it sets up an inflammation and makes its escape in large numbers to spread the infection. This is equally true, whether the germ was inoculated into the skin or drank in milk, as in the case of scarlet fever.

Some of these infesting parasites have only one host, others have two or more. The germs of enteric fever and cholera appear to love only man; and their spread from man to man, and when not in the human body, must depend upon their saprophytic existence. Smallpox has limited powers of spreading to other animals, and this has been turned to man's advantage. In scarlet fever, diphtheria and tubercle we have diseases that have a freer range of life in other animals than man. Plague has very great powers of living in a number of animals, as the rat, mouse, rabbit, monkey, squirrel, marmot, guinea-pig. Koch regards the plague as primarily a rat disease.

The history of the filaria is very interesting. The gnat is the carrier host. In sucking blood from the human body it

takes into its own system the embryonic filariæ. These are then deposited by the gnats in water pools. Whether they gain entrance into the human body from the water, or by the proboscis of the mosquito, is not quite settled. In either case the gnat is necessary to the life of the parasite.

Diseases and Disorders of the Heart and Arteries in Middle and Advanced Life.

Dr. J. Mitchell Bruce, in his Lettsonian Lecture (*Brit. Med. Jour.*, March 9th) enters very carefully into some questions of great importance regarding the heart and arteries.

From the years twenty to forty-five the blood pressure is relatively high. During this period, the blood vessels increase in diameter from the stress of the blood pressure on their elastic walls. During these years the heart is steadily increasing in size at a uniform rate.

At the age of 45, in most cases, very marked changes occur. The arteries continue to increase in circumference and more rapidly than previously; the blood pressure falls, and the heart decreases rather suddenly in size. These three features distinguish the circulation for the next twenty years, or up to sixty-five years of age. This change in the heart is due to lowered arterial pressure, comparative bodily relaxation, loss of vasomotor tone in the splanchine area, and the existence of chronic diseases.

At sixty-five years of age other changes make their appearance. The decline of circulatory energy and the effects of time on protoplasm have so lowered the activity of the blood supply that a considerable portion of the capillary network disappears. The peripheral resistance is increased, the blood rises, the heart again enlarges, so that by 75 it is as large as at 45. The arteries, during this period, grow wider, thicker and longer; but the cardiac systole is increased to overcome fibroid stoys that form in inner and middle coats of the arteries, and the obliteration of so many of the capillaries.

After the age of 40, many of the influences that threaten the heart and arteries with disease and disorder are peculiar to this age.

First we must note that physical exertion plays an important part. Acute and serious strain of the heart and arteries may occur at any age from 40 to 70. When persons of mid-life to 70 perform sudden or violent exertion, such as fast bicycle riding, running to catch a train, quick walk up a hill, the effects may be quite serious. In many cases the heart walls may not be very sound, there may have been attacks of gout, frequent periods of previous over-exertion, or some valvular defect from rheumatism. The safeguard against arterial strain lies in the elasticity.

It is admitted that the nervous system has a very close connection with the heart. Excitement and emotional disturbances tax the circulation. During cerebral activity, the blood pressure rises. Worry, anxiety and suspense may give rise to disorder and disease of the heart and arteries. In advanced life, depressing emotions fall very heavily on the circulation. A life of adventure often causes arterio-sclerosis. Persons who have been of nervous and energetic temperament, and who have been burdened with responsible work, often break down in health with tense pulse, accentuated second sound, enlargement of the heart, polyuria and a trace of albumen. A nervous temperament may drive its subject to overwork in devotion to duty and to the indulgence in alcohol to prop up the system. These in turn injure the vascular system.

Many poisons have a decided influence in the production of diseases of the heart and arteries, such as alcohol, lead, tobacco, tea and coffee.

Then there are the poisons developed within the system. In the latter half of life there is a liability to the formation of the gouty habit. This causes derangements of the liver, gravel, headaches and other diseases and disturbance; but the most important of all is that this condition of nitrogenous waste matter in the system stimulates the vasomotor centre, giving rise to high arterial tension, hypertrophy of the heart and polyuria as an effort is made to wash the *materies morbi* out of the system.

Syphilis is another important factor in the causation of heart and vascular disease. The average at which syphilis usually causes vascular disease is 55, regardless of when contracted.

Acute diseases, as pneumonia, typhoid fever, diphtheria, influenza, rheumatism, septicemia and some others, may work grave mischief in the vascular system. Chronic diseases, as pernicious anemia, exophthalmic goitre, and such like, may also prove serious.

Emphysema, and chronic diseases of the lungs and pleura, give rise frequently to disease on the right side of the heart; while chronic Bright's disease affects the left side. There may be a combination of these factors, as the victim of emphysema or Bright's disease working among lead salts, or indulging unduly in alcoholics.

There is also a condition that may be called the family heart. A number of members of the same family become senile early in the vascular system. At fifty the arteries may show changes, that are often not met with in others until eighty. Their heart and arteries become prematurely old. The vital energy of these tissues is soon exhausted.

OBSTETRICS AND GYNECOLOGY.

IN CHARGE OF ADAM H. WRIGHT, JAMES F. W. ROSS, ALBERT A. MACDONALD, H. C. SCADDING AND K. C. McILWRAITH.

Puerperal Sepsis.

Draghiescu (*Annales de Gyn. et d'Obst.*, Paris, October) says the method of treating puerperal sepsis at Bucharest is by systematic irrigation of the uterus whenever, after delivery, the patient has a chill, temperature of 38 C., and pulse 100. The uterus is then packed with iodoform gauze moistened with a 5 to 10 per cent. solution of phenic acid. The gauze slightly distends the organ and by direct contact cauterizes the surface and promotes uterine contractions. It is renewed twice in twenty-four hours. The patient recovers more rapidly with this than with any other method of treatment, and affections of the adnexa, etc., and phlebitis are much less frequent. The mortality has ranged from .05 to .22 per cent. of all accouchements since this treatment was instituted in 1895. There were 3 deaths, or .13 per cent., of 2,047 deliveries in 1899.—*Jour. A.M.A.*

Treatment of Puerperal Eclampsia.

According to Porak, eclampsia is an auto-intoxication of intestinal origin. He therefore treats it by copious flushing of the bowels, using 30 to 50 litres of tepid, 7 per 1000 salt solution under weak pressure. This irrigation brings at last a discharge of pure bile, and then he desists. Infusion into the blood is also an important aid. He considers the convulsions of reflex origin, and consequently forbids all food or drinks by the stomach, and if obstetrical intervention is necessary, abolishes the reflexes by profound narcosis. Since he has been treating eclampsia on these principles he has had only five die out of forty-seven cases, and two of these deaths could not be attributed to the eclampsia.—*Jour. A. M. A.*

Puerperal Mastitis.

Brouha (*L'Obstétrique*, January, 1900) gives details of a healthy primipara who during at least the last three weeks of her pregnancy carried out most conscientiously the prophylactic treatment advised by Rubeska for the prevention of mammillary abrasions and cracks; twice daily she washed the areola and the nipple with warm water and soap, and followed this with a fomentation of the parts, sometimes with alcohol and sometimes with glycerine. The labor supervened at term; the child presented by the breech, but was delivered without

interference; but there was some *post-partum* hemorrhage, causing considerable anemia. The same night there was some fever and a feeling of tension in the breasts. The infant was only once put to one breast. A mastitis developed, although no lesion could be discovered in the breasts; recovery took place. The author finds it difficult to explain how microbes reached the gland tissue, as the infant had not been put to the breast when the first signs of mastitis appeared. He considers that some of the microbes which are normally found in the lactiferous ducts had forced their way through the epithelium and reached the lymphatics; he thinks that the mechanical and chemical means employed to prevent the occurrence of abrasions may have weakened the vitality of the epithelium, and so made easy the entrance of the microbes and perhaps also have increased the virulence of these microbes.—B. M. J.

Treatment of Uterine Hemorrhage by the Local Application of Antipyrin and Salol.

Ostermann (*Deutsche Med. Woch.*, March 29 and April 5) has employed the method introduced by Labadie-Lagrave in thirty cases, with good results. Equal parts of antipyrin and salol are melted together in a test tube and brought to the boiling point, the resulting fluid being of the consistence of thin syrup. A bivalve speculum is introduced, and the cervical and uterine cavities are thoroughly freed from discharge by dry cotton wool on a Playfair's probe. Another probe, also provided with absorbent wool, is then dipped into the hot antipyrin-salol fluid, and the uterine cavity is swabbed out with it three or four times. Labadie-Lagrave, however, uses the fluid after it has cooled down. If the direction of the uterine axis is first determined by the sound, it is unnecessary to employ vulsellum forceps to bring down the cervix. These directions apply only to cases where it is possible to adopt the treatment in the intervals of flooding, the best time being shortly after a period. If the application be made during the hemorrhage, an attempt to cleanse the uterine cavity only aggravates it. It is better in these cases to introduce the fluid at once, after simply cleansing the portio cervicalis. Most of the writer's cases of hemorrhage depended on endometritis with some complication, such as inflammation of the appendages, pelvic peritonitis, old hematocele, and retroflexion of the uterus, but others were due to subinvolution after abortion or labor, or to the menopause. In about one-fourth of the cases the uterus had been curetted previously, but the antipyrin-salol fluid acts well in cases of fungous endometritis without any previous operative treatment. When applied during flooding, the hemorrhage sometimes ceases at once and does not recur; in other cases several

applications may be required. The treatment is not painful unless the fluid is used very hot. Contra-indications are submucous myomata and malignant growths. The simplicity of the method is a great advantage in the case of anemic and nervous women, where anything resembling an operation, such as curetting or *atmocausis* (the application of steam, superheated or not, to the endometrium, see *Review*, Vol. I., p. 103), is refused.

The active ingredient of the liquid is almost certainly the antipyrin, salol being added chiefly to lower the high melting point of antipyrin and to render the melted mixture more fluid. How it acts as a hemostatic is not known, for its caustic power even when hot is but slight.—*Med. Review.*

Gonorrheal Endocarditis in a Patient Dying in the Puerperium.—*Johns Hopkins Hospital Bulletin*, March, 1901.

This article is written by N. McL. Harris, M.B., Toronto, whose name is familiar in Toronto, and William M. Dabney, M.D. It is a careful account of the clinical symptoms and *post-mortem* findings in a case of puerperal fever.

Briefly stated, the history was as follows: The patient was admitted to the hospital on the twenty-fifth day after her confinement, in an apparently septic condition. The patient's statement was that "on the fourth day of the puerperium she was seized with a chill followed by fever, and, later, sweating; and these symptoms have recurred regularly every day since then. Other symptoms have been headache and general pain in the limbs, nausea and vomiting, the latter at times marked, and almost complete loss of appetite; and for the last few days a rather constant cough accompanied by some pain in the side." The patient died on the following day, having given the doctors time to make a complete clinical examination. There was the clinical evidence of disease of the heart valves. The blood was examined for malarial organisms with negative results. Lochia taken from the uterus showed "in cover-glass specimens an occasional coccus, or in doubtful pairs, but so few in number that it was impossible to say whether they discolorized by Gram's method or not. Cultures taken on bouillon, agar plates (2 dilutions), and anaërobic glucose agar, all remained sterile." Media suitable for gonococci were not tried, as the case was considered to be one of ordinary puerperal infection. The perineum was found "practically intact," the uterus apparently normally involuted and slightly retro-posed, cervix slightly torn and adnexa seemingly normal.

We note that clinically there was nothing to distinguish this case from an infection by staphylococcus or streptococcus, and,

indeed, the doctors themselves seemed to have looked on it as being of this nature.

The anatomical diagnosis was as follows: Acute vegetative and ulcerative endocarditis involving aortic, tricuspid and pulmonary artery valves, acute splenic tumor, infarction of spleen, catarrhal cystitis, puerperal uterus.

In sections from the cervix and body of the uterus no bacteria were seen. *Cover-glass preparations* from the valvular vegetations showed numerous cocci, many of which were typical gonococci, and all of which discolorized by Gram's method. Cultures taken from (*a*) aortic vegetations yielded gonococcus, streptococcus pyogenes, bacillus coli communis. (*b*) Tricuspid vegetations, as in (*a*) with exception of gonococcus. (*c*) Splenic infarction, sterile. (*d*) Heart's blood, bacillus. (*e*) Bladder, streptococcus pyogenes and bacillus coli communis.

We have extracted this paper at some length, because the relation of the gonococcus to puerperal fever has excited some discussion in obstetrical circles.

The authors state in conclusion that this case is "clearly proven one of undoubted gonorrheal origin." We think this statement should be modified, in view of the presence of streptococci in cultures from the heart valves. We regret that the site of the original infection was not determined. The uterus seems to have shown little, if any, sign of infection. The thanks of the profession are due to Drs. Harris and Dabney for publishing the full notes of this case. K.C.M.

Eclampsia.

In *Obstetrics* for February, 1901, is a translation of a paper by Stroganoff. The title is "Fifty-Eight Cases of Eclampsia Without a Death." There seems to be some confusion on the paper, and it is difficult for the reader to make out whether these were fifty-eight consecutive cases or not. One of this number rapidly succumbed to lobar pneumonia just after being cured of eclampsia.

The writer defines puerperal eclampsia as an "acute infectious disease which usually runs its course in a few hours, seldom exceeding twenty-four, and still more infrequently exceeding forty-eight hours in duration." The convulsions he considers to be the greatest cause of danger. For their control he uses morphine, followed, if necessary, by chloral. He gives oxygen by inhalation during the convulsion, and forbids the use of chloroform except when operative measures are intended. He urges the delivery of the fetus. He emphasizes the importance of giving liquids during the period of unconsciousness, and of removing all sources of irritation. In regard to the writer's theory of the disease we are referred to another

article. In his treatment there is nothing new to account for his very favorable results. Many remedies have been advocated for the treatment of this disease, many of which are of undoubted value, and we are inclined to think that close attention to each individual case, and careful selection of the method suited to it, will go far to reduce the death rate, and disapprove the omission of eliminative treatment from Dr. Stroganoff's list. In our hands it has been of great service in every case.

OPHTHALMOLOGY AND OTOLOGY.

IN CHARGE OF G. STERLING RYERSON, J. T. DUNCAN AND J. O. ORR.

Partial or Complete Loss of Vision, Estimation of the Amount of Injury to the Earning Capacity of the Individual.

H. F. Hansell (*Annals of Ophthalmology*) discusses this question. In endeavoring to answer it, he consulted insurance societies, the Bureau of Pensions, the railroad companies, and many authorities—chiefly German. In regard to the insurance companies, they have no uniform methods of estimating the value of one or both eyes. They simply assume the risk of being called upon to pay sums varying from $600 to $1,000 for one, and $5,000 for both eyes.

The United States Bureau of Pensions, for total blindness of both eyes, pays $72 per month; for loss of one eye, $17 per month; for loss of sight of one eye, $12 per month. Not much information was obtained from the railroad companies. Those engaged in the actual running of trains must have full acuity of one eye, and two-thirds of the other.

Hansell says we may assume that the average man will double his earnings every ten years, so that if he earns $250 per year from fifteen to twenty-five, he will in the next ten years earn $500, from thirty-six to forty-five $1,000, from forty-six to fifty-five $2,000, and from fifty-six to sixty-five he will earn $4,000 a year.

Hansell puts forward the theory that the loss of one eye does not often interfere with the earning power of an individual. "In all trades but a few, the men with one eye are as capable as those with two, and the one-eyed man's one eye is worth both eyes of the two-eyed." Therefore, the loss of one eye will not prevent the individual increasing his earnings every ten years as above stated. But when the seeing eye becomes weak, the case is very different. The loss of earning power may be computed by a simple system such as this:

If a man has lost one eye but has vision of $\frac{6}{6}$ in the other, he has full earning power.

If he has but $\frac{6}{12}$ he has 80 per cent. of earning power.

If $\frac{6}{24}$, he has about 50 per cent. of earning power.

If $\frac{6}{60}$ he has about 10 per cent.

Finger counting at one foot means that his earning capacity is gone. The most important conclusions of the article may be thus stated:

Monocular blindness is not incompatible with full earning capacity.

Monocular blindness and weak sight in the remaining eye rapidly diminish the earning power.

The loss of earning power owing to defective vision, may be computed according to a simple system based upon the ratio of the loss of vision to the full earning capacity at any age and in most occupations.

Vernal Conjunctivitis.

Vernal Conjunctivitis (*L. W. Fox, in the Annals of Ophthalmology*) is an interesting article specially because he brings forward a new line of treatment. The disease has other names, such as spring catarrh, summer conjunctivitis, etc. It is a rare disease.

The disease is not seen in cold weather; but, in those liable to it, appears during the first hot days of May or June—it may be, year after year. The symptoms are similar to those of ordinary catarrhal conjunctivitis, but the itching of the eyeballs in vernal conjunctivitis is often excessive, often lasting for weeks, or it may be until the advent of cold weather causes the disease to disappear rapidly—as rapidly as does hay fever.

The affection is not corneal, but is located in the epithelium of the ocular conjunctiva (and conjunctiva of lids—J. T. D.). Many lines of treatment have been tried, most of them with little benefit. "Grattage," however, in the hands of Fox, has been signally successful. The operation is performed by grasping the upper lid along its margin by forceps, rolling it outwards so as to expose successive portions of the retrotareal fold. Each portion is thoroughly scarified, then scrubbed with a brush which has been dipped in a solution of corrosive sublimate, 1 to 500. The parts are washed after the scrubbing with the same solution. The lower lid is treated in the same way. It seems to be unnecessary to treat the ocular conjunctiva.

The opinion is almost universally held that atropin is a more reliable cycloplegic than homatropin. With this opinion E. Jackson (*Annals of Ophthalmology*) does not agree. In his article on "Homatropin" he states that in his last one thousand cases in which he used homatropin, in twenty-two it was

suspected that cycloplegia was not complete. In these atropin was used afterwards, but in only one-seventh of the cases did the refraction noticeably change.

Jackson considers it of special value in children, and claims that if used properly, it is of more value, and is a more reliable cycloplegic than atropin, as ordinarily used.

In regard to the use of it, a solution, 1 to 30 or 1 to 40, is employed. A drop is instilled, and the eye kept open for fifteen or twenty seconds. The other eye then receives a drop, and is kept open as before. This is repeated every five minutes for four or six instillations. The dilatation of the pupil is then complete, and the accommodation sufficiently paralyzed to allow refraction to be accomplished satisfactorily. J. T. D.

The Treatment of Chronic Suppurative Inflammation of the Middle Ear.

In the *Therapeutic Gazette* S. MacCuen Smith has an excellent article on the above subject. He first insists upon (1) cleanliness, which is accomplished by the use of hydrogen peroxide, followed by syringing. (2) Clean the tube, and middle ear by Politzeas' bag. (3) Dry the parts carefully, and drop in a solution of silver nitrate (gr. i to iii to ℥ i), allowing this to flow down the tube. A few drops are sufficient. (4) This treatment should be repeated twice or thrice weekly, the patient, in the meantime, using the syringe twice or thrice a day at home. If this does not succeed, use the "dry" treatment. (1) Dry the parts well, after syringing. (2) Instil drops, as above. (3) Dust with some powder (as iodoform and boracic acid āā.) (4) Insert a small strip of iodoform gauze. (5) Insert a pledget of cotton, which may be changed as often as necessary. This treatment, to be effective, must be done by the physician himself, repeated as often as he considers advisable. Any disease of the naso-pharynx must be treated, and systemic treatment given, where necessary. J. T. D.

Editorials.

UNIVERSITY OF TORONTO.

There seems to be some doubt as to the reasons for the choice of a name for our provincial university. Although situated in the City of Toronto, it is not, correctly speaking, the University of Toronto. The misnomer has caused frequent discussions in late years, and, although many have thought that there should be a change in the name, no definite action had been taken, previous to the meeting of the Senate held March 28th. After a discussion at that meeting, an informal vote was taken, with the following result: twenty to six were in favor of changing the name from the University of Toronto to the University of Ontario. The Chancellor, Vice-Chancellor and many other prominent members of the Senate favor the change. We understand the Alumni Association will be asked for an expression of opinion on the subject at its next meeting.

ONTARIO MEDICAL ASSOCIATION.

In our last issue we mentioned the fact that the Committee on Papers and Business of the Ontario Medical Association had decided to hold the next meeting June 19th and 20th. The President, Dr. Angus McKinnon, of Guelph, Dr. Machell, Chairman of the Committee on Papers and Business, and Dr. H. C. Parsons, have been corresponding with various members of the Society, and also with some distinguished physicians of the United States. It is expected that Dr. Charles P. Noble, of Philadelphia, and other Americans will read papers. We are asked by the Committee to again request the members living outside of Toronto to communicate with the Secretary as soon as possible, giving the titles of the papers which they are willing to present. As we have before intimated, the three leading discussions will be on the following subjects: Gastric ulcer, empyema, extra-uterine pregnancy. The following gentlemen, with others, are expected to lead or take a prominent part in the discussions: Dr. Edgar, of Hamilton; Dr. Ferguson, of London; and Dr. Garratt, of Kingston.

FREE CONSUMPTIVE HOSPITAL.

It has been felt for many years that one of the most urgent needs for Toronto and vicinity was a hospital for the poor and destitute who are suffering from tuberculosis. After many and prolonged negotiations, the National Sanatarium Association has secured a piece of land admirably adapted for such a hospital. It is situated on the brow of the hill at the head of Bathurst Street, opposite the Convalescent Home, and contains about ten acres of land. The late Dr. J. E. Graham, who took a great interest in the welfare of the consumptive poor, was strongly in favor of the site which has been chosen. We understand that all the physicians connected with the Sanatarium Association highly approve of the choice which has been made, as there is plenty of land well situated, easy of access, and sufficiently well isolated. It has also received the endorsement of Dr. Sheard, the Medical Health Officer, and the Local Board of Health.

We learn from the Toronto *Mail and Empire* that the building plans, prepared three ye ı ago, when the National Sanatarium Association held the option on a site near High Park, are being remodelled and extended to meet the requirements of the new site. As soon as they are completed tenders for the building will be called for, the contracts let, and the construction work started with the least possible delay.

THE CHILDREN'S AID SOCIETY.

One of the best of our city charities is that known as the Children's Aid Society. Its chief objects are: To attend the trial of all children under sixteen years of age in the Police Court, and, by investigation of the home life of the children concerned, to assist the magistrate in determining what is to be done with them; to receive complaints of alleged cruelty to, or neglect of, children; to receive children at the Shelter from parents who are unable to control their offspring; and also (from the truant officers) those who have become confirmed truants and incorrigible, for a short term of kindly but firm

discipline: to receive children for adoption, and select homes for them; to co-operate with other institutions for the protection of children. The Society has issued the following circular, signed by J. K. Macdonald, President, and J. Stuart Coleman, Secretary, and addressed to the physicians of Toronto: "Our Society desires to reach every case in the city where a neglected or abused child may need its protection and help. Realizing that this—with a limited number of officers—is an impossibility unless citizens coming in contact with such cases will co-operate with us, we are addressing this circular letter to the physicians of the city asking their co-operation. We believe that physicians in the practice of their profession come into intimate contact with more cases of misery, want, cruelty and abuse among children than perhaps any other body of citizens. We would, therefore, be very much obliged to you if, when you come across any cases where you think children require our protection (either by a warning to parents, or by legal action), you will let us know the same. This may be done either by letter to the Secretary, or by telephoning 911, which is the number of the Society's office telephone."

THE BRIGHT SIDE OF MUD.

There is some virtue in mud after all, although it has been somewhat difficult for the ordinary mud-besprinkled pedestrian to discover where or what it is. We find an editorial article on this subject in the London *Lancet* of December 29th. The writer says: "Of course mud is, roughly speaking, wet dust, and dust is dry mud; but the evil effects of dust far transcend those of mud. In the dissemination of disease, mud remains comparatively innocent; but for the behaviour of dust in this respect no words can be too strong. Widely disseminated and inevitably inhaled, dust particles carry and deposit enormous quantities of disease. Its local and comparatively trifling damages, conjunctivitis, pharyngitis, and rhinitis, pale before its evil powers in carrying more formidable disorders. It has recently been shown how summer diarrhea is wont to prevail most where there is most dust, and that it may contain the dried sputum of phthisical patients is only too familiar to us all."

Those who live in certain of the cities and towns in Ontario have good reason to believe that our municipal authorities do not appreciate the dangers to which citizens are exposed from floating dust. Take, for instance, Beverley Street, in Toronto, with its expensive and admirable macadam pavement (so far as macadam pavements go). It sometimes happens when our street-watering machinery is out of joint that this street is exceedingly dusty. Apart from the great discomfort which is produced by the inhalation of dust, there are probably other dangers in connection therewith that we know not of. After all, we must agree with the *Lancet*—mud is infinitely better than dust; even mud on one's shirt-collar is preferable to dust in our nostrils and other portions of our breathing apparatus. The *Lancet* is right when it says that paradoxical as it may sound, mud is clean, at least as compared with dust. We might perhaps, without offending the sensibilities of our city fathers, throw out a gentle hint that clouds of dust on a cold and windy day are no less noxious than those we meet in warmer weather, and consequently the watering cart is as much a necessity in the cold spring months as it is in the dog days of July and August.

APPENDICITIS.

We take the following thoughts from Mr. Southam's article in a recent number of the *Medical Chronicle:*

It would be safe to say that the appendix has attracted more attention during the past ten years than any other portion of the body. Twenty years ago works on medicine and surgery contained nothing about the diseases of the appendix, and clinical teachers were dumb regarding those cases of inflammation now ranged under the heading of appendicitis. It is true that typhlitis and cecitis got an occasional word of attention.

"Contrast the above state of knowledge with that pertaining at the present day. Many a death certificate was given with the word, 'Peritonitis,' written therein, whereas it should have been 'Appendicitis.' With truer knowledge came truer methods of treatment. How very different the management of a case of appendicitis to-day, from the management of a case of pain in the left iliac fossa, going on to general peritonitis of twenty years ago.

"Our knowledge of this disease is now beginning to settle down into its final and definite form. There are still those who take an extreme view, either on the side of medicine and treat all cases on the expectant plan, or who advocate on the other hand operation in every case. Either position is wrong; but the best opinion now holds a middle way between these extremes. To operate in every case would be as unsound in surgery as not to operate in any case would be unsound in medicine.

"When one recalls to mind the fact that of all cases of appendicitis met with in general practice, about 80 per cent. recover without an operation, there is abundant proof for the position that it is bad surgery to operate on every case. It is quite true that many of these cases are left with a damaged appendix, and of these there may be a good many recurrent attacks. But the point that must be emphasized is that many patients, after the first attack, never have a second. Clearly it would have been wrong to have operated on these cases in the first attack. Some argue that as you do not know that there will not be a second or a third attack, the operation should be done on all occasions. But it is wrong to submit all to a major operation to prevent some recurrent attacks.

"Another fact that must be borne in mind is that with a thorough knowledge of the etiology of appendicitis recurrent attacks in the future may become much less frequent than in the past. The correction of indigestion, constipation, the avoidance of over exertion, and errors in diet will no doubt prevent many a recurrence. One of the great duties of physicians and surgeons in this disease will be along the lines of prophylaxis.

"When the attacks recur at intervals the plain duty of the attendant is to advise the removal of the appendix. This should be done in the interval between attacks, in every case where such selection of time can be made. In a few of these recurrent cases, a cure is effected by nature's efforts by the appendix becoming obliterated and converted into a fibrous cord. In the great majority of recurrent cases, however, sooner or later an abscess forms, which may be localized, or set up general peritonitis. The wisdom of removing the appendix in recurrent cases is therefore manifest. The great question to decide is when to interfere surgically. It may be laid down a

rule, accepted by all, that, after two attacks, others are almost sure to follow, and therefore the appendix should be removed.

"In the case of a first attack, if there remains for some time, after the attack, a painful swelling, or pain on making ordinary exertion, the appendix is almost invariably found diseased on its removal, thereby showing the wisdom of surgical interference in these first attacks, running on into a chronic condition, with tender swelling and discomfort.

"There is still a division of opinion as to the best method of treating a case of appendicitis that has not presented the symptoms calling for an operation. As to local applications some recommend ice, some turpentine stupes, others leeches, and others again hot fomentations. An excellent local treatment is equal parts extract belladonna and glycerine, smeared over the part, and hot fomentations. With regard to opiates it may be said that they can generally be dispensed with. If the pain is severe, there is no objection to their moderate use to relieve the sufferings of the patients, as more good will come from the rest thus obtained, than harm from the masking of symptoms. In some very severe cases, it may do good by lessening peristalsis, and thereby favoring the formation of adhesions. As a rule small doses will suffice. In mild cases, and at the commencement of the attack, a mild aperient is useful. This may be aided by an enema. If the symptoms are very acute from the first, or, if the case has run on for a few days, purgatives should be avoided. The peristalsis induced by their action may break down adhesions that are guarding the peritoneal cavity against infection from pus that may be present, or about to form.

"When an abscess forms it should be opened. The opening should be made over the most prominent part, but as well towards the lateral aspect as possible. The abscess cavity should be gently explored with the finger, the greatest possible care being taken not to break down adhesions. If the appendix is readily found it should be removed, but no prolonged search ought to be made for it. The cavity should be washed out with an irrigator and a large drainage tube placed in it for a few days.

The indications which would lead us to suspect the formation of pus are the continuance of the general symptoms beyond the usual period of five or six days, or if there has been a partial

improvement with a rapid return in the symptoms after the seventh day. If the pulse keeps high, say over 100, there is strong reasons to fear that the case is not going to do well. If a partial fall in the temperature is followed by a sudden rise, the case is serious; and also a sudden fall to normal or subnormal indicates the rupture of the appendix. In all such cases an opening should be made, when pus will most likely be found. If the abdomen is found to contain pus the irrigation should be thorough, followed by free drainage.

INHERITANCE OF ACQUIRED TENDENCIES.

Very much study has been given to the subject of the inheritance of the peculiarities of the ancestors. It has been accepted now as a working axiom that there are many characteristics of the ancestors that may skip a generation, or more, and then reappear. These characteristics are fixed in the germ-plasm of the species; and, though they may not always appear, they are always potentially present. It is in this way that unexpected peculiarities, or powers, may be found in a person, no trace of such being noted in the near ancestry. These are spoken of as latent powers, or features, and account for instances of atavism, or reversion. The crossing of races tends strongly to bring out these latent ancestral characteristics.

But when one passes to the consideration of acquired characteristics, the ground is not so secure. Many have argued with great energy that acquired characteristics can be transmitted. This has again been as strongly denied. If acquired characteristics cannot be transmitted, then nothing that was not in the first germ-plasm can be passed on from one generation to another. Something less may be, but nothing more can be. By this view the first germ-plasm must have been endowed with every potentiality that any member of the race has yet manifested, or may ever in the future manifest. But there are great difficulties in the way of this theory. Take, for example, the variations due to environment, as in the color of different races. Here the peculiarity appears to have become perfectly fixed, and the germ-plasm of the race has been so modified by the somatoplasm that the color has become a certain feature in

the heredity of the race. If acquired characteristics cannot be transmitted, then every possibility of color, genius, disposition and activities must have been provided for in the first germ-plasm. But it is known and admitted that as a given race advances in civilization, the children are born with greater capacities and mature with larger brains and more comprehensive powers than their remote ancestors.

When one turns to the study of disease, some of the strongest arguments are found for the view that acquired characteristics are inherited. If Weismann is correct, that the somatoplasm does not affect the germ-plasm, and that every potentiality is found in the germ-plasm, how can the inheritance of acquired disease and disease tendencies be explained? It is well recognized in pathology that a certain mode of life produces gout. Several generations of this mode of life fixes the gouty diathesis very firmly in the family history. It becomes then a question of great difficulty to eliminate this gouty tendency; and even though a member of such a family lives in a most appropriate manner, he may not escape. He then has an acquired condition, and one that in the first place acted upon the somatoplasm, has modified the germ-plasm so as to make the diathesis hereditary, even though efforts are made to neutralize this tendency. This line of argument could be pushed much further. All in all, it would appear the acquired characteristics may become hereditary, and this is the view of many eminent scientists.

Scheme Not Feasible.

The plan to amalgamate the Toronto and Trinity Medical Schools, as predicted in the *Mail and Empire* several weeks ago, has practically fallen through. The report of the decision arrived at by the faculty of the Trinity Medical College is ready to be made by Dean Geikie to the chairman of the joint university committee. The Trinity report states briefly that they do not consider the scheme of the proposed amalgamation of the faculties feasible, but that the college is in favor of confederation upon broad lines. The University of Toronto Medical Faculty was also asked to consider the proposed plan, but waited until Trinity had dealt with it. The action of Trinity puts the scheme for amalgamation as far off as ever.—*Mail and Empire.*

Apr. 1901

Obituary.

MICHAEL LAVELL, M.D.

Dr. Lavell, of Kingston, died February 18th, aged 76. He was well-known for many years as one of the most prominent physicians in Central Canada. He graduated from Jefferson College, Philadelphia, 1853, and became a Licentiate of the Medical Board of Upper Canada in the same year. Shortly after graduating he commenced practice in Kingston. Dr. Lavell was for many years Professor of Obstetrics in Queen's University, was a prominent member of the Ontario Medical Council for nineteen years, and was President in 1874-5. He was appointed Warden of the Provincial Penitentiary in Kingston in 1885, and remained in the position for ten years.

CALEB ELLSWORTH MARTIN, M.D.

Dr. Martin, of Toronto, died after a brief illness at the residence of his son in Seattle, W.T., March 7th, aged 69. Dr. Martin received his medical education at Rolph's School of Medicine, Toronto. After graduating, he went to the United States and served as a surgeon in General Sheridan's cavalry during the Civil war. After returning to Canada he commenced practice in Oshawa, and shortly afterwards removed to Lindsay, from which town he came to Toronto and engaged in general practice about twenty-five years ago. He soon acquired, in the latter city, a large practice and was very popular with his patients. A widow and seven children survive. Three of his sons are practising medicine in Seattle, and one of his daughters is the wife of Dr. Norman Allen, of Toronto.

JOHN DUFF MACDONALD, M.D.

Dr. Macdonald, of Hamilton, died at his home, March 10th, at the advanced age of 82. He received his medical education at Edinburgh, and became a member of the Royal College of Surgeons of Edinburgh when twenty years of age, and at once went into service in the Royal Navy, where he remained about eight years. He came to Canada in 1848 and commenced practice in the town of Perth, and removed to Hamilton in

1854. He was a member of the Ontario Medical Council from 1872 to 1880, and President in 1879-80. He was the chief medical adviser of the Canada Life Insurance Co. for more than forty years. Dr. Macdonald was very successful as a medical practitioner and was highly respected by the profession of Canada He was an ex-President of the Ontario Medical Association and was a member of the Provincial Board of Health from 1890 to 1900, and for some years was chairman of the Board.

Dr. Allan S. MacDonell, of Rat Portage, died of pneumonia, March 6th, aged 47.

Personals.

Dr. Price-Brown has returned from the Southern States and resumed practice.

Dr. Arthur Jukes Johnson, of Toronto, expects to leave for England some time in May.

Dr. Herbert A. Bruce, of Toronto, has purchased a house on Bloor Street East, and expects to occupy it in May.

Dr. George McDonagh, of Toronto, returned from the West Indies, March 23rd, and resumed practice March 25th.

Dr. Nattress, of Toronto, who recently paid a second visit to the Welland, in St. Catharines, is much improved in health.

We regret to say that the latest reports respecting the condition of Dr. James Third, of Kingston, were not favorable.

Dr. John Marquis, of Brantford, has been appointed surgeon to the Ontario Institute for the Blind, in place of Dr. Sinclair, resigned.

Dr. G. W. O. Dowsley (Tor. '99) has gone to Michipicoten, where he received an appointment as surgeon to a railway and mining company.

Dr. A. W. Tanner is also acting as a surgeon to the Rainy River Railway, and is at present in charge of one of the hospitals at Sturgeon Falls.

We regret much to announce the death of Mrs. Smith, the wife of Dr. G. B. Smith, of Toronto, which occurred after an illness of a few days.

We are glad to report that Dr. Spencer has recovered from his attack of septicemia in the hand, from which he suffered much for nearly three months.

Dr. James F. W. Ross, of Toronto, returned from Havana *via* Galveston, Florida, and New York, March 24th, and resumed practice March 25th.

Dr. Thomas P. Weir, formerly of Toronto, is now one of the surgeons for the Ontario & Rainy River Railway, and has charge of the hospital at Aticokan River.

Dr. V. H. Moore, of Brockville, has been appointed a member of the corporation of the Royal College of Physicians and Surgeons of Kingston, in place of Dr. Lavell, deceased.

Drs. J. T. Fotheringham, W. P. Caven and A. H. Wright, of Toronto, sail from New York for England April 20th. After a short visit to London, Drs. Wright and Caven will go on to the continent.

Dr. John J. MacKenzie, Professor of Pathology and Bacteriology, University of Toronto, sails April 19th for Europe. After spending a few weeks in the medical educational centres of England and Scotland he will go to Vienna, where he expects to remain the greater portion of the summer.

Dr. W. H. Weir (Trin. '97), member of the house staff Toronto General Hospital, '97-'98, has just completed a term of two and a half years as house surgeon at the Lakeside Hospital, Cleveland. He has gone to England for post-graduate work. On his return he will commence practice in Cleveland.

Dr. Donald McGillivray (Tor. '98), member of the house staff Toronto General Hospital, '98-'99, after spending a year and a half in Great Britain and on the Continent engaged in post-graduate work, has returned to Canada. He will take charge of Dr. J. T. Fotheringham's practice during three months while the latter is abroad.

Book Reviews.

Sanity of Mind; a Study of its Conditions and of the Means to its Development and Preservation. By David F. Lincoln, M.D. New York and London: G. P. Putnam Sons.

This little work of 170 pages, interestingly written, treats of the nature of mental derangement, degeneracy, education, and social and civic duties.

A Treatise on Mental Diseases; based upon the lecture course at the Johns Hopkins University, 1899, and designed for the use of practitioners and students of medicine. By Henry J. Berkley, M.D., Clinical Professor of Psychiatry, the Johns Hopkins University; Chief Visiting Physician to the City Insane Asylum, Baltimore. With frontispiece, lithographic plates, and illustrations in the text. New York: D. Appleton & Co.

This, without doubt, is the best work in the English language on mental diseases, adapted to the needs of the busy practitioner as well as to those of the student of psychiatry. Part I. deals with the anatomy and histology of the central nervous system, while Part II. deals with the general pathology, and Part III. takes up the various clinical forms of mental diseases, divided into five groups. The chapter on the influence of tropical climates upon neurotic individuals, and psychoses peculiar to tropical regions, is particularly interesting and instructive. This valuable work contains about six hundred pages, with an elaborate and well-classified index.

Studies in the Psychology of Sex. The Evolution of Modesty.—The Phenomena of Sexual Periodicity.—Auto-Erotism. By Havelock Ellis. 6⅜ x 8⅝ inches. Pages xii-275. Extra cloth, $2.00, net. Sold only to physicians and lawyers. F. A. Davis Company, Publishers, 1914-16 Cherry St., Philadelphia.

This volume contains three studies, which form the chief part of an investigation into the psychology of sex. The first sketches the main outlines of a complex emotional state, which is of fundamental importance in sexual psychology. The second by bringing together evidence from widely different regions suggests a tentative explanation of facts which are still imperfectly known, and the third attempts to show that even in fields where we assume our knowledge to be adequate, a broader view of the phenomena teaches us to suspend judgment and to adopt a more cautious attitude. The three main divisions are: The Evolution of Modesty—The Phenomena of Sexual Periodicity and Auto-Erotism.

Infant Feeding in its Relation to Health and Disease. By LOUIS FISCHER, M.D., Attending Physician to the Children's Service of the New York German Polyklinik, etc., etc. With fifty-two illustrations, with twenty-three charts and tables, mostly original. F. A. Davis Company, Publishers. 1901.

The reader will find much valuable information in this little book. One feature that is of considerable interest is the writer's attack, for it can scarcely be called less, on the Walker-Gordon process of modifying milk and on Dr. Rotch. The author prefers pure milk modified at home.

Very many references are made by the author to articles, both original and translated, appearing in various American and European journals. As a whole, we should say that the tone of the work is too controversial for a text-book. K. C. M.

A Practical Treatise on Medical Diagnosis. For the use of Students and Practitioners. By JOHN H. MUSSER, M.D., Professor of Clinical Medicine, University of Pennsylvania, Philadelphia. New (4th) edition, thoroughly revised. In one octavo volume of 1104 pages, with 250 engravings and 49 full-page colored plates. Cloth, $6.00, net; leather, $7.00, net; half morocco, $7.50, net. Lea Brothers & Co., Publishers, Philadelphia and New York. October, 1900.

In view of the fact that no work has done so much to put the science of Diagnosis upon a firm practical basis, pointing out clearly the best and most modern methods of precision, both clinical and laboratory, it is not surprising that "Musser's Medical Diagnosis" has become the leading and standard book on its subject.

Successful treatment, the aim of every practitioner, can follow only an accurate and complete diagnosis, and this in turn demands the use of every known method of investigating symptoms and conditions, however complicated or obscure. To no more trustworthy, authoritative, modern or comprehensive book can the practitioner refer in times of anxiety and doubt than the one under consideration.

Instruments of precision, the topography of disease and every accepted method of clinical and bedside investigation are described so clearly, and with such fulness, that the work is appreciated equally as a text-book in the best medical colleges and as a never-failing consultant for the practitioner.

The constant and increasing demand renders necessary the issue of frequent editions, and enables the author to keep his work carefully revised to the latest date, as will be seen upon examining the present edition, notwithstanding the fact that its predecessor was published less than a year ago. The illustrations have been revised as thoroughly as the text, and besides 250 engravings, the book contains no fewer than forty-nine full-page colored plates.

A Text-book of the Diseases of Women. By HENRY J. GARRIGUES, A.M., M.D., Gynecologist to St. Mark's Hospital in New York City; Gynecologist to the German Dispensary; Consulting Obstetric Surgeon to the New York Maternity Hospital, etc. With 367 illustrations. Third edition, thoroughly revised. Philadelphia: W. B. Saunders & Co. Canadian Agents, Carveth & Co., Parliament Street, Toronto.

The press notices of the first edition were commendatory in the extreme, and the fact that a third edition was called for in two years is a full endorsement of the complimentary opinions passed upon this "most practical," "really good," "most complete," "condensed," "clear," "comprehensive," and "in every way a good guide for the physician," and "a safe book for both students and practitioners." What more need be said?

Obstetric and Gynecologic Nursing. By EDWARD P. DAVIS, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, Philadelphia, and in the Philadelphia Polyclinic; Obstetrician to the Jefferson and Polyclinic Hospitals; Obstetrician and Gynecologist to the Philadelphia Hospital. W. B. Saunders & Co., Philadelphia and London. Canadian Agents, J. A. Carveth & Co., Toronto, Ont. Price, $1.75.

This book was prepared by Dr. Davis for the training schools of the Jefferson and Philadelphia Hospitals, in both of which he is one of the instructors. We cannot say that we agree with the author in all his details; for instance, we do not believe that a mercuric-chloride douche should be administered before labor. However, we have but few faults to find with the book as a whole. We may go a little further, and say, that it is the best work we have seen on the subject. We have no hesitation in recommending it, especially to those nurses who are taking a three years' course.

The American Year-Book of Medicine and Surgery for 1901. A yearly digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators. Arranged with critical editorial comments, by eminent American specialists. In two volumes—Volume I, including General Medicine, octavo, 681 pages, illustrated; Volume II., General Surgery, octavo, 610 pages, illustrated. Philadelphia and London: W. B. Saunders & Co., 1901. Per volume: Cloth, $3.00 net; half morocco, $3.75 net.

The issue of the Year-Book for 1900 in two volumes met with such general approval from the profession that the publishers decided to follow the same plan with the Year-Book for 1901. This arrangement has a two-fold advantage. To the physician who uses the entire book, it offers an increased amount of matter in the most convenient form for easy consultation, and without any increase in price; while specialists and others who want either the medical or the surgical section

alone, secure the complete consideration of their branch at a nominal sum, without the necessity of purchasing considerable material for which they have no special use.

The volume under review is devoted to medicine, and consists of 700 pages. General Medicine is written up by Dr. Stengel, Pediatrics by Dr. Louis Starr, Bacteriology by Drs. Riesman and Kelly, Nervous and Mental Diseases by Dr. Church, Materia Medica and Therapeutics by Drs. Wilcox and Stevens, Physiology by Dr. J. N. Stewart, Legal Medicine by Dr. Wyatt Johnston, Physiologic Chemistry, by Drs. Jones and Hunt. The very best literature of the year 1900 has been placed under tribute to the make-up of the present volume. It gives a full and fair review of the progress in medicine. The work is a very useful one. Canadian agents, J. A. Carveth & Co., Toronto.

The American Year-Book of Medicine and Surgery. Being a yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from journals, monographs, and text-books of the leading American and foreign authors and investigators. Collected and arranged with critical editorial comments, by J. M. Baldy, M.D., Charles H. Burnett, M.D., J. Chalmers Dacosta, M.D., W. A. Newman Dorland, M.D., Virgil P. Gibney. M.D., C. A. Hamann, M.D., Howard F. Hansell, M.D., Barton Cooke Hurst, M.D., E. Fletcher Ingals, M.D., W. W. Keen, M.D., Henry G. Ohls, M.D., Wendell Reber, M.D., J. Hilton Waterman, M.D., under the general editorial charge of George M. Gould, M.D., in two volumes, $6.00. Surgery. Philadelphia and London: W. B. Saunders & Company; Canadian Agents, J. A. Carveth & Company, Toronto, Ont.

The class of reading that the busy practitioner requires to-day is something that is concise, complete, and up-to-date. "The American Year-Book of Medicine and Surgery" embraces these three qualities. The editor-in-chief, Dr. George M. Gould, has surrounded himself with a very brilliant staff of co-editors, and in looking over the volume on surgery we were struck with the completeness of all the departments. It is impossible to review any work of this character, because the work itself is a general review of surgery for the year, with comments thereon. We can recommend the work most highly, and are not using any stereotyped term when we say that no doctor can afford to be without these two volumes. All references to the original article are given, so that persons wishing to follow up the subject may procure the original article in every case. The work is divided into departments, which makes the references more easy, and each department is under the charge of gentlemen eminent in the particular branch of surgery to which he is assigned a department.

The typographical work, illustrations and binding are of the excellent quality that the W. B. Saunders Co. always puts out.

Students' Edition, A Practical Treatise of Materia Medica and Therapeutics, with special reference to the Clinical Application of Drugs. By John V. Shoemaker, M.D., LL.D., Professor of Materia Medica, Pharmacology, Therapeutics, and Clinical Medicine and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia; Physician to the Medico-Chirurgical Hospital; Member of the American Medical Association, of the Pennsylvania and Minnesota State Medical Societies, the American Academy of Medicine, the British Medical Association; Fellow of the Medical Society of London, etc., etc. Fifth Edition. Thoroughly Revised. 6½ x 9½ inches. Pages vii-770. Extra cloth, $4.00, net; sheep, $4.75, net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia.

This is a handsome and a valuable work. The author has long been known as an able writer on Therapeutics. This volume is brought well up to date. The first seventy-five pages deal with general Therapeutic matters and contain much useful information on Materia Medica, Pharmacy, Prescription Writing, Prisms and Antidotes and the Classification of Remedies. Each drug is dealt with under the headings of Description, Dose, Pharmacology, Physiological Action and Theology. There are in the work many formulæ showing the methods of combining drugs in the treatment of disease. The language of the author is simple and clear. We can recommend the work with much pleasure.

American Text-Book of Physiology. Edited by W. H. Howell, Ph.D., M.D., Professor of Physiology in Johns Hopkins University, Baltimore, Md. Second edition, revised. Vol. 2. Muscle and Nerve; Central Nervous System; the Special Senses; Special Muscular Mechanism; Reproduction. Philadelphia and London: W. B. Saunders & Co., 1901. Toronto: J. A. Carveth & Co. Price, cloth, $3.00. Leather, $3.75.

The contributors to this volume are H. P. Bowditch, H. H. Donaldson, F. S. Lee, W. P. Lombard and H. Sewall. The writers hold prominent positions in the medical departments of Harvard, University of Chicago, Columbia University, University of Michigan and University of Denver. It would naturally be expected that writings from their hands would be of a high standard of merit, and such is the case.

The illustrations are numerous and good. The paper, type and binding all go to make up a thoroughly readable book.

The scientific views of the authors are those now generally accepted by physiologists. Prof. Donaldson, in his section on the central nervous system, adopts the neuronic theory as his working basis. In this position most will agree. It should be noted, however, that Prof. Schaefer, in a similar work just now published in Britain, takes strong ground against the neuron theory. Prof. Donaldson meets the difficulty raised by the opponents of the theory as to how the nerve impulses

pass from one neuron to another, by citing another equally important difficulty and one where we know the impulses do pass from one structure to another. In the case of the relation of the nerve ending and the neusole fibre, we have only a case of close contact, yet we know that the nerve impulse does pass to the muscle fibre, most likely by some minute chemical change that takes place between them, as in the terminals of an electric machine. This position being established, it must cease to be regarded as an insurmountable difficulty to the *neuron theory*, the fact that the neurons are independent of each other, and have no integral union. Impulses can pass from one neuron to another, as they pass from nerve endings to muscle fibres. In this we think Prof. Donaldson is absolutely correct.

One naturally turns the pages over to the chapter on Reproduction to ascertain what position so distinguished a physiologist as Prof. Lee would take on the theories of heredity. He passes under careful review the theories of His, Weismann, Nägeli, Darwin, Spencer and others. The theory of the germ-plasm, so ably expounded by Prof. Weismann, of Freiburg, receives due attention. The theory of variations, founded upon Darwin's, Brooks' and Gatton's views, that while something is inherited in the form of germ-plasm, something is also added by the individual. This leads to the theory of epigenesis. This theory holds that there is no absolute predetermination in the formation of the various cells of the body, and that this is largely a question of their physical and chemical surroundings. The views of many of the leading physiologists are a sort of compromise between the full germ-plasm theory of Weismann, and the epigenesis theory of those who adopt the theory of variations. The writer does not commit himself to a very definite statement of his own position, but admits that modern physiologists incline to look for some truth, both in the doctrines of preformation and epigenesis.

SUNSHINE AND SLEEP.—Sleepless people—and there are many in America—should court the sun. The very worst soporific is laudanum, and the very best is sunshine. Therefore, it is very plain that poor sleepers should pass as many hours as possible in the sunshine, and as few as possible in the shade. Many women are martyrs, and yet they do not know it. They wear veils, carry parasols, and do all they possibly can to keep off the potent influence which is intended to give them strength, beauty and cheerfulness. The women of America are pale and delicate. They may be blooming and strong, and the sunlight will be a potent influence in this transformation. —*Pub. Health Journal.*

Selections.

SURGICAL HINTS.

Old age and youth should certainly cause caution in operating, but both babes and old people can stand a good deal, and their age should never lead the surgeon to condemn them to death because he is too timid to take his chances.

When a patient has been very badly injured, remember that a condition of buoyant hopefulness is an indication of shock rather than of vitality, and do not let it lead you into the idea that the case is one favorable for operation. Count the pulse and investigate the temperature of the skin. The chances will be that heat and stimulation are needed.

In severe injuries of the head it is sometimes difficult to distinguish sutures and vascular grooves from fissured fractures, even after careful examination. Wipe the part over carefully with a sponge of absorbent cotton or gauze. The blood lying in a suture or groove may always be wiped away, whereas no amount of rubbing will remove the line of blood effused between fractured bones or separated sutures.

Abscesses and cysts situated in the body of the lower jaw often closely simulate solid tumors, and such swellings should always be opened before removing any portion of the jaw. It has more than once occurred that good surgeons have removed part of the jaw for a tumor that only required perforation and drainage. The bone, even in the case of chronic abscess, seldom becomes so thin as to give the cradkling sensation afforded by some abscesses of other bones.—*International Journal of Surgery.*

The Action of Alcohol.

Prof. G. Sims Woodhead, in *Journal of Inebriety* for January, states that the excessive use of alcohol causes marked changes in the cells of the organs. One of these changes is that known as cloudy swelling. The large swollen cells are granular. The nucleus is usually obscured. This cloudy swelling goes on to fatty degeneration. Another action of alcohol is to lessen or destroy the scavenging power of the leucocytes. Under the influence of alcohol they lose the capacity for absorbing poisons and producing anti-toxins. Under the influence of alcohol, these white cells fail to wall off organisms from the general circulation. In a number of experiments performed upon

animals, it was found that in those which had been alcoholized, the introduction of poison germs were very fatal; whereas in other animals free from the influence of alcohol, the germs had much less power to infect the system and destroy their lives. In such diseases as tetanus, rabies, streptococcus, the resisting power of the animal was much reduced when given alcohol. Alcoholics do very badly in pneumonia.

Suppuration Due to the Diphtheria Bacillus.

Adolf Hala, in the *Wiener Klinische Rundschau* of December 9th, 1900, publishes a case of what he regards as suppuration due to the diphtheria bacillus. The trouble occurred in an anemic patient who presented a small tumor at the outer angle of the eye. The skin over the tumor was dark-red and smooth, and the mass presented distinct fluctuation. The tissue surrounding the tumor was infiltrated and firm, but there was no evidence of any injury to the skin. The glands at the angle of the jaw on the affected side were swollen; the antrum of Highmore and the nose upon the same side were not involved. The tumor on the eyelid was incised, and discharged a chocolate-colored mass, accompanied by a few drops of greenish-yellow pus. The tissues of the tumor were necrotic. Microorganisms of the pus upon cultivation gave all the characteristic cultural and staining reactions of the diphtheria bacillus.

The Cause of the Prevalence of Appendicitis.

It is difficult to resist the conclusion that appendicitis is really more prevalent now than in years gone by. Without being in any sense a new disease, it is doubtful whether what our predecessors called typhlitis or perityphlitis was exactly the lesion now known as appendicitis. At the last meeting of the French Academy of Medicine Dr. Lucas-Championnière, in discussing this question, pointed out that between the years 1882 to 1898 he only had to operate for iliac abscess thirty-four times, while he had nineteen in the two subsequent years, a contrast which appears to prove that iliac abscess is far more frequent now than formerly. He ascribes the greater frequency of appendicular lesions to a multiplication of the sources of intestinal infection, and he points out that appendicitis is most prevalent in countries like the United States and England, where meat enters very largely into the popular dietary, and, in his own experience, he states that he has met with the lesion especially in persons who habitually consumed unusually large quantities of meat. Another possible cause incriminated by this authority, is the discredit into which the use of purgatives has fallen. Formerly, he observes, it was the custom to purge young people at every change of season,

and he regrets apparently that the practice has fallen into abeyance. He holds, in short, that the occurrence of appendicitis might be rendered vastly less frequent if people would eat less meat, and would secure the complete evacuation of the intestinal contents by periodical purging. These views are not exactly novel; indeed, in one form or another, they are universally recognized. It is a matter of experience that appendicitis occurs mostly in persons of a constipated habit. It is recognized to be always a disease of infective origin, and it follows that a diet rich in nitrogenous constituents must necessarily be more prone to decomposition, and must provide a more congenial *milieu* for pathogenic microbes than the intestinal contents of those who draw their nourishment more from the vegetable world. We make a present of this fact to our friends the vegetarians, warning them, in passing, that in avoiding Scylla they may fall victims to Charybdis. As one might anticipate, dyspeptics are specially prone to appendicitis. They are usually of a constipated habit, and digestion being imperfect and slow, they ar more liable than others to fermentative changes in the imperfectly digested food; moreover, their digestive juices are less active and less able to destroy pathogenic organisms which may happen to be present, than the secretions of the healthy human animal. These are points worth bearing in mind, for there is every reason to believe that by attention to the principles enunciated by M. Lucas-Championnière a certain proportion of the cases of appendicular infection might be averted in persons predisposed thereto. Prevention is better than cure, and the success of surgical intervention, early undertaken, is not of itself a reason for not doing our best to render it unnecessary.—*Medical Press.*

Treatment of Mosquito Bites.

Dr. A. Manquat has treated numerous cases of mosquito bites with various substances, and has come to the conclusion that the most efficient applications are formaldehyde tincture of iodine, and alcohol, or eau de cologne with menthol. The solution of formaldehyde the author uses consists of: Formaldehyde (40 per cent.), 1 dram; alcohol and water, of each 2 drams. As to the relative efficiency of the above-mentioned substances, formaldehyde takes the first place, but it causes considerable burning and sometimes even inflammatory reaction, and must be applied several times in succession. Tincture of iodine leaves a stain, produces desquamation of the skin and can, therefore, not be used very well on exposed portions of the body. For ordinary cases the application of alcohol or eau de cologne with menthol will, therefore, be found more satisfactory.—*Merck's Archives.*

EXTRACTS FROM REPORT OF RESEARCH EXPERIMENTS ON THE PHYSIOLOGICAL ACTION OF PETROLEUM.

By G. BURBIDGE WHITE, A.B., M.D.,

Diplomate in State Medicine, University of Dublin; Late Examiner in Physiology, Senior Demonstrator of Anatomy, and Demonstrator of Materia Medica, R.E.S.I., Late Pathologist, Meath Hospital and County Dublin Infirmary; Surgeon to the City Hospital for Diseases of the Skin, Dublin.

In the report which follows, it is proposed to embody the experiments conducted by myself with petroleum, as to its behaviour physiologically in the body, with a view of explaining the clinical effects (which have already been observed and recorded largely) that follow its administration in diseases of various kinds, viz.: increase of weight, diminution of catarrh of mucous surfaces, relief of dyspepsia and constipation, relief of flatulence and cystitis, etc. After careful comparative chemical examinations, Angier's Petroleum Emulsion was selected because of its purity, palatability and because it was the best adapted form of petroleum for internal administration. Research experiments were made from chemical, bacteriological, histological, physiological, and clinical aspects.

Effect upon Fermentation.—With regard to the chemical portion of the investigation, in which I was ably assisted by Prof. Kelly, I found that while the emulsion completely inhibits vinous, lactic, and butyric fermentation and the growth of putrefactive bacteria, such as inhabit the alimentary canal, preventing the formation of spirit, lactic acid, or foul gases, it has no retarding action upon either peptic or tryptic digestion, both of which we were able to carry on successfully in presence of a very large percentage of petroleum emulsion.

As a Solvent and Vehicle.—Another not less interesting and important fact is that the emulsion is a solvent of considerable power both of drugs and of animal substances, such as oils and peptones, which latter it also emulsifies in larger percentages and holds, especially at the temperature of the body, for a considerable time, longer than would be required for absorption from the alimentary canal. Lard, cod-liver oil, clear bacon fat, etc., are readily dissolved in the emulsion, as also is butter fat, and an important effect of the mixture of these two substances is that the particles of fat are rendered more mobile, more easily miscible with water and fluids, and these fluids and

these solutions of them pour out of glass vessels not clinging to the sides, which can afterwards be rinsed clean with plain cold water.

Peptones are freely taken up by the emulsion to 50 per cent. and upwards, and held well in combination without separation, and a somewhat similar effect follows their admixture. The peptones pour more easily, and more quickly diffuse through water and fluids of lesser density, also pour easily and cleanly from glass tubes.

Quite a number of experiments were made to prove these results, as these substances are important factors in alimentation the importance of the effects of mixing the emulsion with them will be manifest.

Bacteriological Experiments.—By bacteriological investigation with the emulsion it was found that no organisms could be grown in either pure petroleum or petroleum emulsion: this is doubtless due to its affording no food for their nourishment, owing to the want of the property of chemical combination.

Physiological Experiments.—The rabbit, cat and dog, were selected for the physiological portion of the investigation, which involved much time and trouble in its performance, and was undertaken to study the biological action of the emulsion in the body. It will be, perhaps, unnecessary to state that the food conditions were equal and constant before and after the administration of the emulsion, and care was taken to compare similar and not dissimilar conditions; when food was to be introduced into the stomach or bowels, peptone was the food selected in conjunction with emulsion.

A dog of previously determined weight was denied all food for a period of twenty-four hours and was given instead a quantity of petroleum emulsion, equal in weight to the amount of regular food which the dog had consumed in the twenty-four hours previous to the experiment. Under the administration of the petroleum alone the dog lost two ounces in weight. This dog was then given small quantities of food in addition to a minimum amount of Angier's Petroleum Emulsion, and the weight of the animal increased in three days to four ounces in excess of the original weight. This proves that while petroleum in itself is not capable of maintaining body nutrition, given in conjunction with even small quantities of food, it causes an increased utilization of the latter over that possible from food alone, so that the body weight promptly, steadily and progressively increased.

Effect on Digestion.—Digestion and assimilation are natural processes, and any product which delays, hampers or renders more difficult these processes, cannot help but inhibit nutrition. To determine the effect of petroleum on digestion, there was

administered in some cases food alone, and in other cases food plus Angier's Petroleum Emulsion to both persons and dogs, and then extracted the stomach contents for purposes of comparison. It was found that in the cases in which food alone was given, digestion was less rapid and less complete than in those cases to which were administered food plus petroleum. It was further noted in the above experiments that petroleum administered in ten times the regular dose, did not in a single instance induce eructations, gastric distress or toxic symptoms of any kind. These experiments prove that petroleum facilitates and expedites digestion without producing a single symptom indicative of gastric irritation or toxic infection.

Effect of Absorption.—Absorption is the *sine qua non* of nutrition. Food is of no value unless it is absorbed. The process of absorption is, however, a complicated one and embraces several distinct factors. Experiments to determine the effect of Angier's Petroleum Emulsion on absorption are hereby briefly recorded. In the first place, any agent that influences absorption must behave in a certain manner towards food products, digested and undigested. It has already been shown that petroleum has solvent properties possessed by few if any other agents. Peptones, for instance, the finished product of the digestion of albuminous substances, are completely dissolved by mixture with this petroleum emulsion. The mixture thus obtained is held in combination, is more rapidly diffusible through water and fluids of lesser density, and the individual particles rendered more mobile.

Another series of experiments with an important class of food stuffs, fats, showed that butter, lard, and even clear bacon fat are immediately dissolved and emulsified: the fat particles become more mobile and freely miscible with water and other fluids, and the solution of fats in petroleum pours out of the vessel without clinging to the sides, and the glass may be then rinsed clean with cold water. *These experiments prove that the effect of petroleum emulsion on fats is exactly similar to that produced by the combined effects of the bile and pancreatic juice; they explain one important step of the universally attested effect of Angier's Petroleum Emulsion on nutrition, i.e., the perfect preparation of food stuffs for absorption.*

As to the effect of petroleum on the process of absorption itself, the following experiments are conclusive. Two large dogs were fed, one with peptone solution, the second with peptone solution plus petroleum emulsion. Ligatures were then placed around the esophageal end of the stomach and around the duodenum just below the exit of the pancreatic duct, thus completely isolating the stomach. In the dog to which had been given peptone plus petroleum emulsion, absorp-

tion was not only more complete, but was finished in a much shorter time than in the case of the dog to which peptone solution alone was administered.

That the emulsion quickens absorption is again manifest in the following experiment: In a dog the bowel was ligatured near the stomach, the upper end of the stomach was closed, and a dose of petroleum emulsion with egg peptone introduced through a gastric fistula. The animal lived for two hours; when opened after death the stomach was found empty. Allowing for paralytic effects which follow surgical injuries, there is no doubt that these mixtures are more quickly diffusible, and would be evidently more so under less artificial conditions.

Bearing in mind what has been recorded about mobility and miscibility of the particles of mixture of peptone and petroleum emulsion, the two following experiments show the effect of petroleum in promoting absorption from the intestines:

A large dog, fed carefully, was selected for the following experiment: The vena portæ was exposed, a canula introduced, and the flow noted and controlled, feeding being effected by peptone introduced through a fistula in the stomach. Next, a mixture of about fifty per cent. of peptone and petroleum emulsion was introduced through the fistula, which was then closed. Peristalsis was increased after introduction of peptone plus emulsion; the after-flow, when absorption commenced, was noted to be greater per minute, thus indicating increased absorption in the latter case in equal times. In regard to the effect of petroleum emulsion on peristalsis, a ligature was placed around the bowel of a rabbit and peristalsis noted to remain about the same above and below it. Peptone introduced through a fistula above the ligature caused little alteration. Peptone plus emulsion, after a short time, caused a decided increase down to the ligature, while the bowel below the ligature remained as before. It was particularly noted also that peristalsis was brisk, and persisted for quite a long time in those animals which had been fed on the emulsion. In those which had not had the emulsion, peristalsis almost ceased with death. Here, then, we have three things proved, viz., the effect of the petroleum is to increase mobility and miscibility of digested material by virtue of its lubricating action and capillary affinity, while increased peristalsis helps, by presenting these prepared materials constantly to the wall of the bowel for absorption, as well as aiding, by muscular movements, in sending the absorbed material up the veins.

Thus on purely experimental grounds, on evidence of the physical senses, is the action of petroleum explained: It facilitates and hastens the digestion of food stuffs, prepares them for absorption and absolutely compels absorption of the finished

products of digestion. This, in turn, explains the beneficial effects of the petroleum emulsion on nutrition; its principle of remedial action is not, as in the case with animal oils, to offer impaired nature a food stuff difficult of digestion and sure of irritating already troubled digestive organs.

Action on Mucous Membranes.—Some interesting experiments, conducted by Dr. White and Professor Kelly, throw much light upon the specific therapeutic action of Angier's Petroleum Emulsion on mucous membranes. It was found by bacteriologic examination that the petroleum emulsion, even when exposed to the air for days, was entirely free from bacteria. Petroleum emulsion contains no food material upon which bacteria can thrive. This explains the clinical fact that petroleum emulsion relieves the symptoms due to the by-products of the various fermentations, and shows why auto-intoxication—which results from the growth of putrefactive bacteria and their toxine in the intestines—is not possible when Angier's Petroleum Emulsion is administered.

A series of experiments were conducted, in order to determine the effect of petroleum as a vehicle for the administration of intestinal antiseptics. My results corroborated those of Robinson, reported in the *Medical News*, July 14th, 1900. Robinson states: "I have extensively given petroleum four times a day, and reclaimed the oil from the feces, and found it to contain some salol and its components, phenol and salicylic acid. This proves the carrying of a chemical antiseptic and anti-ferment through the entire canal. It is a solvent of iodine, sulphur, beta-naphthol, naphthaline, menthol, thymol, camphor, and iodoform. By combination of any of the antiseptics mentioned with petroleum emulsion, a germ-free condition of the intestinal canal is assured and which is not, according to the highest authority, obtainable by any other means.

A clinical study of petroleum emulsion was now made equally as complete and scientific as the experimental study. Four cases, selected at random from a large series, illustrate the effects of the petroleum emulsion, and are herewith briefly recorded.

No. 1 case had been the victim of a severe railway accident last January, in the form of a violent shock, followed shortly afterwards by loss of flesh, first gradual, then becoming rapid, and in three months, when seen, he had lost twenty-two pounds. He had a nasty cough, with profuse bronchial discharge: looked very ill and thin.

No. 2 case has lost seven pounds, and was uncertain as to the length of time it took. Patient suffered from slight consolidation of the lung, cough and discharge from chest.

No. 3 case had lost five pounds, was suffering from atonic dyspepsia, with flatus and constipation, and feeling weak.

No. 4 case had lost five pounds in five months, nutrition faulty, weak digestion, poor appetite.

The treatment of these cases was by Angier's Petroleum Emulsion, a teaspoonful increased to two teaspoonfuls after food, dietetic directions and first relief by a gentle laxative; the results are here appended:

A Gain of Twenty-five Pounds in Weight.—No. 1 case showed improvement from the beginning, and after a period of two months and a half had regained his original weight, eleven stone, seven pounds (one hundred and sixty-one pounds). Towards the end of August his weight had increased to eleven stone ten pounds, three pounds in excess of his original weight, or a total gain of twenty-five pounds in five months. Bronchial catarrh had almost disappeared. During his treatment the patient mentioned to me that he saw films of petroleum on his urine, and there was no difficulty, on evaporating some of his water, in getting quite an appreciable quantity of petroleum from it.

No. 2 case also made good progress and gained five pounds in weight in two months. Lung clearer and health better.

No. 3 case has slowly gained two pounds in three months, flatulence being considerably better, and constipation also better (a chronic case).

No. 4 case has gained three and a half pounds in two months, and with relief from all symptoms.

These results corroborate those reported by Dr. William Duffield Robinson (*Medical News*, July 14th, 1900), who treated a large series of cases by petroleum emulsion. This authority states:

"It can be assuredly asserted that the effect of these petroleum products is decided, and is far more than a simple intestinal lubricant. In over fifty selected cases where nutrition, digestion and body weight were impaired, and the purest oil administered in one or two dram doses four times a day for periods of from three to six months, there was in every instance increase in weight and improvement in health, strength, and feeling of well-being.

The gain in weight was five and a quarter to twenty-three and a half pounds. There was no other change in living conditions or medication which might have caused these improvements. It gave no discomfort in any instance."

From the experiments herewith recorded, the following conclusions concerning the physiologic and therapeutic action of petroleum emulsion may be adduced:

1. Inhibitory to the growth of putrefactive and pathogenic bacteria, such as met with in the alimentary canal, while it does not inhibit or interfere with peptic and pancreatic digestion.

2. And, therefore, is an agent for relieving flatuence by preventing fermentation in such conditions of the bowel; in fact, it acts the part of an intestinal antiseptic.

3. By its action in stimulating peristalsis, increasing diffiusibility of intestinal contents, it not only increases nutrition and weight, but helps the natural movements of the bowels, by its lubricating power relieves constipation, and favors the elimination of noxious and toxic products from the system.

As to its weight-increasing action, there can be no doubt of that in the face of the results of the experiments recorded. There is but one way to increase weight by whatever means employed, *i.e.*, an increased flow or absorption of digested weight-giving material such as peptones, chyle, etc., and particularly the former.

1. The weight gained under its influence is much greater in proportion than it or any other oil could afford, even if digested and absorbed.

2. Petroleum is perfectly incombinable chemically, and indigestible, but the result of the experiments in this direction at once shows that though this be the case, yet when the emulsion is mixed with digested food material the effect is very different. Its action then is to cause an increased flow of this digested assimilable material (which is weight-giving) through the portal system to the blood and tissues in a given time, which being deposited each day leads to accumulation of weight in the tissues of the body. This daily gain added up at the end of many days represents the increase of weight so often recorded from its action; of course, under these circumstances, the rate of elimination of body waste is supposed to be fairly constant. It will also follow that the greater the rate of elimination from the body, the slower will be the increase of weight under the influence of the emulsion.

Two years ago Dr. Rudolf Herzog, of Tübingen, undertook excavations in the island of Cos with the view of finding the temple of Æsculapius. At a depth of eighty centimetres (thirty-two inches) he came upon a mosaic flooring which represented Orpheus charming the wild beasts. At a depth of two and a half metres (nearly eight feet), in the neighborhood of the church of St. Anna, he found two columns, and not far from them the remains of an aqueduct and a small statue of a young man. Great importance is attached to Dr. Herzog's discovery of the supposed temple of Æsculapius. The excavations are still in progress, and it is hoped that many antiquities will be found.—*Med. Age.*