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CANADA MEDICAL RECORD

AUGUST, 1901

Original Communications.

BELL'S PARALYSIS.

A CLINICAL LECTURE DELIVERED AT THE MONTREAL
GENERAL HOSPITAL, 8TH AUGUST, 1901.

By FRANCIS WAYLAND CAMPBELL, M.A., M.D., L.R.C.P.,
London, D.C.L.

Dean of and Professor of Medicine, Faculty of Medicine, University of
Bishop's College.

Gentlemen,—The patient now before us is a healthy French Canadian woman of about 27 years of age. She has had fair though not robust health. She is not aware of having in any way exposed her face to a cold draft of air, nor is there any history of specific disease. She informs us that she went to bed about a week ago with nothing wrong with her face, and in the morning found herself in the condition she now is, *i.e.*, has what is known as Bell's paralysis. This disease is known more generally under the name of facial paralysis or palsy, and is due to the motor division of the seventh nerve, the portio dura or facial nerve being involved in various ways. Its conducting power is lost, and the muscles which receive its distributing branches are paralyzed. The most common cause is a cold wind blowing on the side of the face, sitting at an open window of a room or railroad car, sleeping near a damp wall. Even exposure of the whole body to a low temperature has caused it. The pathological condition is believed to be a

slight inflammatory swelling of the peripheral part of the nerve, which leads to compression of its fibres. Parotitis, tumours, swelling of the cervical glands and wounds of the cheek are also causes. In the course of the nerve within the aqueductus falopii it is very apt to be involved in the severe forms of disease of the petrous portion of the temporal bone ; also in caries and necrosis depending upon scrofulous inflammation of the tympanum. A box on the ear has produced it, and the result in more than one such case has been the discovery of a small clot pressing on the nerve in some part of its course. Inside of the skull the nerve may be implicated in lesions at the base of the brain. In such cases other nerves are involved, and there is distinct evidence of cerebral disturbance. Even the new-born may be attacked by peripheral paralysis of the facial nerve, if delivery has been effected with forceps, and one blade of the instrument, from improper application or slipping, has exerted undue pressure of the trunk of the nerve at the ear or at its division on the cheek. Members of nervous families and those who indulge excessively in intoxicating liquors appear predisposed to this form of paralysis, probably because the resistance of the nervous tissue to injurious influences of various kinds has been diminished. Occasionally persons are attacked with this form of paralysis several times in the course of a few years—generally on the same side, but the other side may be attacked.

Symptoms.—Inability to move the muscles supplied by the facial nerve. Cannot frown, laugh or smile—when this is attempted one side of the face remains destitute of expression. The forehead cannot be wrinkled—no creases around the eye, no dimples on the cheek or chin. The eyelids cannot be closed. In the effort the eyeball is turned up till the pupil is almost lost to sight. The patient cannot whistle or spit or blow. The cheek falls away from the teeth, owing to paralysis of the buccinator muscle. The food collects on the affected side, outside of the teeth, and must be removed by the finger. In speaking, the labial con-

sonants are uttered indistinctly. In some cases the mouth is drawn well over by the power of the healthy muscles of the other side. The eye has a fixed stare, and the entire expression of the face is peculiar—sometimes comical. The exposure of the conjunctiva from inability to close the eyelids very often gives rise to a certain amount of conjunctivitis, but often not so much as would be feared. This is because during sleep the levator palpebrae muscle is very frequently so relaxed that the eyelids very nearly close. Smell is sometimes lost, or at all events perverted, due to the dry condition of the corresponding nostril, caused by the tears flowing over the cheek. Taste is also perverted, due to the conducting power being lost in a branch of the seventh nerve—the chorda tympani. Hearing is often abnormal, and is a result of paralysis of the stapedius muscle, which receives a branch of the facial, its antagonist, the tensor tympani, being no longer opposed, keeps the membrane on the stretch. The branch supplying the soft palate is often affected. In some cases the uvula is turned toward one side. Occasionally we meet with double facial paralysis, which has received the name of “diplegia facialis.” The whole face in these cases is expressionless and peculiar, at times very comical. Such cases are most generally due to a syphilitic gummata at the base of the brain, involving both nerves. The disease may come on suddenly or gradually—generally the former. When it comes on gradually the first indications of the disease is inability to spit or whistle—or he may find the face drawn to one side, with the other attendant symptoms when he gets up in the morning. In one of the most persistent cases of this disease which I have ever had—the patient had been rowing on Lake George late of a moonlight evening, and reached his hotel about midnight. He was overheated and sat at an open window to cool off. He retired perfectly well, but, when he rose in the morning to proceed to Montreal, this form of paralysis was fully developed. It was several months before it disappeared.

Diagnosis.—The diagnosis of peripheral facial paralysis

is easy on account of the striking distortion of the face. Care must be taken to see that there is no other nerve involved.

Prognosis.—If the facial nerve alone is involved, the prognosis is favourable. The time in such cases will generally be from three to twelve weeks, but do not be disappointed if the disease lasts longer—say six to seven months. Syphilitic cases are generally very tedious, and may be permanent.

Treatment.—Casual therapy must always be considered. When exposure to cold has been the operating cause, salicylic acid or sodium salicylate may be employed in doses of one to fifteen grains every two hours till ringing in the ear occurs. Diaphoretics (hot infusions, pilocarpin subcutaneously) and hot cataplasms, applications of cotton wadding. If the case is specific in its origin, mercurial inunctions and iodide of potash in doses varying in strength of seventy-five to five hundred grains daily. I have given it in this latter dose for several weeks, with the very best results. I gave it at the suggestion of the late well-known specialist, Dr. Sequin, of New York, who saw the case in consultation with me. Massage of the paralyzed muscles is advantageous in order to stimulate their nutrition, otherwise they will undergo atrophy due to inactivity in consequence of lack of use. The results of electrical treatment also are scarcely more than mechanical, inasmuch as after electrical contractions paralyzed muscles emaciate less rapidly. As long as paralyzed parts respond to the faradic current this should be employed, and, with a well-moistened and firmly-applied electrode movable from place to place, while the other electrode, as large as possible, is applied to the sternum, the individual paralyzed muscles are stimulated to contract for ten to twenty times. Care should be taken to employ currents just strong enough to cause contraction of the paralyzed muscles, as currents of too great strength may produce electric contractures in the paralyzed muscles, which may not subside, and may give rise to unfortunate dis-

figurement of the face worse than the original disease. If the paralyzed muscles do not respond to the faradic current, then the galvanic current should be employed, preferably by labial application, the anode (positive pole) is applied to the sternum, and the more active stimulating kathode (negative pole) is stroked over each paralyzed muscle from ten to twenty times daily. Leeches and blisters behind the ear are advised.

In the patient before us I have not been able to get any clear history as to the cause, but for reasons of a somewhat empirical character I will order her 10 grains of iodide of potash three times a day.

August 15.—Patient presented herself to-day at the Clinic, and shows decided sign of improvement.

August 19.—Patient has continued the iodide of potash in same dose as prescribed on the 8th inst. Is to-day almost able to entirely close the eye, and there are other well-marked signs of improvement.

August 26.—Patient is practically well. There are few signs still remaining. The iodide of potash will be continued for about another month, by which time I feel confident every sign of the trouble will have disappeared.

Selected Articles.

ON RECENT RESEARCHES.

WITH REGARD TO THE

PARASITOLOGY OF MALARIA.

Being a portion of the Address delivered at the Anniversary Meeting of the Royal Society.

By the Right Hon. the LORD LISTER,

Retiring President of the Society.

Through the Malaria Committee the Society has kept in touch with the progress that has been made in unravelling the mystery of the greatest scourge of our tropical colonies, and with the steps that advancing knowledge has suggested

for its suppression. The subject has now reached a stage at which it may be not unfitting to refer briefly to what has been accomplished.

The term "malaria" implied the belief that some vitiated state of the atmosphere was the cause of the disease. But the knowledge gained of late years of the parasitic nature of infective disorders pointed clearly to such an origin of the intermittent fevers, as the various manifestations of malaria have been termed. Accordingly, diligent and long-continued search was made in the water and the soil of malarious districts in Italy for the suspected living agent, but without success.

LAVERAN'S DISCOVERY.

The discovery was made in 1880 by Laveran, a French army surgeon stationed in Algiers, who observed in the red blood corpuscles of malarious patients what he regarded as adventitious living organisms; not of vegetable nature like the bacteria which constitute the *materies morbi* of so many infective diseases, but a very low form of animal life. In what he believed to be the youngest condition of the organisms, they appeared in the red blood discs as tiny specks of colourless protoplasm, possessing amœboid movements. Those growing at the expense of the red corpuscles which they inhabited consumed them more or less completely, at the same time depositing in their own substance a peculiar form of dark brown or black pigment, such as had long been known to form characteristic deposits in the organs of malarious subjects. As they grew they assumed various forms, among which was what Laveran termed the "rosace," a rounded body bearing at its circumference little spherules, while the pigment was accumulated at the centre.¹

This discovery of Laveran's, at first regarded with the gravest suspicion by pathologists, was the first great step in the etiology of malaria. It supplied the means of distinguishing the disease from its counterfeits, and it explained the wonderful specific efficacy of quinine, till then given only empirically. Quinine is remarkable in the circumstance that it acts with deadly effect upon some microbes, in dilutions which are quite unirritating to the human tissues. It can thus be given in sufficient doses to kill the malaria parasite in the blood without injuring the patient.

GOLGI'S OBSERVATIONS.

Nine years after Laveran's discovery, Golgi, of Pavia, who had been specially studying the "rosace" form of the parasite, and had become convinced that the spherules at the circumference of the rosace were sporules of the microbe, announced that he had observed differences between the rosaces of the tertian and quartan forms of the fever, so great and so constant as to make him satisfied that they were two distinct species of organism. At the same time he had made the extremely important observation that the periods of occurrence of the fever corresponded with the times of maturation of the rosaces. These all coming to maturity about the same time shed their sporules into the blood, and this determined the febrile attack. The free sporules then, according to his view, attached themselves severally to other red discs, constituting Laveran's tiny amœbæ, and grew in the red corpuscles without causing symptoms till they had produced a fresh crop of sporules ripe for extrusion; the time for this being two days in the tertian and three days in the quartan form. Thus the periodicity of the intermittent fevers and their variety in that respect were alike explained.²

THE ÆSTIVO-AUTUMNAL PARASITE.

A few months later a third species of the parasite was recognised, having the peculiarity that some of its individuals, instead of being of rounded form, were of crescentic shape. This species received the title "æstivo autumnal," on account of the season in which it showed itself in Italy. It was not so regular in its periods as the others, and was much more dangerous. The existence of these different species was at first very generally doubted, but it is now universally accepted, and is of very great importance. The examination of a drop of blood from the finger of the patient enables the physician to decide not only whether the disease is malaria, but which of the three types it will follow. The more dangerous crescent form is commonest in the tropics, and hence has been termed by Koch "tropical malaria." The quartan has proved the mildest of the three.

The process of sporulation might seem at first sight to explain the whole life-history of the parasites. For their propagation within the human body that process does indeed make ample provision. But the mystery remained—How did they gain entrance into the human system?

Though present in abundance in the blood of the malarial patient, they are absent from the excreta. Spontaneous generation having been long since exploded, what could be their mode of origin in the external world? This problem has of late been completely solved.

MANSON'S DEDUCTION.

Among the forms of the parasite observed by Laveran was one which he termed "flagellated," possessing filamentous appendages which exhibited extremely active movements, by virtue of which they were often seen to break off from the parent microbe and swim away. These flagella were regarded by many biologists as products of degeneration resulting from the abnormal influences to which the parasites were exposed in blood outside the body. This Laveran could not believe. Indeed it was the remarkable activity of the flagella that finally satisfied his own mind that what he had discovered were really living parasites; he regarded the flagella as the highest form of development of the microbe. There was another observer who felt equally convinced that the flagella were living elements—our Fellow, Dr. Manson. He, however, went a step further. Seeing that the flagella were never met with in blood when first drawn, but only made their appearance after some little time had elapsed, he conceived that their function must be that of spores for spreading the parasite in the external world, and some suctorial insect seemed to him the probable agency for their diffusion. He had observed several years ago that another parasite of the human blood, a microscopic nematode worm, filaria, is drawn with the blood into the stomach of a kind of mosquito, and finds in the insect a secondary host, in the tissues of which it passes through a new cycle of development. He became deeply impressed with the idea that a similar series of events might occur with malaria, and he expounded his views fully before the Royal College of Physicians of London. The notion that mosquitoes might be in some way associated with malaria had occurred to Laveran and to others, but by no one had it been brought home with such logical force as by Manson.

ROSS'S OBSERVATIONS.

Major Ronald Ross, of the Indian Medical Service, on a visit to this country became deeply impressed by Manson's arguments, and determined to test his theory on returning

to India. Using mosquitoes bred in bottles from the larva, he caused them to bite persons affected with the crescent form of malaria, and afterwards sought in the bodies of the insects for evidence of the development of the parasite within them. For two long years he pursued this search, making about a thousand observations, but to no purpose. So far he had employed two kinds of mosquito common in the district where he was stationed; but in August, 1897, having been supplied with some larvæ of a species rare in that locality, and having bred the fully-developed insects from them, he induced eight of them to bite a patient with crescents in his blood, and examined their tissues at successive periods. Four of them were killed at once for the investigation of the flagellated bodies. Of the remainder, one examined four days after biting showed, under a high magnifying power, several rounded bodies embedded in the wall of the stomach, differing from any natural structure of the insect, and containing granules of pigment "identical in appearance to that of the parasite of malaria."³ The eighth mosquito was killed one day later, and exhibited bodies precisely similar except that they were distinctly larger and more substantial, implying that they had grown in the interval. Thinking that in all probability he had at length found that which he had been so long in search of, and feeling uncertain when he might again obtain the rare species for confirmatory investigation, he at once sent a description of his observations to London, accompanied by his preparations and an independent report upon them by a colleague. Dr. Manson, to whom among others they were submitted, was so much struck with the preparations that he had a drawing made of the pigmented bodies in them, for publication along with Ross's paper. Though, like Ross, expressing himself with caution, he inclined to his interpretation of the appearances. The paper contained a minute description of the rare mosquito, which seemed to Ross to belong to a "family distinct from the ordinary" kinds.

In the following month he made a similar experiment with another species of mosquito which appeared closely allied to the subject of his last observations. He succeeded, though with some difficulty, in getting two of them to bite a patient with crescents. One of these insects, killed next day, was examined with a negative result; but in the second, killed forty-eight hours after biting, the peculiar pigmented bodies were again seen among the tissues of the stomach.

Meanwhile "some scores" of the same species "unfed or fed on healthy blood, had been examined without finding the cells."

In the same month he observed precisely similarly pigmented bodies in a common mosquito which he had seen feeding on a patient affected with the parasite of mild tertian fever. Here he had not the rigorous evidence supplied by insects bred from the larva⁴; and it was quite a new thing to find the pigmented bodies in ordinary mosquitoes. But all the patients, on whom his previous observations on the common species had been made, had been affected with crescents; and the parasite concerned being in this case a new species, it did not seem unlikely that it might be harboured by the common insects.⁵ These new facts removed all doubt from his mind; and he felt that he had the subject in his grasp, and wrote to that effect to Manson. But to his bitter disappointment he was at this time despatched to another part of India to study another disease, and thus several precious months were lost.

In February, 1898, however, he was told off for the special investigation of malaria, and a laboratory in Calcutta was set apart for his use.⁶ Few cases of human malaria being available at that season of the year, he turned his attention to some closely allied forms of disease common in birds. He soon found that one of the ordinary kinds of mosquito, which had invariably given negative results when fed on patients with crescents, developed pigmented bodies among the tissues of the stomach, if fed on birds—such as sparrows—containing in their blood the forms of bird parasite known as proteosoma. The birds presented a ready field for experiment; and the kind of mosquito—the grey mosquito, as he termed it—was very abundant in Calcutta; so that it was easy for him to hatch from the larva any number that he might require. Discoveries now followed each other in quick succession. He soon announced that the pigmented bodies grew rapidly from day to day, till after about a week they assumed large proportions, projecting like buttons from the outer surface of the stomach, and often showing a curious appearance of radiating striæ. Next we learned that the striæ had been indications of spore formation, and that when the bodies had attained maturity they burst into the general body cavity, discharging enormous numbers of minute elongated organisms which he termed "germinal rods." Then followed the remarkable observation that the germinal

rods soon leave the general body cavity and accumulate in the cells of the salivary or poison glands, and in the duct leading from them to the proboscis with which the bites of the insect are inflicted; and, lastly, he completed the cycle of evidence by ascertaining that healthy sparrows could be infected with the proteosoma by causing mosquitoes to bite them at the appropriate period after biting an infected bird.

Thus was in truth established the mosquito theory of malaria; for taking into account the close resemblance of the proteosoma to the human malarial parasites, together with the facts ascertained by Ross regarding the infection of the rare mosquitoes with human crescents, we could not doubt that the course of events which he had traced in the sparrow occurred also in man. And the two sets of observations taken together clearly established the fact that, as Manson had predicted, different species of malarial parasite may require different kinds of mosquito as their alternative hosts.

At the same time the presence or absence of pigmented bodies in the stomach wall afforded a sure means of distinguishing those kinds of mosquitoes which convey malaria to man from those which are incapable of doing so. And it may be added that the multitude of negative results, after feeding grey mosquitoes with crescent blood, considering the great prevalence in Indian birds of the parasite with which that species of insect is liable to be affected, afforded pretty conclusive evidence that the mosquito never derives the germs of malaria from the larva, and can acquire them only by biting some infected animal.

MACCALLUM'S OBSERVATIONS.

But although the mosquito theory was thus demonstrated, there remained a link wanting in the chain of biological sequence. The flagella, which Manson regarded as spores, were destitute of malarial pigment, whereas the smallest corpuscles seen by Ross in the stomach wall invariably possessed it. How was this inconsistency to be explained? What was the relation of the unpigmented flagellum to the pigmented corpuscle? The answer had been already independently supplied.

I was present at a sitting of the Zoological Section of the British Association at the Toronto meeting in 1897, when Dr. MacCallum, a young pathologist of the Johns Hopkins University at Baltimore, read a paper describing the results of an investigation in which he had long been engaged into

another form of malaria parasite, halteridium, especially common in crows. He told us—and he illustrated his statements with preparations under the microscope—that he had distinguished differences, which he regarded as fundamental, between the spherical bodies seen in the shed blood of a bird affected with that parasite. Though alike in size, some had a more granular protoplasm than the others, which had a more hyaline aspect; and he had observed that the more hyaline ones alone emitted flagella. These, after wriggling themselves free from the parent cell, swam away till they approached some corpuscle of the other more granular sort; when the first that reached it plunged into its substance and disappeared, while all others were by some amazing provision absolutely refused entrance. Here, then, was witnessed, in an exceedingly low form of animal life, a process of fertilisation identical with that which occurs in an echinus or a fucus. The flagella were neither more nor less than spermatozoa, and the more granular cells were ova. As the result of the fertilisation the female cell was seen by MacCallum to alter its shape in the shed blood and assume an elongated form to which the term vermiculus was applied. This new creature was possessed of wonderful powers of locomotion, sometimes in its powerful career piercing through the substance of a red corpuscle.⁷ Nothing could well be imagined better adapted for penetrating the layer of cells that line the stomach of the mosquito; and as the vermiculus retained its pigment, Ross's pigmented bodies were naturally accounted for.

These observations of MacCallum's might seem at first almost too wonderful for credence, but they have been fully confirmed by others.

It appears to be doubtful whether halteridium ever produces the "rosace" form with its attendant sporulation, but there is no doubt that the process of fertilisation seen in that parasite occurs in human malaria. MacCallum himself observed the act of conjugation in the crescentic human form, though he did not see the subsequent development of the vermiculus.

OBSERVATIONS OF KOCH AND GRASSI.

Koch made a further step by observing the vermiculus of proteosoma in blood from the mosquito's stomach.⁸ And, finally, our medallist, Grassi, who in other ways has made

most important contributions to this subject, has in a recent work, accompanied by very beautiful illustrations, not only described the presence of vermiculi in abundance in the blood in the stomach of mosquitoes during the first two days after biting patients affected with malaria, but he has traced and figured the pigmented bodies of the smallest size in the tissues of the stomach in the immediately succeeding period, these bodies retaining in some instances the elongated form of the vermiculus after passing through the layer of epithelium that lines the cavity of the organ.

SPORULATION AND SEXUAL REPRODUCTION.

It has thus been abundantly established that the parasites of malaria are present in the patient's blood in two distinct forms, one sporulating asexually in the human system and causing the attacks of fever, the other undergoing sexual development in the body of the mosquito. That both forms are developed from the spores introduced by the mosquito is certain. At what stage they begin to develop their respective peculiarities is not yet quite made out. The crescent form is peculiarly favourable for this inquiry, as it is the crescents only which discharge the sexual function, and they are easily distinguished from the sporulating form, not only by their shape, but also by their much larger size.

The development of the crescents has been specially studied by the Italian pathologists, Bastianelli and Bignami¹⁰, who have been able to distinguish the young crescents while still of extremely small dimensions; and they have made the remarkable observation that, while the crescents are as a rule only found in the blood of the finger when they have arrived at maturity, the young forms are to be seen in internal organs such as the spleen, but above all in the bone marrow, where alone, according to these observers, the youngest recognisable crescents are to be found.

Seeing that, in whatever part of the body they are, the parasites always inhabit the blood, it seems difficult to conceive what can be the cause of their preference, at different stages of their growth, for the blood vessels of different regions and organs. But of this we find parallels in several other cases of blood parasites, the most striking perhaps being the astonishing fact that of two species of filaria that infest the human blood, one only shows itself in superficial

parts at night, and is therefore termed "filaria nocturna," while the other has the name, "filaria diurna," because it only appears by day in the finger blood and retreats into deep parts for the night.

"ANOPHELES" AND CULEX.

Ross was not an entomologist, and he was unable to learn in India the names of the species of mosquito with which he had been working, till Daniels, one of the explorers sent out by the Malaria Committee, having gone to Calcutta to confirm or otherwise Ross's work, informed him that his rare kinds, which acted as hosts for the human crescents, belonged to the genus *Anopheles*, and that the common sort which performed the same office for proteosoma belonged to another genus, *Culex*. It has been a matter of great interest to ascertain whether all mosquitoes which act as conveyers of malaria to man are of the genus *Anopheles*, and the exceedingly common and numerous species of *Culex* guiltless in that respect. Very numerous investigations into this question, and especially those conducted by Grassi and his coadjutors, seemed to have proved that such is the case, and that, so far as human malaria is concerned, *Anopheles* alone have to be considered.

Our other two explorers, Messrs. Christophers and Stephens, have made various important contributions to our knowledge of malaria. Thus, having paid special attention to the very dangerous disease which, on account of one of its symptoms, is termed blackwater fever, they have come distinctly to the conclusion that it is not a special disorder, but a form of tropical malaria. If this is the case, it is of immense practical importance, for it will follow that any means efficacious for the prevention of ordinary malaria will prove equally so for the deadly blackwater fever.

THE INFECTION IN YOUNG CHILDREN.

Another most important fact which they have ascertained, and which was independently observed by Koch, is that in a native population in a malarious region, while the adults may be perfectly free from the disease, an enormously large percentage of the young children contain the parasites in their blood. Though the disease appears to be much less dangerous to the native children than to new arrivals, implying that they have a degree of congenital immunity, the

parasites in the young natives are perfectly efficacious for causing dangerous fever in white people, when conveyed to them by mosquitoes. Hence the important practical inference that white people settling in a malarious tropical region should not, as they now commonly do, plant their houses near native settlements, but place them at some considerable distance from them, about a quarter of a mile being apparently sufficient. And Christophers and Stephens in their last communication have gone so far as to express the opinion that the following of this simple rule would go very far indeed towards rendering the malarious tropics healthy to Europeans.

In a communication to this Society it is the scientific side rather than the practical that is naturally chiefly dwelt on. Yet I should have been glad, had time permitted, to have referred to the various measures of prevention and treatment of malaria which the light of recent knowledge has already suggested, and which have already borne important fruit. I must now content myself with saying that, very various as these measures are, they are all, without exception, based on the mosquito theory.

NOTES AND REFERENCES.

(1) Laveran, *Du Paludisme*, Paris, 1891. (2) Laveran, *op. cit.* (3) *British Medical Journal*, December 18th, 1897. (4) *British Medical Journal*, February 26, 1898. In this second paper Ross did not repeat the description of his method, given in the former article, of using mosquitoes bred in bottles from the larva. But as that had been his practice for more than two years, there can be no reasonable doubt that he continued it with this new species. I have also his personal assurance that such was the case. (5) As the result of further knowledge there is no doubt that this common mosquito had derived its pigmented bodies, not from the man it was seen biting, but from a bird affected with another species of malarial parasite. (6) It has seemed necessary to refer to these points in detail, as considerable misapprehension has prevailed in some quarters regarding them. (7) On the Hæmatozoan Insect on of Birds, by W. G. MacCallum, M. D., *Journal of Experimental Medicine*, Vol. III., No. 1, 1898. (8) R. Koch, Ueber die Entwicklung der Malaria Parasiten, *Zeitschrift für Hygiene und Infectious Krankheiten*, Band xxvii, 1899; exceedingly beautiful photo-micrographs of different kinds of malaria parasites in various stages of development accompany this article. (9) *Studi di uno Zoologo sulla Malaria*, Roma, 1900. (10) *Sulla Struttura dei parassiti Malarici*, per G. Bastianelli ed A. Bignami, Societa per gli Studi della Malaria, 1899.

GROWING PAINS; WHAT ARE THEY? THEIR TREATMENT.

By J. A. Hale, M. D., Alto Pass, Ill.

Owing to the frequency with which the general practitioner meets what are termed "growing pains" by the

lality, and attributed by physicians to neuralgic phenomena of growth in the young, the writer desires to enter a protest against lax methods in the diagnosis.

A series of cases of "growing pains" carefully observed will exhibit, besides the initial pain, distinct clinical phenomena, merging one into another, and appearing at irregular intervals, and invariably diagnosed without any thought of connection between their manifestations and the prodromal symptoms of muscular spasm and pain. The fact that children suffering from "growing pains" are usually ruddy of cheek, with red lips and full pulse, bright eye, intelligent and well nourished, and that the tendency of the pains is apparently toward spontaneous recovery has misled many diagnosticians, and hence their oversight of certain sequelæ, which are often late in appearing.

Looking over the field of experience in a large practice among children, in both city and country, and under entirely different hygienic surroundings, the inference was drawn by the writer that "growing pains," where rheumatoid in character, were, in fact, rheumatism under different conditions from those existing in adult life, and attended with complications secondary to this disease. The clinical evidence collected by careful observations corroborates this inference, and every practitioner may be his own authority on this subject and arrive at the same conclusions.

In the presence of such a series of symptoms comprising muscular pain and spasm with a perceptible though slight rise in temperature, followed in a short time by rheumatoid complications, one naturally turns to those remedies which have proven almost specifics in their anti-rheumatic effect, and it is customary to administer salicylic acid or some of its derivatives. Under their use there is complete subsidence of pain and relaxation of muscular spasm; another positive proof that we are upon the right track for the eradication of the morbid factor from the system. But while we complacently watch these good effects, does the average busy medical man consider the injurious action of such medication upon the circulatory and nervous system, which are already overtaxed in the process of growth, and by the detrimental influence of the disease. No matter how carefully we prescribe salicylic acid or sodium salicylate, the full benefit upon the disease is often not manifested unless they be administered in such doses as will exhibit the toxic effects of headache, tinnitus aurium and depression of car-

diac action. For this reason salicylic acid cannot be unreservedly employed in children. In view of the fact that this remedy has undoubtedly contributed to the fatal termination of cases under certain conditions, would it be advisable to still follow the advise of the Germans and administer large doses, especially to children.

In salicylic acid we have a drug of value ; we might say a specific, but along with its merits we find well marked disadvantages, and the problem heretofore presenting itself for solution has been, how best to rid the remedy to its defect without impairing its efficacy. Owing to the irritating action of salicylic acid upon the mucous membrane of the stomach, salicylate of sodium was proposed, but it was found to exhibit the same unpleasant after-effects in lesser degree.

The demand for a non-irritating and non-toxic derivative of salicylic acid brought out a number of preparations which pass unchanged through the stomach, and are disintegrated in the intestinal canal. In some of these, however, the salicylic acid is not present in sufficient proportion to exert its specific anti-rheumatic action, while in others it is combined with other substances which may have a deleterious effect. A remedy devoid of these defects has finally been found, which results from the action of acetic acid anhydric upon salicylic acid, which has been given the name of aspirin. Aspirin undergoes little or no change in the stomach, but is decomposed in the small intestine, liberating the salicylic acid in a nascent state, leaving the acetic acid to combine with alkalies present to form the beneficial compounds of sodium and potassium acetate.

Repeated trials of sodium salicylate in the rheumatism of children, or "growing pains," have convinced the writer of its efficacy to abort an attack, but have also emphasized some of its unpleasant after-effects. Further, it was noticed that it did not prevent cardiac complications or recurrences of the malady. After much search for something better, and after reading the observations of others with aspirin in the rheumatism of adult life, I was induced to try it in cases of "growing pains," with the results herewith appended, the cases being taken at random :

C. P., boy six years old, of healthy parentage and fully developed for his age. He had suffered from pains in the legs and arms with occasional muscular spasm every night for more than a week. The hygienic surroundings were good. He had been doctored with home remedies under

the instructions of a "granny," but the pains became more excruciating each succeeding night. When first seen the temperature was slightly elevated, the skin dry, the pulse 120; the heart sounds muffled and faint. The child had no appetite and was peevish and cross from loss of sleep. The bowels were constipated. There was no indication of redness or swelling at any point along the extremities or around the joints. Sodium salicylate was prescribed in ten grain doses, thrice daily. After two days there was no pain at night, but headache, tinnitus aurium and appreciable deafness and irritable stomach. The salicylate was discontinued in the morning with instructions that the patient take nothing but nourishment. Recurrence of the pains took place that night, but the deafness, tinnitus and headache were better the next morning. I left five grain powders of aspirin to be given every three hours, and two cathartic granules to be taken at night. The father reported the next morning that the patient had slept well, and was free from pains; he had sweated freely, the bowels had moved, and he was playful and cheerful. Since then, three months ago, the child has enjoyed good health.

I. G., girl, 15 years old, stout, well developed, with every indication of complete puberty, except that she had never menstruated. Her previous health had always been good. She was first attacked with pain, heat and swelling in the right ankle, which disappeared the next morning to reappear in the left wrist, where it remained for two days, but left that location and affected the left ankle. The same "granny" diagnosed the case as "growing pains," the difference in character from the boy's case being due, in her opinion, to the girl's age. A brother physician was called and pronounced the affection angio-neurotic edema, depending upon the approaching menstrual period. Eight days after the onset I was called to see the girl during the absence of the other physician. My diagnosis was acute rheumatoid arthritis. (The family lived in rooms over a cellar half full of foul water). The temperature was $101\frac{1}{2}$; hot dry skin, headache, backache, constipation, no appetite and general lassitude were present. I placed her on 15 grains of sodium salicylate immediately before each meal and at bedtime, with constitutional treatment of hematic hypophosphites, and a compound cathartic pill (improved U. S. P.) every night as necessary for the constipation. Forty-eight hours later much amelioration of the symptoms had occurred, but the patient

complained of headache, tinnitus and difficult hearing. I ordered the hypophosphites to be continued, but substituted aspirin for sodium salicylate. In forty-eight hours more the young lady remarked that she was well again. The hypophosphites were administered for some time, and she menstruated about one month after first consultation. There has been no recurrence of the pain and swelling. I am thoroughly convinced that from the onset the arthritis was of such severity that it would have required more of the salicylate to effect a cure than the patient could have tolerated.—

Pediatrics.

Progress of Medical Science.

MEDICINE AND NEUROLOGY

IN CHARGE OF

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THE VULNERABILITY OF THE APICES IN TUBERCULOSIS OF THE LUNGS.

E. H. Colbeck and Eric Pritchard, in *The Lancet* of June 8, 1901, discuss the question of the vulnerability of the apices of the lungs in tubercular disease. Statistics show that from 60 to 80 per cent. of the cases of pulmonary tuberculosis begin in the apices and that the lesion is rather more common upon the right than upon the left side, it being in the proportion of three to two. There is no agreement between different observers as to the cause of this preference for the apex of the lung. It has been held by some that the lessened movements of the upper part of the chest give rise to a stagnation of the air in the upper part of the lung, and consequently tend to favour the development of the infection in this situation. It is by no means certain that the movements of the upper part of the chest are relatively less than they are in the lower part; even if they were, the lessened movement does not account for uniform location of the initial lesion from one to two inches below the summit of the lung. Another theory is that the air cells in the apex are more readily collapsed and become choked with secretion; and still a third is that foreign matter obtains more ready entrance to the lung because of the potency of the bronchial

tubes of the apex. A study of the dynamic relations of the air in the upper portions of the lungs disproves both of these explanations.

Woods Hutchinson has studied the subject in reference to its comparative pathology. He argues that the upper portions of the lungs are the most unstable and possess the least vital resistance, and that the right lobe is more unstable than the left. A mechanical explanation of the frequency of apical tuberculosis is found in the fact that the lungs project in the dome-like cavity above the first rib. The covering of this portion of the lung is not firm, but a loose layer of fascia, muscle and skin, which under the most favourable circumstances offers a comparatively feeble support. It is apparent from this arrangement that the movements of the upper portion of the lung must be inverted—that is, that there is a tendency to be drawn into the thorax during inspiration and to be pushed out during expiration. With increasingly deep inspirations inflation of the apices becomes notably lessened, as is shown by the rise of pitch in the percussion note obtained in the supra-clavicular fossa. If the support afforded by the soft parts is diminished, inspiratory inflation of the apices becomes correspondingly lessened; and, if the support still further decreases, there must come a time when the upper portion of the lung will no longer inflate. Attention is called to the so-called phthisical chest, with its forward displacement of the shoulders and the poorly-developed muscles which act upon the shoulder girdle. These conditions all favour that inverted movement which tends to a stagnation of the air in the apex. The greater vulnerability of the right apex as compared with that of the left is due to the fact that the right lung rises higher into the neck than the left, consequently the muscular insufficiency which favours stagnation would act with relatively greater force on the right side.

The practical bearing of these studies is pointed out by the authors and Woods Hutchinson, namely, the importance of developing the muscles at the shoulder girdle by such exercises as tree-climbing, the horizontal ladder, etc. Muscular movements, which bring into play the great pectoral muscles, should be systematically carried out.—*Medicine.*

APPENDICITIS.

Surgical Treatment.—After a second catarrhal attack the operation for removal of the appendix when possible

should be done after all acute symptoms have subsided, and after the patient has been carefully prepared for it. The diet for four days ought to consist of soups, barley-water and white meats, avoiding milk and starchy foods. The bowels should be regulated so that they are thoroughly moved the day before operation. The usual arrangements for the preparation of the skin are carried out; three ounces of soup with a tablespoonful of whisky are given as a nutrient enema three-quarters of an hour before operation, and a subcutaneous injection of 1-30 grain of strychnine, which materially diminishes shock, and this may be repeated in the middle of the operation if necessary. An incision, varying in length from two to three inches, according to the stoutness of the patient, is made on the outer side of the rectus muscle over McBurney's point, dividing skin and fascia; the muscles are then separated, not cut, and the peritoneal cavity carefully opened in the usual way; a small sponge with string attached is introduced into the abdomen; all small vessels are then tied in order to get rid of the pressure forceps in the neighbourhood of the wound, as they might bruise the bowel if it requires to be drawn out in the process of separating the appendix. Removing the sponge from the abdomen, the appendix is found in connection with one of the longitudinal bands passing downward, inward or backward, and, with care, it is separated. At times it is so adherent that it is wiser to leave it alone and trust to the effect of the exploratory incision. Having separated the appendix and tied its mesentery, it is removed.

The after-treatment of patients who have had this operation performed is the same as is used in other abdominal cases. The patient is to be gently kept under the influence of morphine for two days, and only soups and barley-water (starvation diet) are to be given. After the bowels have been moved on the sixth day, a more generous diet is allowed, and in three weeks the wound will be firmly healed, and the patient be allowed to be on the sofa wearing an elastic bandage. At the end of the fourth week, if the wound has been small, walking about moderately is permitted, and gradually the patient resumes his ordinary work. Generally great improvement in health follows this operation. J. C. Renton, (*Brit. Med. Jour.*, May 25, 1901.)

LARYNGITIS, ACUTE.

Treatment.—Abortive treatment is to be tried and the patient will be materially helped by the inhalation of sooth-

ing vapours, such as compound tincture of benzoin, vapourized with boiling water and oil-sprays. If the patient's relief is sought after the attack has been in progress one or more days, by which time the inflammation has become somewhat sub-acute, very much can be done to relieve the hoarseness and cough by spraying the larynx with 5 per cent. alumol, followed by an oil-spray. Cocainizing the larynx and then spraying with 2 to 3 per cent. nitrate of silver, while productive at the moment of considerable discomfort, materially hastens the progress toward recovery. The use of the galvanic current from 8 to 10 milliamperes, the sponge electrode being held on each side of the larynx and the current continued for about ten minutes, helps the effect of the preceding remedies. For the troublesome cough, preparations of ammonia, either in the form of muriate or the hypophosphite of ammonium, are especially serviceable; and, for the rasping, tickling cough, no sedative is so valuable as codeine in doses of from 1-25 to 1-5 grain combined with muriate of ammonia, and repeated as may be needed. G. L. Richards (*Inter. Jour. of Surg.*, July, 1901).

CARDIAC DRUGS AND THE VASOMOTOR TREATMENT.

Seeing that circulatory disturbances have for result to determine an unequal distribution of blood in the organism, the object of cardiac and vasomotor treatment must be to restore the equilibrium thus destroyed.

Paralysis of the blood vessels, due to the insufficient central innervation of the vasomotor centres, causes the blood to flow into the abdominal vessels, while the peripheral vessels and those of the skin and brain are depleted, the pulse is feeble and the heart only receives an inadequate supply of blood during diastole. This variety of circulatory inadequacy occurs in cases of intoxication resulting from the use of narcotics and during attacks of infectious disease. In such cases the exhibition of cardiac drugs would generally be without effect, since it is not the strength of the heart that is lacking, but that the quantity of blood which it receives is insufficient. But the blood withdrawn from the action of the heart and accumulated in the dilated vessels of the abdomen can be brought back into the general circulation by the use of drugs acting upon the vasomotor system, through which

they give rise to contraction of the vessels in the splanchnic area. To obtain this result, strychnine, camphor and caffeine are prescribed. Much the same result may be obtained by irritating the skin, or by making cold applications.

Cardiac drugs are used for the purpose of restoring the energy of the heart. They increase the volume of systole, and in this manner tend to remedy the defective distribution of the blood in the organism, which is the usual consequence of most complaints of the heart, accompanied by a diminution in the energy of this organ, an accumulation of blood in the venous system and anæmia of the arteries being the inevitable result of incomplete systole and of insufficient ventricular diastolic aspiration.

Digitalis acts chiefly by strengthening the energy of the heart; its vasomotor effect is of secondary importance. From experiments made on the heart of a frog, it was long since observed that the cardiac systole increases, and that the energy of the ventricular contraction is strengthened under the influence of digitalis. Recently we have succeeded in making the same experiment on warm-blooded animals in whom the heart was protected from the variable resistance of the general circulation. We are, therefore, no longer compelled to base our conclusions on experiments made upon frogs. By isolating the cardio-pulmonary circulation, following the example of François-Franck and of E. Hering and Bock, we are enabled to study the action of digitalis on the heart, independently of its effect on the vessels; we can also make use of a separated heart, in which the functions are maintained by an artificial circulation through the coronary vessels. I have been able to afford direct proof by this latter method that an increase in the volume of the systole takes place, and by the aid of a special arrangement I satisfied myself that after a dose of digitoxin the energy of the ventricle is trebled or quadrupled.

The increase in the volume of the systole is caused more particularly by a more complete contraction of the cardiac muscle, the ventricle emptying itself with greater facility. The action is the more important in connection with an ailing heart since a failing ventricle becomes less and less capable of getting rid of its contents. Moreover, the slight diminution in the frequency of the pulse, due to the stimulation of the pneumogastric, which occurs in addition to the more strictly cardiac effect under the influence of digitalis, has a beneficial influence on the cardiac function. The

diastolic aspiration of the blood of the veins into the cardiac cavity is also favourably influenced by this slowing of the pulse. Consequently the efficacy of digitalis becomes very evident, in proportion as this slowing effect is manifested. The maximum effect of this treatment corresponds to complete expansion of the ventricles during diastole, plus a maximum contraction during systole. The heart in this way pumps a greater quantity of the blood which is contained in the over-filled veins, and propels it into the bloodless arteries.

All drugs acting in a manner analogous to digitalis have, in addition to the action on the heart, a vaso-constricting effect, as I was able to demonstrate anew in my recent experiments. But this vasomotor action is accessory, from a therapeutical point of view; the important factor in combating venous stasis is an improvement in the cardiac function. The vascular contraction may be of some utility in the sense that the blood is thereby driven out of the congested portal system into other parts of the vascular system, for, in the first instance, it is principally on the portal vein that the vascular action of digitalis is produced; but, if this contraction exceeds certain limits, its beneficial effect is transformed into one very inimical to the organism, since, in consequence of the rise of arterial resistance, the work of the heart is needlessly increased.

Camphor does not only act on the heart indirectly through the vasomotors, it also directly increases the irritability of the cardiac muscle. Its action on the normal heart is little marked; on the other hand, I was able to convince myself in the case of the rabbit, that under certain pathological conditions, when the heart ceases to beat, it is possible by the application of camphor to combat this momentaneous stoppage and to save the rabbit's life.

Caffeine has a direct effect on the heart, but one quite different from that of digitalis, nor can it be considered as a substitute for the latter. As a matter of fact it does not increase the functional energy of the healthy heart in cases where the blood tension is normal, but it strengthens the action of the cardiac muscle in the presence of a pathologically high arterial resistance; it may also be useful in cardiac complaints accompanied by a high aortic tension.

Alcohol has not a direct influence over the heart; it acts indirectly on this organ by diminishing the peripheral resistance, when in consequence of an exaggerated aortic tension

the left ventricle can no longer completely empty itself. In this case it causes the vessels to dilate, and the resistance to diminish, and as a result whereof the heart carries on its work under more favourable conditions, and is enabled to furnish a greater amount of work.

The various cardiac drugs, it will be seen, act on the circulation in quite a different manner to those which act in the vasomotor system. In spite of the difficulties that present themselves in the study of so complicated a mechanism, we may hope that by associating clinical observation with experimental pharmacology we may succeed, little by little, in gaining a deeper insight into the nature of the circulatory troubles which present themselves to our notice, and to choose with more discernment the treatments capable of combatting these troubles and of restoring the equilibrium.—Prof. Gottlieb, of Heidelberg, in *Medical Press and Circular*.

ADRENALINE, THE HAY-FEVER SUBJECT'S FRIEND.

With adrenaline in its present manageable state we may expect to at least make our hay-fever patient comfortable in one particular, that is, we will enable him to keep the nasal passages open, and we can also prevent him from having red eyes. Until the chloride of adrenaline made its presence on the market, other preparations were handled with difficulty and probably with some uncertainty. The chloride, however, seems to be uniform in its action, and can be relied upon. Its power to blanch the mucous surfaces is certainly very great.

In a recent case of traumatic keratitis, in which not only the cornea was involved, but the conjunctiva covering the sclera had been injured and was in a high state of inflammatory action, the engorgement was as great as it is possible to be without effusion. Two or three drops of the solution of the chloride of adrenaline, 1 to 5,000, instilled into the eye, blanched the conjunctival surfaces within less than three minutes. This blanching remained fully one-half hour when the agent was again applied with the same result, with the exception that the action was more prolonged.

In cases of edema of the larynx, this solution sprayed into the throat affords prompt relief, which lasts for a variable length of time, from one to three hours. Its application to the nasal mucous membrane rapidly reduces its congestion, the relief being prolonged from forty minutes to three or

four hours, depending largely on the condition of the mucous membrane; if much relaxation, the effect is less and the duration shorter.

I have not had opportunity to try it sufficiently in the hay-fever patients, but there is no question in my mind but what it will be the remedy by keeping the nasal passages open. The desiccated adrenals may be used one thousand in milk, sugar, or in combination with powdered borax of same quantity, and used as a snuff every two to three hours or as needed for the purpose of maintaining freedom of the passages. It enables us to do bloodless operations upon the nose, which, of course, gives much more space to work in and makes operative procedure in this locality possible, when it might otherwise be impossible or difficult, although sometimes free bleeding occurs several hours after the operations. It also enables us to do bloodless operations on the eyeball, and other minor operations on almost any mucous surface. I do not see why it would not be of great value in acute urethritis, and in fact it ought to be of value to the genito-urinary surgeon in many operations, as in the diagnosis and treatment of stricture, etc.—*American Practitioner*.

DISINFECTION OF TYPHOIDAL EXCRETA.

N. B. GWYN (*Philadelphia Medical Journal*, January 12, 1901), after insisting upon the importance of infected typhoidal urine in the dissemination of typhoid fever, reports his results in studying the effects of various antiseptics upon urine containing typhoid bacilli. In conclusion, he states that milk of lime is not deserving of the name of disinfectant. Carbolic acid is useful only in large amounts and in strong solution if a rapid action is desired. Formalin is efficient, but very expensive for ordinary use. Bichloride of mercury, chlorinated lime and liquid chlorides are very valuable, are rapid in action, and are efficient in comparatively dilute solutions. For disinfection within five minutes he states that of a 1 : 20 carbolic-acid solution one needs half the volume of the urine to be disinfected; of a 1 : 40 carbolic-acid solution one should use two-thirds of the volume of urine to be disinfected; while of a 1 : 1000 bichloride of mercury only one-fifth the volume of urine is necessary; of a 10 per cent. formalin solution, three-tenths the volume of urine should be used; of saturated chlorinated lime one-fortieth the volume of urine, and of liquid chlorides two-fifths the volume

of urine. He states that the disinfection seemed to be quite as rapid in urines containing albumin as in those free from albumin. For irrigation of the bladder he states that solutions of bichloride in strengths of 1:100,000 to 1:50,000 are most successful. He considers urotropin the only substance which produces any effect when given by the mouth.

TREATMENT OF INSOMNIA.

Dr. G. Lyon, speaking of the general lines of treatment, says that hygienic measures occupy a foremost place. Alcohol, tea, coffee and tobacco should be stopped, and the diet regulated. It is unwise to permit such patients to eat too heartily, and all foods which have been found to digest slowly should be avoided. This is of importance, as patients should not be permitted to sleep while digestion is going on. The temperature of the sleeping room should not be above 60° F. It is inadvisable to have a fire in the room, and the windows should be open. From the standpoint of medicinal treatment he recommends for simple insomnia trional, chloralose, urethane, amylene hydrate and somnal. In conditions accompanied with fever potassium bromide with a small amount of morphine is one of the best hypnotics. In insomnia from pain he recommends morphine hypodermatically, chloral, combined with morphine and hypnal, being analgesic from the antipyrine it contains. In certain special forms of insomnia definite medication is advisable; thus for tertiary syphilis potassium iodide is of more value than hypnotics; in cardiac diseases, circulatory remedies; in paludal poisoning, quinine sulphate; in Bright's disease, a milk diet; in tuberculosis, morphine is of more value, and in insomnia of dyspeptics, dietary regimen.—*Revue de Thérapeutique*, 1901, vol. lxxviii., p. 178.

SURGERY.

IN CHARGE OF

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TO REMOVE POWDER STAINS.

Dr. C. R. Clark reports a case of severe powder burn of the face in which he succeeded in removing all the staining re-

sulting from the imbedded grains in less than two days by the application of three parts of hydrogen dioxide and one part of glycerine. He gives the credit for this treatment to Dr. J. Neely Rhoades, of Philadelphia, who several weeks ago by the use of undiluted hydrogen dioxide successfully removed powder stains from the face of an Italian woman in whose case other methods of treatment had entirely failed of success.—*American Medicine.*

TREATMENT OF SPRAINS.

Dr. Haldor Sneve contributes an exceedingly interesting article on the treatment of muscular and joint sprains. He objects to the method in common use of immobilizing the joint, on the ground that immobilization for a considerable time produces passive inflammatory changes and favours absorption of the synovial fluid, with roughening of the joint surfaces, and also atrophy and contraction of the muscles of the part together with absorption of the fat and areolar tissue around the ligaments and tendons.

His routine method of treatment in these cases is elevation of the part, the application of a wet cheese cloth dressing and an ice bag until the height of the inflammatory process is reached. Then, after the subsidence of the acute symptoms, he uses hot fomentation and massage to assist the removal of inflammatory products. As soon as possible he has the patient take active exercise. By this treatment he believes that the time ordinarily required for recovery can be shortened at least fifty per cent.—*Journal of the American Medical Association.*

THE PRIMARY TREATMENT OF INFECTED WOUNDS WITH TINCTURE OF IODINE.

Carl Beck, New York, holds that it is yet practically impossible thoroughly to disinfect a wound, in the common sense of the word, after infection has occurred. A drug which would penetrate the deeper layers of the infected tissue, as the Röntgen rays do, is a great desideratum. The tincture of iodine is an antiseptic which, to some extent, possesses a permeating power. It was originally used only for the disinfection of the skin and the deep-skin bacteria, but the author has used it methodically in all infected wounds. Practically all wounds which are not inflicted by the aseptic surgeon on an aseptic field are to be regarded as infected. The tincture was liberally applied once over the carefully dried wound-surface. Fifteen minutes afterwards

examination of the tissues showed the evidences of permeation, and no cultures could be obtained from such areas. While this does not prove that bacteria were destroyed in these regions, it can be assumed that the soil was rendered unfavourable for their further development. No general disturbance was observed in a large number of patients in whom the iodine treatment has been tried, although in two cases iodine reaction was found in the urine three or four hours after the application. The further treatment was carried out on general principles. All the cases treated in this manner ran a favourable course.—*New York Med. Rec., St Louis Med. Review.*

THE PREVENTION OF POST-OPERATIVE ADHESIONS OF THE PERITONEUM.

G. G. Ward (*Amer. Jour. Obstet., etc., Vol. 43, No. 6*) gives the following as a summary of the means adopted for the prevention of post-operative adhesions of the peritoneum :

1. The attainment of asepsis, as perfect as is possible, by the rigid adherence to the most modern methods of securing surgical cleanliness.
2. The avoidance of raw surfaces and pedicle stumps by covering them with peritoneum or grafts of omentum and the abandonment of the ligature *en masse*.
3. Protection from dry-air contact by the employment of *moist asepsis*, instead of *dry asepsis*, and keeping the exposed parts covered whenever possible.
4. The time element—rapidity of operating by technical skill, thorough preparation and trained assistants.
5. Keeping up the heat of the peritoneal cavity by frequent renewal of the hot salt solution (115°F.) and by protection of the exposed parts.
6. Avoidance of excessive manipulations of the intestines by technical skill, proper ante-operative preparation of the bowels and posture, to prevent pseudo ileus.
7. Replacement of the loops of intestine and omentum by filling the abdominal cavity with hot salt solution before closing, and thus floating them, that they may more readily adjust themselves in their proper relations.
8. Free motion of the patient after the operation to be encouraged instead of prohibited.
9. Early use of the high enema (during the first twelve hours), in conjunction with cathartics, and, on failure, the prompt use of oxygen in the Trendelenburg posture.—*Memphis Med. Monthly.*

INGUINAL HERNIA IN THE FEMALE.

From the literature on the subject the author is convinced that treatment of inguinal hernia in the female has not yet received its proper attention. He believes that female children should be operated upon, because the rupture persists after years of truss treatment in a considerable number of cases. When the hernia develops in youth or early adult life, the truss treatment rarely succeeds. Surgeons are not decided as to the best method of operating upon this variety of hernia.

The author presents the results of his operation in 123 personal cases. Championnière was the first to point out the advantages of operations in this class of cases. He advocated incision of the round ligament along with the sac.

The author does not agree with Howard Kelly in the opinion that the removal of the sac is of little importance, especially in small herniæ. He thinks that opinion erroneous and likely to do much harm, and he cites a series of cases of hernia in children observed at the Hospital for Ruptured and Crippled during 1888 and 1889 to show that the removal of the sac is of the greatest importance. He does not believe that it is necessary to transplant the round ligament. It complicates the technic of the operation, and perfect results can be obtained without it. The method which he has used in his cases is practically Bassini's as performed in the male, the 123 single step of transplanting the cord being omitted.

He uses rubber gloves for his assistants and coats or gloves for himself. He cites the bacteriological finding in thirty-five examinations of scrapings beneath the nails, all showing the importance of wearing rubber gloves. He believes that kangaroo tendon, as prepared by Van Horn & Company, is the best material for the use in hernia.

His results are as follows: One hundred and twenty-three cases of inguinal hernia in the female without mortality. Ages ranged between four and seventy years. 73 under fourteen years of age, 50 between fourteen and seventy. In eight cases, or 65 p. c., suppuration occurred limited to stitch hole infection. Average time patients were kept in bed, ten days; allowed to go home, two weeks. A spica bandage was kept on for two weeks longer.

He has traced all but thirteen cases. One well seven years after operation; two, six years after operation; five for five years after operation; fourteen, three to four years after

operation ; twenty-seven, one to two years after operation. Sixteen, six months to one year after operation. Two died one and two years after operation without recurrence. Thirteen not traced and the remainder too recent to be considered. No relapse has been observed.

Comparing these results with the results of operations for inguinal hernia in the male, we see that the prognosis is even better in the female.

In conclusion he says: My own results show six relapses in 545 cases of inguinal hernia in the male, operated upon by Bassini's method.—Wm. B. Coley, *Annals of Surgery*.

DRAINAGE OF WOUNDS.

Paul Morf, in the *Bulletin of the Northwestern University Medical School* of January 31, 1900, says that wounds may be divided with reference to drainage into two classes : first, those which are aseptic ; secondly, those which have been infected, or are made to relieve suppurative conditions. In the vast majority of cases drainage is unnecessary in aseptic wounds. The danger of drainage is due to the fact that the skin contains normally germs which cannot be wholly removed. The drain, whether capillary or tubular, moistened by secretions, is a ready pathway for the entrance of such infection from the surface to the deeper structures. Aseptic wounds in which no antiseptics have been used have, as a rule, little oozing. Healthy tissue can take care of a large amount of extravasated blood and lymph. Drainage in aseptic cases is limited to those cases where there has been much traumatism, and where large areas of lymphatic vessels have been opened. Examples of this class of wounds are furnished by amputations of the breast with their attendant dissection of the axilla, amputations of the thigh and hip and extirpations of tubercular lymphatic glands. Another class of cases is where there remain "dead spaces" which cannot be obliterated by deep sutures or other means. Examples of these are furnished by unilateral thyroidectomy and operation for carcinoma of the rectum. In most of these cases twenty-four hours is a sufficient time to leave the drain in position. At the end of that time the tissues have accommodated themselves and the dead spaces are obliterated.

In infected wounds, and those made for the relief of septic foci, drainage is demanded almost without exception.

Drainage of abscess empyemas and suppurating joints should be made in the location which gives the best possible escape to the secretions. A good sized fenestrated rubber tube is to be preferred, which, if possible, is to be carried through the cavity and out at a counter-opening. As the suppuration lessens this is to be replaced by a drain of iodoform gauze.

In the relation of drainage to the abdominal cavity it is difficult to make a general statement, but drainage is useful when pus is found free in the peritoneal cavity, as in cases of acute suppurative peritonitis; where there is localized pus formation, the suppuration being walled off by adhesions—this class of cases includes appendicular abscess, pelvic disease and pus tubes. Drainage must also be employed in the removal of pus from a hollow viscus.

PANCREATITIS.

Only recently have clinical observers noted that whatever obstructs the common bile duct at its lower end must also of necessity lead to an obstruction in the pancreatic duct. Since Charcot described the disease as intermittent hepatic fever, infection and suppurative cholangitis have been well recognized by pathologists, yet infective and suppurative catarrh of the pancreatic ducts has received, until quite recently, no attention.

When the common bile duct is obstructed, jaundice at once demonstrates the fact. Hitherto, however, no pathognomonic sign has been discovered which will conclusively show that the pancreatic ducts are occluded, unless it be the extremely rapid loss of weight. The presence of fat necrosis affords some clue, discovered, however, only when the abdomen is opened. Glycosuria, lipuria and fat in the stools seldom occur, but when present are of great diagnostic importance.

Acute, so-called, hemorrhagic pancreatitis often follows slight injury to that gland.

The essential and immediate cause of the various forms of pancreatitis is bacterial infection, this having been proved both clinically and experimentally.

The extrinsic causes of pancreatic disease embrace biliary and pancreatic lithiasis, injury, gastro-duodenal catarrh, ulcer and cancer of the stomach, pylorus or duodenum, and zymotic diseases, such as typhoid fever and influenza, though in some cases pancreatitis has come on suddenly in persons

of robust health, the cause being beyond recognition. The infection may arise from the blood, as in pyemia, or by direct extension, as in ulcer of the stomach, yet the more usual channel is through the duct, as in cases with gallstones in the common duct and from gastro-duodenal catarrh. Inflammatory enlargement of the head of the pancreas is a common concomitant of gallstones in the common duct. If common-duct cholelithiasis can give rise to chronic pancreatitis it will be also likely to induce subacute and acute forms of the disease.

Fat-Necrosis.—By fat-necrosis is understood splitting up of the fat into fatty acids and glycerine. The latter is absorbed, but the acids, being insoluble, remain in the cells and unite with the calcium salts, forming yellowish-white patches of various sizes in the subperitoneal fat, and in the omentum, mesentery, etc. Experiments by Opie, who ligated the pancreatic ducts in the cat, go to show that widespread fat-necrosis may be expected to follow very rapidly.

Fat-necrosis is commonly found in association with diseases of the pancreas, but is also found in other ailments, and is not always found in all acute pancreatic diseases.

Hemorrhage in Pancreatic Diseases.—Local hemorrhages into the pancreas may occur apart from injury and apart from any general hemorrhagic tendency. Sometimes these spontaneous hemorrhages are recovered from, but usually they lead to death from collapse, either immediately or after some hours. Experience has shown that in operations on deeply-jaundiced subjects there is much less danger of serious hemorrhage when the jaundice depends on gallstones than when it depends on pancreatic disease. It is well before operating on such cases to administer chloride of calcium in 30 to 60-grain doses thrice daily for from twenty-four to forty-eight hours previous to the operation, and by enema in 60-grain doses thrice daily for forty eight hours afterward. This is usually successful in preventing hemorrhage. These conclusions have been arrived at concerning the relation of hemorrhage and pancreatic disease :

1. That in certain diseases of the pancreas there is a general hemorrhagic tendency, which is much intensified by the presence of jaundice.

2. That hemorrhage may apparently occur in the pancreas unassociated with inflammation, or with jaundice, or with a general hemorrhagic tendency.

3. That both acute and chronic pancreatitis can and do frequently occur without hemorrhage.

4. That some cases of pancreatitis are associated with local hemorrhage.

Inflammations of the pancreas may be classified as acute, subacute and chronic, hemorrhagic pancreatitis being classed as acute, the hemorrhage being merely an accident in the course of the disease.

Treatment of Acute Pancreatitis.—The pain at the onset is often so acute as to demand morphia, and later the collapse will need stimulants. The septic matter must be evacuated and free drainage given. Early exploration from the front through the middle line above the umbilicus or from behind through the left costovertebral angle is demanded. The after-treatment consists in combatting shock and keeping up the strength.

Treatment of Subacute Pancreatitis.—This form is more amenable to treatment. Morphia and stimulants may be required. Constipation must be met by calomel and saline aperients, and, as diarrhœa often follows, salol and bismuth, with small doses of opium, may be given. Distension, if present, is relieved by lavage of the stomach or by turpentine enemata. If surgical treatment is decided on the incisions are made as in the acute form, and any incipient collection of pus drained and the cavity packed.

Treatment of Chronic Pancreatitis.—Abdominal section and drainage are indicated. The drainage in these cases is indirect, and obtained by draining the gall-bladder by cholecystotomy, cholecystenterostomy or duodeno-choledochotomy. The results of treatment in this class of cases have been most encouraging, as out of twenty-two cases operated on only one died directly from the operation. Those recovering from operation, with the exception of two that died a few months later, made complete and perfect recoveries.—A. W. Mayo Robson, in *Philadelphia Medical Journal*.

INJURIES OF JOINTS.

WITH SPECIAL REFERENCE TO THEIR IMMEDIATE AND REMOTE TREATMENT BY MASSAGE AND MOVEMENT.

Both massage and movements have long been employed in English surgery, but lately they have come into much more general use. Both are valuable remedies, but if used as a

matter of routine both may do great harm. As methods of surgical treatment they must always be closely supervised, care being taken to watch their effect, and especially to be sure that no element is present in the case which renders their employment undesirable.

Physiology of Massage.—It is necessary to have a clear idea as to what has been termed the Physiology of Massage—as to the different ways, *i. e.*, in which it acts.

1. It enlarges the amount of blood circulating through the part concerned. This is obviously apparent in the skin, which, instead of remaining cold and pale, becomes warm and more or less red. The same result was experimentally demonstrated in regard to the muscles by Brunton and Tunnicliffe, who showed that the amount of blood passing through them both during massage, and after its cessation, was increased. This increase of blood is in every way advantageous. It maintains or improves the nutrition of all the various tissues; it promotes the restoration of the functional activity of injured muscles, and it plays an important part in the absorption of lymph and extravasated blood.

2. Its action is mechanical. By kneading and percussion, extravasated blood and lymph which have been coagulated in the tissues, and have led to brawny oedema, are broken up and dislodged, while by stroking from below upwards they are swept onwards and brought within the reach of healthy lymphatics and a normal venous circulation, so that they can more readily be absorbed.

3. It is an efficient stimulant to damaged muscles through its influence on the nervous system. In such minor injuries as sprains and contusions, probably the small nerves ramifying in the injured part are seldom torn across, for they are tough rather than brittle, they are well protected in the subcutaneous tissue and the deeper structures, and their course is tortuous, so that they are quite easily put on the stretch. Nevertheless they are not infrequently so far injured that their functions, for the time being, are more or less suspended, and massage is then a very useful agent in stimulating them to a resumption of activity. It probably acts in a similar manner on the vaso-motor nerves, which preside over the arterial system of the part.

4. No one who has watched its sedative effect when applied in cases of recent injury can doubt the influence of massage in reducing muscular spasm and relieving pain. Here it must be used very gently and be limited to stroking and

light friction for short periods, three or four times a day.

5. Probably massage promotes the absorption of recently formed adhesions, provided they are not too extensive and firm. This is a matter of considerable interest. Just as provisional callous, formed in the repair of fractures, is absorbed, so is the new connective tissue which is developed after injury of the soft parts. Perhaps the most obvious instance of this is met with in the case of adhesions following peritonitis. Even extensive adhesions gradually yet completely disappear, probably as the result of constant disturbance and traction during peristalsis. Much the same result is produced by what may be termed the interstitial disturbance and traction which takes place during the different movements employed in massage.

As to Movements.—These are of three kinds: those performed under an anæsthetic; passive movements and voluntary movements on the part of the patient, often carried out against resistance. As to movements under an anæsthetic—they can be safely applied only when a careful diagnosis has been made. In the first place it must be ascertained that the joint itself is not, nor has been, actively diseased, so that it has undergone no considerable structural changes, such as follow tubercle, or osteo-arthritis, septicæmia or locomotor ataxia. The cases in which this form of movement is most successful are those in which the joint itself is practically healthy, while it is hampered by changes in the parts around. Passive movements are chiefly useful in restoring movements that have been lost, or in preventing stiffness in joints which are to be long disused; for instance, a healthy ankle, the patient having disease of the hip or knee. Voluntary movements on the part of the patient, especially when performed against resistance, are in many instances more valuable than massage. Several forms of apparatus have been introduced for use in these movements, and many of them are very satisfactory. In all cases, however, efficient supervision must be maintained.

Diagnosis.—Diagnosis is, of course, of essential importance. It cannot always be exact, but it must be carried far enough to indicate that the case belongs to the general class in which these agents are useful, and that no element is present which renders them unsuitable. The conditions for which massage and movements are suitable are sprains and contusions of previously healthy joints unattended with any serious complication such as dislocation or a fracture, any

wide laceration of muscle, rupture or displacement of tendons, or such pre-existent conditions as tubercule, gout or hæmophilia.

The treatment of recent fractures by massage was so fully discussed at the meeting last year at Ipswich that it is needless to consider it now. The after treatment of dislocation has of late years undergone a great and very advantageous change. In the case, *e. g.*, of the shoulder, the arm is no longer bandaged to the side for a fortnight or three weeks, but passive movements and massage are regularly used after the second or third day. I have seen a patient thus treated able to move his arm freely in every direction in the course of three weeks. I have also seen a patient walk freely and without lameness three weeks after the reduction of a dislocation of the hip. The chief symptoms which indicate the use of massage and movements are stiffness and pain; but before they are employed the cause of the symptoms must be ascertained, as to whether the mischief is inside or around the joints. Take the shoulder. The arm may be stiff and there may be severe pain and marked muscular wasting. Is this a case of disease of the joint itself or of adhesions outside? There is, I believe, only one test to be relied on to determine this question. This is to ascertain whether the joint is as stiff as it at first sight appears to be, or whether, within certain limits, movements are free and smooth. If these free and smooth movements—limited though they be—are present, the fact is a strong indication that the joint is sound, and that the symptoms depends on surrounding adhesions. Cases in illustration are related. As to pain it is very important to remember that it cannot be used to differentiate between real joint disease and surrounding adhesions. Indeed, in many cases the relaxed pain due to adhesion is more severe than that produced by joint disease. Muscular wasting—a principal symptom in disease of a joint—may be present, though the case is one of mere adhesion in the capsule and surrounding parts. In some instances movement under an anæsthetic will produce a cure which there seemed at first sight no reason to anticipate, for though the patient complains of “weakness” and pain in the joint there is no appreciable stiffness or any condition for which movement and massage seem called for. These cases, which bone-setters not rarely cure, by moving them as they move all others, are instances of slight adhesions which cannot be detected, but which are yet sufficient to make the patient walk with lame-

ness and "weakness" of the joints concerned. Cases are related to illustrate this group. Howard Marsh; F. R. C. S. —*Medical Press and Circular*.

ANY DECREASE

in the normal activity of the nerves or nerve-centers means constipation. This author studied cases of abdominal section, and concludes that (1) in acute pelvic peritonitis, both enemata and drugs by mouth shall be used to produce catharsis before operation; drugs by mouth and oil per enemata after operation. (2) In all acute inflammatory conditions in the abdomen in which the alimentary tract is involved the bowels should be moved by enemata alone before and after operation, the enema of salts, turpentine and glycerine being the best.—*Boston Medical and Surgical Journal*.

CATHARSIS IN ABDOMINAL SURGERY.

Crandon gives the results of observations made during his service as house officer in the Boston City Hospital on catharsis in abdominal surgery. It has been proven by a number of experiments that peristalsis is a reflex action. The lower part of the ilium has been proven to be the place where the contents of the intestine move the fastest. It has been found that the vagus nerve when stimulated directly or reflexly increases peristalsis, and that moderate stimulation of the splanchnic nerve decreases it.—*Interstate Medical Journal*.

DIABETES IN SURGERY.

Robert T. Morris gives three reasons why diabetes interferes with surgeons: (1) The sugar circulation in the blood is hygroscopic, and it draws water from all the body until the tissues are actually dry. This must interfere with the normal process of repair, and it probably does so in several different ways. (2) The surgeon must give these cases his special attention, because the fluids of a wound loaded with sugar are in all probability excellent culture media for bacteria, and are particularly suitable for the growth of bacteria therein. (3) Certain anesthetics may precipitate an impending nephritis because of the unusual labour involved in excreting sugar. In these cases the

author uses nitrous oxide and oxygen instead of the other anæsthetics, especially avoiding the use of ether.—*Interstate Medical Journal*.

ANALGESIA IN CHILDREN BY SPINAL INJECTION, WITH A REPORT OF A NEW METHOD OF STERILIZATION OF THE INJECTION FLUID.

W. S. BAINBRIDGE (*Med. Rec.*, Dec. 15, 1900) reports analgesia produced in seven children by spinal injection of cocaine or eucaïne. The cases ranged from two and one-half to eleven years in age. The youngest patient was injected on three occasions. The amount of cocaine used varied from min. vii to min. xv of a 1 per cent. solution of cocaine and from min. vii to min. xxx of a 1 per cent. solution of eucaïne. Some elevation of temperature, nausea, vomiting and some restlessness were the chief undesirable effects not produced.

These cases were specially selected. The preparation of each was the same as usual before a general anesthetic. The patient was placed in a sitting posture, well bent forward, and prevented from moving during the injection. After the skin over the site of puncture had been treated in the usual antiseptic way an ethylchloride spray was employed, rendering the introduction of the needle practically painless; no difficulty was experienced in introducing the needle. A point of $\frac{1}{2}$ inch to either side of the median line, and midway between the spinous processes was taken, and the needle pushed forward, inward and upward. Special effort was made to keep away from the central part of the spinal canal by a close relation of the needle-point to the dura. The instrument used was of the simplest kind. A small-sized steel aspirating-needle with a short-bevelled pointed end, having a well-fitted hypodermic barrel, answered every purpose. As nearly as possible the same amount of cerebro-spinal fluid was allowed to escape as of the injection medium, which was to be introduced. The injection was given slowly, usually taking one and one-half to two and one-half minutes. Often the first evidence that the cocaine was taking effect was some dilatation of the pupil or a slight nausea.

There have been many cases of failure reported which were attributed to the use of heat in the sterilization of the

injection fluid. This fact led the author early to experiment with other means. About a dram of ether is poured over gr. v of powdered cocaine or eucaine in a measuring-glass, which has been boiled, as well as the glass rod used to mix the ether thoroughly with the powder. The mixing process continues until all the ether has disappeared: Then 1 ounce of boiled, filtered water is added. The solution is made fresh before each operation.

After-effects.—In all cases any after-effects of an unpleasant nature were temporary. The urine on the day following the injection was examined in all cases for sugar and albumin. The result was uniformly negative. In only one case were there any serious symptoms following the operation. This was a high injection, with Pott's disease of the spine, in a patient in bad general condition.

Cocaine versus Eucaine.—His cases so far have proved more satisfactory when cocaine has been employed. The after effects seemed no greater in one than in the other, and the analgesia was not so uniform or lasting when eucaine was employed.—*Pediatrics.*

Therapeutic Notes.

GASTRIC ATONY.

R Liquor potass. arsenit..... ʒss
 Tr. nucis vom..... ʒi
 Vita aurantii (Haber) q. s. ad..... ʒvi

M. S.: A dessertspoonful in water after each meal (t. i. d.)

OINTMENT FOR VARICOSE VEINS.

R Acidi carbol..... ʒss
 Acidi borici..... ʒiiss
 Camphoræ..... ʒii
 Ichthyol..... ʒv
 Ol. amygdalæ dulc..... ʒiiss
 Ung. zinci oxidi..... ʒiiss

M. Sig.: Apply externally night and morning.—
 J. A. M. A.

Jottings.

If you have a patient with persistent loss of voice suspect tuberculosis of the larynx.

Whatever else you do in internal carbohc acid poisoning, give at once a large dose of alcohol—whisky, brandy, rum or gin will answer—and repeat it often.

Many physicians prefer the bromide of strontium to any other form of bromide in the treatment of epilepsy, because it can be continued for months without any of the deleterious effects which attend the use of the potassium salt, and can therefore safely be given in doses large enough to control the fits.

Prof. R. Saundby, writing upon moveable kidney, says that ever since Landau's famous paper moveable kidney has been a favourite subject, that it is frequently discussed, diagnosed even more frequently and very seldom successfully treated. He considers the best course to follow is to cure the neurasthenia on which it depends by prolonged Weir Mitchell treatment, and have the patient wear a comfortable abdominal belt when she gets on her feet.

Abrams recommends the following simple plan for the cure of aphonia. Mark with a pencil upon each side of the neck the points in the thyro-hyoid membrane where the internal laryngeal branch of the superior laryngeal nerves pass into the larynx. Freeze these areas by means of a chloride of methyl spray. The relief thus produced is usually instantaneous, but may be of only short duration, and is due probably to the freezing acting as a shock inhibiting the nerve functions for a variable period.

Dr. Gilchrist, of Baltimore, in a recent paper thus sums up the treatment of acne rosacea. Strict attention to diet, good plain food, avoidance of pork, pickles, salads, highly seasoned foods, rich gravies, sauces, cheese, pastry, candy, cakes, strong tea or coffee, very hot liquids. Fresh fruits and green vegetables are beneficial, correct the underlying constipation, dyspepsia or menstrual trouble, avoid all stimulants, wash the face in hot water every night and then apply a sulphur ointment or lotion. Local treatment consists in rapid puncture of the skin of nose with a sharp aseptic needle, and electrolysis to obliterate the blood vessels if they are visible.

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Editorial.

PROFESSOR KOCH ON BOVINE AND HUMAN TUBERCULOSIS.

The "Medical Press and Circular" of the 31st of July says: "The announcement of an address on a subject so peculiarly his own by the justly celebrated German bacteriologist was an important item on the programme of the Congress on Tuberculosis, and it did not fail to attract a large and appreciative audience. The address itself, though characterized by the persuasive decision of an investigator who is dealing with facts within his own knowledge, came upon the audience like 'a bolt from the blue.' Hitherto the problem of preventing the spread of pulmonary tuberculosis has been based in very great measure upon the assumption that human beings are infected to an unknown but presumably considerable extent by the ingestion of contaminated articles of food, notably the milk and flesh of diseased animals. In other words, it has all along been assumed that tuberculosis in man and animals is one and the same disease, and as the process of restricting the sale of infected food presents vastly less practical difficulty than that of preventing its spread from man to man, a huge superstructure of preventive measures has been erected on this basis. Judge then of the

surprise which was felt when Professor Koch calmly asserted that bovine tuberculosis is distinct from human tuberculosis, that the disease cannot be transmitted from man to animals, nor, inferentially, from animals to man; in fact, he regards infection by the milk and meat of tuberculous cattle and the butter made of their milk as a negligible quantity. It is impossible not to experience a shock at this bold attack on a series of conclusions which we fondly thought had been definitely established, thanks to the costly researches of two Royal Commissions fortified by independent observations from all parts of the world. The non-transmissibility of human tuberculosis to animals Professor Koch claims to have clearly demonstrated, but he is less emphatic with regard to the possibility of the transmission of bovine tuberculosis to man, simply because direct experiment could not be resorted to. It is obvious that conclusions of this far-reaching importance cannot be accepted without the closest scrutiny. The prevalence of intestinal tuberculosis among infants, presumably of alimentary origin, certainly suggests possible infection by contaminated milk, but in regard to this question Mr. Koch's statistics are strikingly at variance with our own. Before discrediting the conclusions embodied in the Report of the Royal Commission, it behooves us to await further independent inquiry. It is hardly necessary to point out that, even if the non-transmissibility of human tuberculosis to animals had been placed beyond the reach of criticism, it by no means follows that the converse is true, viz., that the tuberculosis of animals is not transmissible to human beings. It would seem that the tuberculosis is a more virulent disease in animals than in man, and it is conceivable that in passing through human beings it undergoes attenuation to such an extent indeed as to render its retransmission to cattle difficult though not impossible. The question, so far as it relates to the amenability of human beings to infection by the germs of animal tuberculosis, will have to be worked out in the light of clinical observation, a process which presents considerable diffi-

culty and no small degree of uncertainty. Professor Koch deserves credit for having had the courage to proclaim such heterodox views, and whatever conclusion we may ultimately come to with regard to their accuracy he will have rendered the immense service of having called attention to the vastly greater importance as a factor in the dissemination of tuberculosis of man to man infection. In our anxiety to stamp out alimentary tuberculosis it may be that we were on the point of going off on a false scent, false in the sense of attaching thereto an importance in excess of its merits. This Congress will be memorable in the history of the movement in that the rudder has been shifted and we have been invited to rectify an error of direction."

RESUSCITATION IN CHLOROFORM NARCOSIS.

The *Medical Press and Circular* of Aug. 7, 1901, says: Any amateur anæsthetist who has been suddenly called upon to "do something" in an alarming case of chloroform narcosis must wonder how it was that he could think of so few measures when so many have been suggested. Some of them, quoting from a recent article by Dr. A. Wilson in the *New York Medical Chronicle*, might not occur to the average practitioner. We note, for instance, the application of Corrigan's button to the epigastrium, dilatation of the sphincter ani, or the application of a hot sponge to the perinæum. Should none of these occur to the person in charge of the case he may stimulate the heart by intermittent pressure, rapid percussion, faradisation or acupuncture. Failing the presence of mind to carry out all or any of these restorative procedures, the belated physician may advantageously administer, subcutaneously or by inhalation, always supposing that the patient will breathe for the purpose, drugs which have the power of stimulating the depressed nerve centres—ammonia, nicotin, strychnine, extract of suprarenal capsules, "and the like." It is hardly conceivable that he should be unprovided with these every-day drugs, or that he should

forget or omit to make use of them. Seriously, however, of all the measures suggested for the resuscitation of the apparently narcotised, the only ones likely to prove of instant avail are the head-low position, artificial respiration aided by rhythmical traction on the tongue, and percussion over the cardiac area.

Surgeon-General Jameson, C. B., late the head of the Army Medical Department, has retired. His friends entertained him to a complimentary banquet on the 24th of July at the Hotel Cecil. The number present was one hundred and fifty. The chairman, in proposing the toast of "our guest," reviewed this distinguished officer's career from the days when he took part in repelling the Fenian raiders in Canada to his appointment to the post of Director General in 1896, and from which he had just retired. Sir William McCormac in proposing the toast of "The public Medical Services," expressed regret at the fact that there was not at present a single candidate applying for admission. That certainly is not a very satisfactory condition of things.

OBITUARY.

Dr. E. A. Graveley, of Cornwall, Ont., died on the 17th of June. He graduated from Bishop's College in 1877, at which College he passed his four medical years. He was for a long time physician to the goal. He served as Surgeon with the field force during the North West Rebellion of 1885. He was of a quiet, unobtrusive nature, but he made many friends and kept them.

Book Reviews.

A Treatise on Orthopædic Surgery.—By Royal Whitman, M.D., Instructor in Orthopædic Surgery and Chief of the Orthopædic Department of the Vanderbilt Clinic in the College of Physicians and Surgeons of Columbia University; Adjunct Professor of Orthopædic Surgery in the New York

Polyclinic; Assistant and Chief of the Clinic at the Hospital for Ruptured and Crippled; Orthopædic Surgeon to the Hospital of St John's Guild. Member of the Royal College of Surgeons of England; Member and sometime President of the American Orthopædic Association; Corresponding Member of the British Orthopædic Society; Member of the New York Surgical Society, etc. Illustrated with four hundred and forty-seven engravings. Price \$5.50. Lea Brothers & Co., Philadelphia and New York, Publishers.

This work on Orthopædics is the latest, most complete and up-to-date book on the subject which we have seen. The style of writing is simple, direct and concise.

It does not attempt to go into the *Ætiology* or Pathology to any extent, but is principally devoted to treatment in which regard it is unexcelled.

The articles on Congenital Dislocations of the Hip, Coxa Vara and Weak Feet are exceptionally complete, the author himself being a recognized authority. It is a book which we would recommend to anyone who takes a special interest in this line of work.

F. W. G.

A Practical Treatise on Diseases of the Skin.—By Jas. N. Hyde, M. D., Sixth Edition.—Lea Bros. & Co., Philadelphia, 1901.

We are glad to note the publishing of this new edition of so worthy a work, and trust it will meet with the appreciation and success the other earlier editions have had; this work has been thoroughly revised so as to bring this branch of medical science up to date.

The information to be found in same is sound and reliable, the text is good, while the plates and woodcuts are clear and interesting.

The knowledge to be gained by a careful perusal of this work will cause it to be placed as a valuable book of reference to the specialist as well as the general practitioner.

J. M. S.

Eczema and its Management.—By L. Duncan Buckley, M. D. Third Edition., G. P. Putnam & Co., New York, 1901.

This work by the above author is very full on the subject, and shows careful thought while writing same; many points of interest are to be found in the case of those troubled with this disease.

We regard the little work worthy of a place in the Medical library, being a help to the general practitioner interested in the care of those suffering from eczema.

J. M. S.

PUBLISHERS DEPARTMENT.

SANMETTO IN URETHRAL STRICTURE.

Dr. Jos. Swindell, of West Burlington, Iowa, writing, says: "I have been using Sanmetto for several years. I find nothing that suits me as well in genito-urinary diseases. I am using it right along in conjunction with treatment of urethral stricture. It soothes, checks and prevents smarting and inflammation that is so common after passage of bougie. Its ease of administration and formula should recommend it to the profession."

SANMETTO IN ENURESIS.

I used Sanmetto in a case of a young miss, thirteen years of age, who was becoming a regular "wet the bed." I had tried all the usual remedies, but failed to make a cure, so I tried Sanmetto, and the result was a perfect cure, as she has not been troubled since the first treatment with Sanmetto, and I inquired to-day, and was informed that she had attended school, travelled two hundred and fifty miles, losing two nights sleep, but not once has the trouble returned; therefore, I call it a cure in every sense of the word, and another triumph for Sanmetto. I can say that in over forty-six years' practice I have never found a medicine that is as near a specific for the purposes intended as Sanmetto.

WM. H. ANDERSON, M.D.

Soda Springs, Idaho.

SANMETTO IN SPASMS OF BLADDER NECK.

Sanmetto is not new to me, as I have used it two years. I will report a case that came under my treatment on the fourth day of February. A lady about forty years of age had spasms of the neck of the bladder. She was in constant pain. She could neither sleep nor sit still. She was compelled to urinate as often as every half hour. I commenced giving her Sanmetto, a teaspoonful every two hours for the first twelve hours. The next twenty-four hours I gave her a teaspoonful every three hours, and the next twenty-four hours every four hours, unless sleeping. Discharged the woman the fifth day as well, and she has been well ever since. A prominent physician of our city had been treating this patient, but she received no benefit from his treatment whatever.

WM. S. MCLEAN, M.D.

Saginaw, E.S., Mich.

LITERARY NOTES.

The Living Age has done its readers a service by translating and printing in its issues for August 3 and 10 M. Ferdinand Brunetière's clever and not unsympathetic observations on "The American Spirit," which were first printed in the *Revue des Deux Mondes*.

Matilde Serao's story of "Sister Giovanna of the Cross," now running as a serial in *The Living Age*, grows in pathos and interest with each instalment. It is in a new vein for Madame Serao.

The caustic article on "The Shadow on the Stage," which *The Living Age* for August 3 reprints from *Blackwood's*, is written primarily of course of the English stage, but the account which it gives of the displacement, first of the poet by the actor, and then of the actor by the stage carpenter, will be recognized as true of the American as of the English stage.

Blackwood's slashing article on "The Cult of the Millionaire," which *The Living Age* reprints in its issue for August 31, has a distinct bearing upon the American type.

Mrs. Archibald Little's "Peking Revisited," in *The Living Age* for September 7, is a graphic personal sketch of the Chinese capital as it appears now on the eve of the evacuation by the allies.

An old yet ever new subject, the relation between "Mothers and Daughters," is freshly and sensibly treated by Mrs. Florence Bell in the leading article in *The Living Age* for September 7. Mrs. Bell's views are modern, but not extreme.

Ernest Newman's article on "The Essential Tschaiowsky," reprinted from *The Contemporary Review* in *The Living Age* for August 3, is an important contribution to the literature of musical criticism, and is exquisitely written.

People who hold that there is an occult connection between the shape of the nose and mental characteristics will find much to confirm their opinion in the study of "Minds and Noses," which *The Living Age* for August 10 reprints from *Blackwood's*.

Catherine I. Dodd's article on "The Ideals of an American School Girl," in *The Living Age* for August 10, describes and tabulates the results of some recent inquiries concerning the ideals cherished by American school girls, in a manner which is diverting and illuminative.

In M. de Vogue's article, "An English View of France," which *The Living Age* translates for its issue of September 7, we have Mr. Bodley's opinions and criticisms of French life and letters brightly, yet not unsympathetically treated by one of the cleverest of contemporary French writers.

The leading article in *The Living Age* for August 17 will be Herbert Paul's "Personal Impression" of the late Bishop of London—a charming tribute to one of the most beloved of ecclesiastics. According to Mr. Paul, Bishop Creighton's death may fairly be attributed, as was that of Bishop Brooks, to overwork in attention to the details of the duties of his office.

Matilde Serao's story, "Sister Giovanna of the Cross," which is concluded in *The Living Age* for September 7, is one of the most touching and exquisite stories in recent magazine literature. Its publication is specially timely, as the Benedictine nuns and other religious orders in France are about closing their doors in anticipation of the taking effect of the new Associations' law.

People who would like to read the entire text of Professor Robert Koch's paper on the suppression of tuberculosis, which occasioned such a stir at the British Congress, will find it in *The Living Age* for August 31. The paper has been so much discussed and the positions taken in it are the subject of so much controversy that the intelligent reader will be glad of the opportunity to learn for himself precisely what Professor Koch's claims are.