

THE

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Obstetrics and the Allied Sciences.*

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THE
Medical Record.

WEDNESDAY, JANUARY 22, 1873.

*SCHÜPPEL ON THE ORIGIN AND
 STRUCTURE OF TUBERCLE.*

IN the undesignated three treatises, Dr. Schüppel gives the results of elaborate investigations on the structure and mode of origin of tubercle, based in the main on examination of the lymphatic glands, but confirmed in all essential points by similar examination of tubercle in other tissues and organs. The views which he has thus been led to entertain differ very materially from those commonly held, and are of great interest and importance.

In order to obtain a correct idea of the structure and mode of origin of tubercles, he insists on the necessity of examining them in the earliest stage of their development; and he finds, contrary to the notion generally held, that the lymphatic glands are extremely well adapted for this purpose. It is, however, necessary to select glands in which the tubercles are not yet visible to the naked eye; for, by the time they have attained such a size, they will be found to have already undergone retrograde changes. He recommends glands to be selected from the territory of a tuberculous organ, and says that in many cases they will be found to be the seat of tubercles. Such glands should be hardened for about eight or ten days in a 0.25 per cent solution of chromic acid, which should be frequently changed, and then kept for about four days in strong alcohol. The sections should be rendered transparent by glycerine, and may advantageously be coloured by carmalum. He cautions against the use of spirit for hardening in the first instance.

The following are the principal conclusions at which he has arrived.

First, as to the structure of tubercles: he finds that a tubercle does not consist of a collection of small round cells lying in the meshes of an adenoid reticulum, and which, therefore, may be

classed with the lymphomata, or tumours having a structure analogous to the lymphatic glands; but that it is a growth with a well-defined structure peculiar to itself, which has nothing to do with the lymphomata, or with the allied inflammatory new formations.

According to him, a tubercle consists of the following elements:—1. Multinuclear giant-cells resembling the myelophages of the amyloid or giant-celled sarcoma; 2. Large cells of an epithelial type; 3. Small round cells like lymph-corporules; 4. A peculiar reticulum, in the meshes of which these cells lie. Tubercles are also characterised by being absolutely non-vascular.

The giant-cell he regards as the most essential element of a tubercle, which in every case originates by the fission of such a cell. In a fully developed tubercle, the number of these giant-cells varies from one to eight or ten. They differ very much in size and shape, are often angular and furnished with branching processes, and may contain from two or three to fifty or sixty nuclei.

The bulk of the tubercle is made up of the second element, viz., large nucleated cells of an epithelial type. They are roundish, angular, or fusiform in shape; their long diameter varies from 0.015 to 0.025 millimetre. They possess a finely granular protoplasm without any distinct cell-wall, and are furnished with homogeneous vesicular nucleolated nuclei, with a long diameter varying from 0.005 to 0.015 millimetre. Most of the cells contain only one nucleus, but sometimes two or three are present. These cells surround the giant-cells on all sides, and fill the meshes of the tubercle reticulum. The small round cells, like lymph-corporules, which occur singly or in clusters among the other cells, so far from being the essential element of tubercle, he regards as not belonging to the tubercle as such at all, but as originating in irritation of the intertubercular structures, or of the remains of the tissues in which the tubercles are deposited. As soon, too, as a tubercle has begun to undergo retrograde changes, numerous nuclei, either naked or furnished with scanty remains of protoplasm, become visible; they originate from the disintegration of the giant and epithelial cells.

The peculiar reticulum of tubercle has a considerable resemblance to the reticulum of adenoid tissue; its meshes are generally wider, but are of very irregular size and sometimes extremely small; and its trabeculae have a finely granular, softer, and more protoplasmic appearance, and are more frequently furnished with nuclei at their nodes, and thus more closely resemble infantile adenoid tissue.

Dr. Schüppel shows that the giant-cells have

* 1. *Untersuchungen über Lymphaden-Tuberculen* (Microscopical and Tuberculous of the Lymphatic Glands). By Dr. OSCAR SCHÜPPEL, Professor of Pathological Anatomy and General Pathology at Tübingen, pp. 142. Tübingen, 1872.

2. *Ueber die Entstehung der Riesenzellen im Tubercel* (On the Origin of the Giant-Cells in Tubercle). By Dr. OSCAR SCHÜPPEL, Wagner's Archiv für Medicin, vol. XII, p. 25, 1872.

3. *Ueber die Struktur der Tuberculen mit der Beschaffenheit der Maschen des Tubercelreticulum* (On the Structure of Tubercles with the Description of the Meshes of the Tubercle-Reticulum). By Dr. OSCAR SCHÜPPEL, Virchow's Archiv, p. 25, 1872.

long been recognized as a more or less constant element in tubercle. They have been described by Rokitsky in 1833, by Virchow in 1837, by Wagner in 1861, by Busch, Langhans, Klebs, and Köster. The epithelium-like cells have also been noticed by many other observers—as Langhans, Köster, &c.

Such is the structure of a tubercle when it has reached its full development. This stage, however, is very short, and in the lymphatic glands does not extend over more than a few days; retrogressive changes then set in. These are—1. Necrosis, leading to caseation and its consequences, crusting and softening; 2. The transformation of the cellular tubercle into a fibrous tubercle; 3. The formation of concretions and calcareous bodies in the centre of the tubercle (not to be confounded with the crusting of tubercle); 4. Resorption, which is probably always preceded by necrosis.

Certain points of interest occur in the description of these processes. Thus Dr. Schüppel finds that, in the lymphatic glands, the necrosis and caseation are often not confined to the tubercle itself, but extend to the intervening portions of the gland. This has been wrongly ascribed to a diffuse tuberculosis of the gland, which, however, never takes place; the individual tubercles always remain distinct, and never exceed tubercles always remain distinct, and never exceed 0.2 millimetre in diameter. The necrosis of the intervening tissues is probably caused by the pressure of the growing tubercles.

In his description of the formation of fibrous tubercles, the author differs entirely from Virchow, inasmuch as he considers that the fibrous tubercle is originally an ordinary cellular tubercle, and becomes converted in the following manner. The tubercle of the circumferential parts of its reticulum become thicker at the expense of the epitheloid cells, and become transformed into a glassy, almost homogeneous, slightly streaked connective tissue. A similar change also takes place in the surrounding reticulum of the gland. The contained epitheloid cells become granular, crumble down, and disappear; and at the same time the centre of the tubercle becomes caseous, and thus the whole tubercle assumes the form of a tiny subiliary fibrous, with a cheesy centre. He thinks it possible that the cheesy centre may ultimately become absorbed, and thus give rise to the milky filaments met with in the lymphatic glands.

The formation of concentrically laminated concretions, closely resembling brain-sand, occasionally occurs in tubercle of the lymphatic glands; they appear to be always attached to the giant-cells.

Absorption of the tubercle the author considers only to take place to a very limited extent; and he points out the contradiction between the idea that tubercle may heal by absorption, and the modern views as to the infective nature of the tubercular derivate.

With regard to the seat and mode of origin of tubercle in the lymphatic glands, Dr. Schüppel differs entirely from other observers. He finds that the tubercle is invariably situated in the highly vascular follicle of the gland, and never occupies the lymph-paths, or stands in any connection with the fibrous septa; and he believes that the first giant-cell from which the tubercle is developed is formed in the interior of a blood-vessel, generally a capillary vein. He thus stands in direct opposition to those pathologists who, like Virchow, ascribe the formation of tubercle to proliferation of connective tissue-corpuscles, or, like Klebs and Rindfleisch, to the proliferation of the endothelia, especially of the lymphatics and lymph-sheaths of the small arteries.

W. CAVLEY, M.D.

(To be continued.)

CLARKE AND AMORY ON THE BROMIDES OF POTASSIUM AND OF AMMONIUM.*

(Continued from page 26.)

Bromism not uncommonly occurs where these drugs are taken several times a day for some time. The phenomena occur much more readily in some persons than in others. They do not happen when only one dose, even large, is taken daily, and are not likely to arise if this be divided, provided the doses are taken near together, whereby there occurs a period each day when the system is almost free from bromism. Bromism usually occurs when a hundred grains in divided doses are taken daily (Echeverria on Epilepsy). The following are the phenomena enumerated by Dr. Clarke under bromism:—“Aise, salivation, and salt taste; irritation of the fauces, generally with oedema and redness (Voisin, *Analisis Chimica de Phlegmatique*), and sometimes with paleness (Guthrie, *Analisis Chimica de Phlegmatique*, 1844); moderate anæsthesia of the pharynx; laryngo-bronchial weakness, sometimes with cough, sometimes with a changed or whispering voice; field or hoarse breath; occasional stammering; increase of nasal secretion; diminution of mucous secretion generally; slight constipation, and, in a few rare instances, diarrhoea; sense of weakness and physical languor or weakness; sometimes temporary impairment of memory; general aspect of lethargy and indifference; more or less anæsthesia; repression and occasional temporary abolition of sexual desire and power; impaired locomotion, which, when the dose is excessive, resembles the gait of locomotor-

* An Abstract of the Physiological and Therapeutical Action of the Bromide of Potassium and the Bromide of Ammonium. By Dr. EDWARD H. CLARKE and Dr. RICHARD AMORY. Boston: James Campbell, 1872.

stony; diminished nervous sensibility in general, especially diminution of reflex sensibility. Sight and hearing are unaffected. The conjunctiva, like the fascia, are often congested, but the optic nerve is unaltered" (J. V. Laborde, *Archives de Physiologie*, May, 1858). "The appetite and digestion are unimpaired; tactile sensibility, the sense of temperature and of tickling, appear to be imperfectly conducted, but really are unimpaired; intellect and emotion may seem sluggish; but, when roused, they act normally. It does not alter the chemical constitution of the secretions." After an excessive dose, "oedema supervenes on congestion of the vessels and faces; the whispering voice sinks into aphonia; sexual weakness degenerates into impotency; muscular weakness becomes complete paralysis; reflex, general, and special sensations disappear; hearing, sight, and taste are lost; the mind becomes indolent, and there occur hallucinations of sight and sound, with or without mania;" the pupils are dilated and uncontractile.

Dr. Clarke estimates that two-thirds of his patients who took the bromide several times a day suffered from acne, but he has never known it to result from one dose daily. The spots of bromic acne vary in size from a millet-seed to a large pea, and may be few or many; they affect mostly the scalp, face, and back. They generally disappear without suppuration. They do not scar. They are often much controlled, and quickly dispersed, if iodide of sulphur be smeared several times a day over the hardness as soon as it is felt.

Dr. Clarke agrees with Bepfell (*Thèse pour le Doctorat*, Paris, 1856) that bromide of potassium affects the reflex irritability, but not the sensibility of the pharynx; thus irritation will not excite deglutition, but the pain of operations is not lessened. He also agrees with Volz that thirty grains may not impair physiological sensibility, it being sometimes necessary to repeat this dose two or three times, a few hours apart. In administering bromides, *Echiverria* advises strong coffee with the meals, to increase the therapeutic energy of the medicine and to diminish leucæmia. He also says that two or ten minutes of Fowler's solution with each dose, if alkaline baths be also given, will prevent acne. Moderate doses given several times daily increase the hyaline action of hydroxychloral, hyoscyamus, camphor, iodine, lactucarium, ether, or chloroform.

Bromides must be taken several times a day for several days before the sexual functions and sexual appetite become affected. Their effects vary greatly; in some they cause only moderate diminution, in others temporary impairment of these functions. On discontinuing these remedies the sexual organs regain their lost powers. Dr. Clarke quotes Bepfell, who says that "bromide of potassium seems to effect particularly the phenomena of reflex sensibility, whose seat, according to some authors, is at the orifice of the ejaculatory canals. The passage of the bromised urine over this orifice produces a local anesthesia, and so takes away the point of departure of the reflex action (the electro-motory point) of an erection."

Dr. Clarke recommends bromide of potassium in bronchitis, if the cough be paroxysmal, and in excess of the physical signs (and expectoration?), when it affords more relief than opium; also in sore throat, without redness or swelling, but accompanied with frequent and useless hawking and spitting, and in difficult deglutition of a spasmodic character, whether hysterical or not. He employs this salt in ten-grain

doses during the day, and gives twenty or thirty grains more in a single dose at night, in several instances, whether due to "local irritation" or to "sexual and erotic feelings." It reduces sexual excitement in women, in those sad instances of hysterical excitement which verge on nymphomania. In all these affections small doses are unavailing. Not less than twenty grains three daily will exert a decided control over excessive sexual propensities. (Sollé, *Atelier Médical and Therapeutique*.) "Frequent nocturnal and incontinence of urine, connected with nervous disturbance of a local or general character, are ameliorated, and sometimes permanently relieved, by bromides. In like manner, vaginismus occasionally yields to these medicines." Injection of solution of bromide of potassium, retained in the vagina for ten minutes twice a day, may be advantageously employed in addition to the internal administration of the medicine.

Menopausal troubles, such as timidity, irritability of temper, broken sleep, apprehension of serious evil, flushings, numbness, and deranged sensations, are more controlled by bromide of potassium than by any other drug. It should be given only when the nervous disturbances are excessive, and should be continued for two or three weeks.

The bromides are useful in angina pectoris. Two grains should be given three times a day, and a thirty-grain dose at the onset of a paroxysm, being repeated in half an hour or an hour if necessary. Like angina pectoris, whooping cough and asthma are only occasionally benefited by these medicines, and the symptoms indicating their use are at present unknown.

In neuralgia, Dr. Clarke agrees with Aestle (*Neuralgie and its Diseases that resemble it*), that in most cases bromides are quite useless. "The patient must not have entered on the period of tissue-degeneration."

Those who will benefit by the bromide are subjects—especially women—in whom a certain senseless hyperæsthesia of mind, and perhaps of body, seems to be the expression of nature's successive re-arrangement of the neglect of sexual functions." The medicine must be given in large doses, and it may be increased until ninety grains are taken daily.

Headache accompanying grief or worry, and also sick headache, where the pain, *br.*, prevails and predominates over the gastric symptoms, often yield to bromides. The medicine must be given as soon as the attack begins, in twenty-grain doses, repeated hourly till the system is completely under its influence. It is also useful as a prophylactic, given daily in moderate doses.

Dr. Clarke's experience of bromides on epilepsy is too small to allow him to speak authoritatively of their efficacy. On this subject he quotes Volz, who says (*Médicine Générale et Thérapeutique*, May 1871): "I have employed for many years a method which has given me the best results, and which consists in determining the condition of reflex action, by introducing a spoon as far as the epiglottis. I have remarked that a therapeutic dose of the bromide of potassium is not attained till reflex action is suppressed; it is not till then that the bulb is certainly acted on, and its electro-motory force diminished. . . . The study of other reflex phenomena, such as lachrymation, cough, and sneezing, enables us to follow the action of the medicine upon the bulb and the spinal cord. The dose should not be increased beyond the suppression of reflex action, but it should be given continuously for years together.

If the malady be ameliorated or in process of cure, at the end of two years of amelioration the remedy, instead of being administered every day, may be given every second, third, or fourth day, provided relief masses be always and certainly absent. Voisin considers the early appearance of tonic effects a good, their late appearance a bad omen. He says that bromides are useful in all forms of convulsions, as the phenomena "are the product of an exaltation of the excito-motory force of the bulb," which bromide of potassium can always moderate if it cannot suppress it. This remedy suppresses the aura, even when it fails to dispel completely the attacks. It has less influence over vertiginous than over convulsive attacks. "It generally succeeds less well with children than with adults."

Dr. Clarke finds that bromide of potassium is very useful in epileptiform hysteria. It must be continued from six to twelve months.

Dr. Clarke refers to M. Sanson's observations (73^{Mo}, Paris, 1858) concerning the antagonism between the actions of bromide of potassium and strychnin on the medulla and spinal cord; bromides contracting the blood-vessels, strychnin dilating them and heightening reflex excitability. He injected strychnin into one leg of a dog, and bromide of potassium into another. There occurred convulsions and tonic stiffening of the strychninized foot, but none in the other (namely those results could not be due to any effect on the cord). "Next he injected a mixture of strychnin and bromide; the convulsions were feeble and their duration abridged, and the animals lived longer than after an equal dose of either agent singly." Brown-Séquard notices the same.

The physiological and therapeutic action of bromide of ammonium Dr. Clarke considers identical with those of bromide of potassium. The ammonium salt, however, possesses a more disagreeable taste, and is more irritating. Dr. Clarke agrees with Brown-Séquard that it is useful to combine these two salts, thereby heightening their sedative action; ten grains of bromide of potassium with three or five of bromide of ammonium yielding a greater sedative effect than twelve or fifteen grains of either administered alone. This combination they consider less liable to produce bromism. Dr. Eschschertz disputes these assertions.

Bromide of lithium acts like the potassium salt. According to Dr. Wair Mitchell, the lithium salt is a more powerful and rapid hypnotic and narcotic, in some cases of epilepsy, &c., which have proved rebellious to the potassium salt.

SYDNEY RINGER, M.D.

VOIT ON THE NUTRITIVE VALUE OF GELATIN.*

Although gelatin is largely used as an article of food, considerable uncertainty has hitherto prevailed regarding its nutritive value. So highly was it esteemed at the time of the first French Revolution, that Puzos, Proust, D'Arce, Pelletier, and Cadet de Vaux having shown that considerable quantities of it could be extracted from bones, the French government issued a proclamation to the effect that "a bone is a natural cake of preserved soup; a pound of bones yields as much soup as six pounds of meat; soup from bones is to be preferred to soup from

meat, and the bone handles of knives and forks, or a dozen bone buttons, are just as much soup stolen from the poor." Gelatin did not retain this high reputation very long; and the labours of Dumas, Gannal, Edwards, and Balme, and of Magendie, brought it more and more into discredit till Jan. 27, 1850, when the Academy of Medicine in Paris, on Edmond's report, proclaimed that gelatin only causes disturbance of the digestive organs, and has no right whatever to be regarded as nutritious. The investigations of Vialle, Bernard and Barreswil, Bousin-gault, Faurich, Mulsier, and Donders not being sufficient to settle the true value of gelatin, Voit undertook a series of experiments, in which he fed dogs on gelatin and flesh, on gelatin alone, on gelatin and fat, on flesh and fat, and on gelatin, flesh and fat. In these experiments he faculty gave to the dog each day its allotted quantity of food, and thus avoided the fallacy arising from the animals occasionally refusing to eat, which vitiated the results obtained by Magendie and others. Voit's own observations show that gelatin leaves the consumption of albumin in the organism, so that a less quantity of flesh is sufficient for an animal's food when gelatin is given along with it. The power of gelatin in this respect is greater than that of fat or carbon-hydrates. Its effect is increased when fat is given with it.

But gelatin alone will not suffice for nutrition, for it only slows the consumption of albumin in the body, but does not arrest it. If sufficient albumin to supply this waste be not contained in the food, the albumin contained in the organs and tissues will be destroyed, and death will ensue. In order to explain this action of gelatin, Voit (*Zeitschrift für Biologie*, vol. vii. p. 207) gives an exposition of his views regarding the manner in which albumin undergoes destruction in the organism. When a dog is well fed with flesh, &c., the amount of albumin destroyed daily in the body (and consequently urea, &c., excreted) will be very considerable; but when it is allowed to fast for several days, the daily destruction of albumin becomes diminished to an enormous extent, although the weight of the body is not much lessened. For example, if a well-fed dog, weighing 5,200 grams, be deprived of food for eight days, the quantity of albumin destroyed in its body on the eighth day will be only a fifth of that destroyed on the first day of fasting, although the weight has only fallen to 4,445 grams. If the quantity of albumin destroyed on the first day have the same proportion to the weight of the body as that on the eighth, the weight of the dog on the first day would be eighteen times as much as on the eighth, i. e. 93,600 grams, instead of 5,200 as is reality. When the fasting dog again receives albuminous food, the destruction of albumin in its body at once increases enormously. These facts show that the albumin in the organism is very unequally decomposed, one part of it being transformed rapidly while another part undergoes slow decomposition. Voit has, therefore, been induced to divide it into two classes:— (1) Circulating albumin, or albumin which is present in the circulating fluid or lymph, and is rapidly decomposed during the process of circulation through the tissues. (2) Organ-albumin, which is contained in the tissues or organs. So long as it continues to be organ-albumin it is not decomposed, for it is not subjected to the conditions of decomposition; but it may, and does, undergo conversion into circulating albumin, and is then decomposed. This conversion takes place when the normal equilibrium between circulating albumin and organ-albumin is disturbed,

* Voit, Ueber die Bedeutung des Gelatins für die Ernährung. (*Zeitschrift für Biologie*, vol. viii.)

as by venosuction, which, by removing part of the circulating, leaves an excessive proportion of organ-albumin. The excess is not retained in the body, but is converted into circulating albumin and decomposed. In the normal condition the destruction of organ-albumin is very slow, though it is constantly going on. The greater part of the albumin taken as food never becomes organ-albumin, but circulates in the current of plasma² and is decomposed, while only a small proportion of it goes to repair the waste of organ-albumin, or be deposited in the organism. Voit believes that the common idea that albumin is converted into peptones by the digestive fluids in the intestinal canal before it can be absorbed, is completely erroneous. He cannot see why we should assume that, because albuminous substances will not pass readily through vegetable parchment or dead animal membranes, they cannot pass through the intestinal walls, when they do so with ease through every possible membrane and organ in the body. He believes that only a small proportion of the albumin introduced into the digestive canal is converted into peptones, the greater part of it being absorbed without losing its albuminous character. Pirk has also observed the great decomposition of albumin (indicated by increased excretion of urea) which follows the ingestion of albumin. As he holds the common idea that the greater part of albuminous food is changed into peptones, and only a small part absorbed unaltered, he compares the rapid increase of decomposition to the blast which occurs when a very combustible substance like gunpowder (so which he compares the peptones), is added to a slowly burning one like charcoal (which would represent albumin). Voit, believing, as he does, that it is always albumin which is decomposed both after eating and during fasting, is inclined rather to compare the process to the blast caused by the addition of chips of wood to a slowly burning log of the same material. He supposes that during fasting very little albumin is decomposed, but every supply of food increases the current of plasma towards the organs, and thus brings much albumin under the conditions of decomposition. The theory of so-called lean-consumption agrees with Voit's, in so far as according to it very little albumin is decomposed in the organs. It considers, however, that only so much albumin as will replace this waste is necessary, and regards any additional supply as an unnecessary surplus which undergoes combustion in the blood. Voit, on the contrary, regards the organs as the site of decomposition, and considers that an abundant supply of albumin over and above what will repair the waste in the tissues is not a superfluity (leues), but a necessity, if the body is not to lose albumin. The fact that although gelatin lessens the decomposition of albumin in the body, it cannot arrest it completely any more than fat or carbohydrates can, is simply explained by the supposition that it cannot replace wasted organ-albumin or build up organs or tissues. No new blood-vessels, no new muscular fibres, not even new gelatinous tissues, can be formed from it to supply the place of those which have become disintegrated. In this respect it behaves like peptones, which are likewise derivatives of albuminous substances or products of their decomposition. Gelatin is no plastic nutriment, in the sense in which

Liebig uses the term. But when gelatin alone is given, less organ-albumin is converted into circulating, and thus the organism loses less albumin. When gelatin is administered along with a small quantity of albumin, a much less proportion of the albumin contained in the food is decomposed, and a much smaller amount is, therefore, sufficient to supply the wants of the body. The same occurs when gelatin is given along with a large quantity of albumin, and in this case more albumin is stored up. Hallsbain has given alone without gelatin, much more of it is required to prevent the organism from losing albumin, since that contained in the food is chiefly converted into circulating albumin and decomposed. Gelatin likewise passes into the current of plasma, and becomes subjected to the conditions of decomposition; and as it, like peptones, is more readily decomposed than the albumin of the plasma, it takes the place of the latter to some extent, and saves a part of it from destruction. The proportion of circulating albumin being thus kept up, there is no necessity for that conversion of organ-albumin into circulating, which would otherwise be necessary to keep up the balance between the two sorts. The destruction of albumin being therefore less, a much smaller quantity of it will suffice to repair waste or even to supply some which will be stored up in the organism. It is probable also that, in addition to its power to save albumin, gelatin lessens the destruction of fat, though only to a very slight extent. Gelatin is therefore a most valuable nutriment, which deserves much attention. Voit is far from recommending that much albumin should be withdrawn from the food and replaced by gelatin, for much gelatin easily causes digest, and, when taken for a long time and in large quantities, perhaps produces disease in the intestines; but when its use is rightly understood and it is properly employed, the best results may be expected from it.

T. LAYDER BRENTON, M.D.

ANATOMY AND PHYSIOLOGY.

E. BRÜCKE ON THE CARBO-HYDRATES AND THE MODE IN WHICH THEY ARE DIGESTED AND ABSORBED. Dr. E. Brücke's researches on this subject are contained in the *Wiener Sitzungsberichte der Math. Naturw. Cl. Vol. lvi. Part iv.*

1. *Starch, Dextrin, and Glycogen.*—In the first part of his paper, Brücke enters into a very minute description of the different kinds of dextrin and their properties. The properties of what has been called dextrin have been variously described by different investigators. The substance which Biot called dextrin turned blue with iodine, while Séchamp described under the same name a substance which did not become coloured by iodine, and attributed the reaction of Biot's dextrin to admixture with soluble starch. In German text-books, it is generally stated that dextrin becomes violet or wine-red with iodine. Nasse shows that this colour is a mixture of a blue, depending on soluble starch (amylidin), and of a red, which is due to true dextrin. Séchamp's dextrin, which does not become coloured, he calls dextrinogen. Very contradictory statements are also made by different writers on the reaction of dextrin with alkaline copper solution.

Brücke agrees with Nasse in regarding the

² The word plasma here signifies the interstitial fluid or lymph which bathes the tissues.

violet colour as due to a mixture of dextrin and starch. In order to avoid confusion with regard to the substances whose properties are so differently given, he proposes the name *Achroodextrin* for Nasse's dextrinogen (Mikchang's dextrin), and the term *Erythrodextrin* for Nasse's dextrin, the substance which is turned red by iodine. He finds that neither erythrodextrin, prepared by Payen's method from roasted starch, nor achroodextrin, prepared from starch by digestion with malt, or by the action of sulphuric acid, reduces copper solution. The reduction of copper by commercial dextrin depends on the presence of sugar. He therefore, in the course of his paper, recognizes the following substances:—

1. Starch which is turned blue by iodine, of which there are two varieties: (a) unaltered and unaltered (Kleiser); (b) soluble (amylala); 2. Erythrodextrin, turned red by iodine; 3. Achroodextrin, not coloured by iodine, precipitated by alcohol from watery solutions; 4. Sugar, which reduces copper and becomes brown with potash. Griesmayer, whose dextrin I. is the same as achroodextrin, and whose dextrin II. corresponds to erythrodextrin, says that the former has a greater affinity for iodine than starch. Brücke does not agree with this; for he finds that, when the two are present together, the blue colour of the starch appears before the red of the erythrodextrin, at least at ordinary temperatures. Tannin in substance precipitates the starch and leaves dextrin in solution. The best method of separating the various substances from each other, is by fractionating with alcohol. The starch is first precipitated, then the erythrodextrin, and lastly the achroodextrin, which generally carries sugar with it. Part of the achroodextrin is likewise carried down with the erythrodextrin. Iodine and sulphate of sodium, also, among other reagents, precipitate the starch and leave the dextrin in solution. The products of the conversion of starch differ according to the method used. The ordinary commercial dextrin made by simply roasting raw starch is a mixture of soluble starch and raw dextrin. That made after Payen's method (i.e., macerating with nitric acid, drying and raising) contains, along with erythrodextrin, both achroodextrin and sugar. When starch is digested with dilute sulphuric acid at first amylose is produced. Erythrodextrin is next formed, and this passes after longer digestion into achroodextrin and sugar.

The action of infusion of malt upon starch is different. The product of digestion for some time is a substance resembling erythrodextrin in being coloured red by iodine, but differing from it, nevertheless, in being completely precipitated by tannin. Brücke calls this substance *Erythromylum*. This substance has greater affinity for iodine than starch has, and hence, when the two are together, the red reaction shows itself before the blue. This reaction is also manifested by starch-paste, even before the action of any ferment. Hence it would appear that erythromylum is not a product of the conversion of starch, but rather the residue of the starch-granules closely united with Nügel's cellulose, and resisting the action of ferments longer than the granules itself. The further action of mashing is to cause the disappearance of this substance, with or without a molar, which forms a silty deposit, coloured red by iodine, while the clear supernatant liquid remains uncoloured. Erythrodextrin seems also to be produced, but is rapidly destroyed by the further action of the ferment. The fluid contains considerable

quantities of achroodextrin, and the process of mashing appears to be the best for producing achroodextrin, though it acts on starch in the most energetic manner. On erythrodextrin, diastase acts as energetically as on starch itself.

Glycogen in many respects resembles erythrodextrin, but differs from it in always forming opalescent solutions.

II. Digestion of Boiled Starch.—The changes which starch undergoes in the stomach were studied in dogs, which were killed from one to five hours after having been fed on a meal principally composed of starch. The contents of the stomach and of the duodenum were separately analyzed. In the stomach, along with a greater or less quantity of starch-mucilage, according to the extent of digestion, large quantities of soluble starch (amylala), and erythrodextrin were found, the latter especially towards the end of gastric digestion. Achroodextrin is also produced in the stomach, but apparently only in very small amount. Sugar, unless it have been given in the food, is either not found in the stomach, or, if so, in very small quantity. In the small intestine sugar was always found, whether it had been given with the food or not. Erythrodextrin was not found, or, if so, not in any appreciable amount.

The first noteworthy fact in reference to these results is that, in the stomach, even after a meal of starch, traces only of sugar are found, notwithstanding that in the mouth the starch comes into contact with the saliva, and also from time to time with the saliva which is constantly being swallowed. The cause of this, as shown by experiments made by Knechtelhoff, and by Paschutin, is undoubtedly the influence which the acid of the gastric juice exerts in checking the diastatic action of the saliva.

The second point worthy of notice is the occurrence of the large quantities of soluble starch and of erythrodextrin. The soluble starch is the product of the acid of the gastric juice, which, like other acid solutions, has this effect on starch. The formation of erythrodextrin is more difficult to understand, as the amount of acid which exists in the stomach does not, at the ordinary temperature of the body, convert starch into this substance. After careful investigation, it appeared that part at least of the erythrodextrin found may have been formed by the successive action of saliva and acid on starch. Though the conditions for this successive action exist during the process of mastication and gastric digestion, yet the quantity found could hardly be attributed to this source alone. An elaborate series of experiments, which cannot be here detailed, served to demonstrate that the production of the chief part of the erythrodextrin was due to the process of lactic acid fermentation, which Brücke regards as a normal part of the gastric digestion of starch and sugar. This fermentation is entirely independent of the saliva or the gastric juice, and takes place in the stomach under exactly the same conditions as it does outside the body. Starch-mucilage will undergo the lactic acid fermentation, and produce dextrin and sugar, without the aid of anything but some ferment existing in the starch itself or gaining access to it. The lactic acid fermentation in the stomach does not normally result in the formation of a large amount of acid; but this is only a matter of time.

The concomitant formation of dextrin seems to point to the fermentation-process as a normal pro-

portion of the starch for more rapid transformation into sugar in the duodenum. Dextrin is converted into sugar with great rapidity under the influence of the pancreatic juice, so that in the duodenum only sugar and arborescentin are found. The pancreatic juice has some influence in converting arborescentin into sugar; but the process of fermentation, which apparently continues in the small intestine, may participate in it. The antrum anterior plays only a very subordinate part in the formation of sugar in the small intestine.

[That the lactic acid fermentation of starch in the stomach is a normal physiological process, as Ferriar seems to regard it, may be questioned. It depends, as he himself has shown, on agents extraneous to the system. It may be a constant, but not therefore a necessary, concomitant of gastric digestion, and will depend on the presence or absence of bacteria and toruli ferriar. Ferriar's researches, apart from microscopical and other observations, strongly confirm the idea that it is to these that we are to look as the cause of the excessive formation of acid in conditions of the stomach which hinder digestion, or offer obstruction to the passage of its contents into the duodenum.] D. FERRIAR, M.D.

RECENT PAPERS.

On the Minute Process in Healing by First Intention in Tendons. By Dr. P. Garberook. (*Archives de Physiologie*, vol. vii, part 2.)

The Determination of Lines in Nutrition. By Carl Volk. (*Zeitschrift für Biologie*, vol. xiii, part 3, 1874.)

A Contribution to the Physiological Effects of Water. By F. A. Park. (*Zeitschrift für Biologie*, vol. xiii, part 2, 1874.)

The Function of the Cervical Sympathetic and of the Great Auricular Nerve in the Vasodilatation of the Rabbit's Ear. By Dr. A. Merson. (*Archives de Physiologie*, No. 3, 1874.)

Physiological Study on the Toxic Effects of the Gouty Ferment. By M. L. Folin and Cavella. (*Archives de Physiologie*, No. 3, 1874.)

On the Glass of Blood: Physiological Experiments on the circumstances under which their proportions vary in the Arterial System. By Drs. Minkow and Ulfman. (*Archives de Physiologie*, No. 3, 1874.)

Contribution to the Physiology of the Vagus Nerve. By H. M. Arling and L. Trape. (*Archives de Physiologie*, No. 3, 1874.)

Experimental Researches on the Physiology of the Pneumogastric Nerve. By M. L. Lagues and Guzman. (*Journal de l'Anatomie et de la Physiologie*, No. 6, 1874.)

Description and Structure of the Muscular Coat of the Oesophagus in Man and other Animals. By Dr. Gifford. (*Journal de l'Anatomie et de la Physiologie*, No. 6, 1874.)

On Craniological Classification and Nomenclature. By M. P. Broca. (*Annales d'Anthropologie*, vol. 1, No. 3, 1874.)

Note on Supplementary Lobes of the Right Lobe in Man. By Dr. Fozz. (*Archives d'Anthropologie*, vol. 1, No. 3, 1874.)

The Vagus Nerve as an Accelerator of the Movements of the Heart. By Dr. St. Nobil. (*Le Sportiviste*, November, 1874.)

On the Origin of Fibria. By F. Luzzana. (*Le Sportiviste*, Dec. 1874.)

Experimental Researches on the Mode of Growth of the Bones with Pain. By M. Olier. (*Archives de Physiologie*, Jan. 1875.)

The Development of the Spermatozoa. By Dr. E. Neumann. (*Centralblatt für die Medicin*, Wiesbaden, Dec. 23, 1874.)

On Hyaline. By Dr. A. Hornst. (*Centralblatt für die Medicin*, Wiesbaden, Dec. 23, 1874.)

The Topography of the Nutrition-regions of the Central Arteries. By Dr. Heubner. (*Centralblatt für die Medicin*, Wiesbaden, Dec. 7, 1874.)

PATHOLOGY.

WESTPHAL ON AFFECTIONS OF THE SPINAL CORD IN PARAPLEGIA CONSEQUENT ON SMALL-POX.—Some observations made on this subject by Dr. Westphal are described in the *Deutscher Klinische Wochenschrift*, No. 47, 1874.

The first case was that of a young man, twenty-two years of age, hitherto in good health, who in Nov. 1871 was seized with pains in the head, loss of appetite, and rigors. Some days afterwards, an eruption of discrete small-pox made its appearance, but the symptoms were light. On the third day he felt, on going upstairs, some weakness of his legs, which compelled him to keep his bed. The next morning the patient awoke with complete paralysis of both lower extremities, and was removed to the Charité Hospital, where it was ascertained that he retained only some slight power of moving his great toes; reflex movements were abolished; sensibility was unimpaired; there was paralysis of the bladder, and a slough over the sacrum. Faradic irritating of the muscles was retained. Under treatment he improved so much, that on Dec. 17 he had regained some power of bending the ankle and knee-joints, and on Jan. 10, 1872, he could stand upright, and walk a few steps by the aid of a stick. Subsequently, however, he had an attack of perityphilitis, of which he died on April 8.

The second case was that of a man thirty-two years old, who, after some prostration, was attacked with small-pox on Jan. 24. The eruption was discrete, and moderately abundant. On Feb. 4 he had incontinence of urine. The next day the patient awoke with complete motor paralysis of the left leg, in which he also felt a sensation of numbness. The day afterwards the right leg became paralyzed, with incontinence of feces, and a peculiar sensation as if the abdomen were dead. The patient died of erysipelas and slough over the sacrum. At the necropsy, the grey substance of the spinal cord was found congested, but there was no alteration in either the white columns or in the nerve-roots. In one of the sciatic nerves, a slight infiltration of blood was noticed between its bundles. On making thin sections of the cord after it had been treated with bichloride of potash, patches, variously colored, were found to be irregularly scattered through the grey and white substance. Areas of softening, about the size of a pin's head, were seen in the grey substance at the superior thoracic region. In all these places where the colour of the tissue was modified, there was an abundance of fatty granulations.

Westphal proposes to give to the alterations of the cord which he found in his cases, the name of *dissociated myelitis*.

J. LOCKHART CLARKE, M.D.

CHAPMAN'S RESEARCHES ON PERICARDITIS.—Dr. S. H. Chapman (*American Journal of the Medical Sciences*, Oct. 1872) undertook these experimental researches on the nature of the pericardiac process chiefly to support the view of Virchow (as opposed to that of Celsus) that its inflammation the circulation is not the only source of pus-cells, but that 'all living cells can change by division into pus-cells.'

The experiments were performed on catarrhal dogs and leads, the pericardium being opened and heat caustic applied to its surface. The results ob-

ained were briefly these. 1. Application of the caustic "for several seconds" produced, after forty-eight hours, enormous distension of the pericardium with lymph; pus in abundance; great infiltration of the connective tissue with pus; and great "distention of the heart-substance." 2. When a slighter degree of pericarditis was induced by less severe irritation the appearances found were chiefly—abundant lymph-exudation, adhesions both to the heart and to the pleura, and extension of the process to the heart, with the results already known to take place in inflammation of the heart-substance." 3. The description of the microscopic appearances is almost confined to the changes in the endothelium (epithelium) of the parietal and visceral layers of the pericardium. In each case Dr. Chapman first observed swelling of the individual cells, proliferation of their nuclei, and uncoiled movements of the cells themselves, resulting in the production of cells of the most various kinds. The external cells became elongated and spindle-shaped, while the internal increased rapidly in number and assumed extremely various shapes and very various sizes. Finally, the spindle-shaped cells of the external surface united with each other, arranged themselves into rows, and then formed "a compact new membrane." The process upon the internal surface was somewhat different; each cell threw out delicate filaments whose directions accommodated themselves to the situation of the cells, so as to unite with like filaments from neighbouring cells, and thus to form a new network of fibres and a new connective tissue. The author describes in a few words the changes undergone by the connective tissue of the pericardium; "the connective-tissue cells elongated and their nuclei divided." The vessels of the part became more distinct, and their nuclei enlarged and divided. The condition of the blood-vessels was not studied.

J. M. BRUCE, M.D.

MEDICINE.

WALDEYER, KRINER, &c. ON DISEASE OF THE BONES, AND CONSEQUENT FEMIDO-PARALYSIS, IN SUBJECTS OF HEREDITARY SYPHILIS.—Within the last year or two, more attention has been paid than at any previous time to a special form of osseous disease, believed to depend upon hereditary syphilis. In the current text-books upon syphilis the lesion is not alluded to; for this reason, and also because the most important writings upon the subject are the recent, a summary of our knowledge may well find a place here. The following is a list of the papers which have appeared on this subject:—

Waldayer and Kriner.—'Contributions to the Knowledge of Hereditary Syphilis of the Bones.' (*Vierteljahrsschrift für die Anatomie und Physiologie*, vol. ix. p. 370, 1872.)

Parrot.—'On Pseudo-paralysis due to a Lesion of the Osseous System, in New-born Children attacked by Hereditary Syphilis.' (*Archives de Physiologie*, tom. 3, 4, 5, 1872.)

Wagner.—'On Hereditary Syphilis of the Bones in Young Children.' (*Vierteljahrsschrift für die Anatomie und Physiologie*, vol. L p. 305, 1872.)

Gabriel.—'Separation Ossis of the Diaphyseal Ends of the Bones, with Separation of the Epiphyseal Cartilages, in a New-born Child.' (*Gazette des Hôpitaux*, Feb. 9, 1859.)

Sarvier.—'Congenital Syphilis: Syphilitic Peri-

ostitis: Osses of Liver; and Decapitation of the Epiphyses.' (*Gazette Médicale de Paris*, 1864, p. 338.)

Vallet.—'Case of Decapitation of the Epiphyses of several Long Bones, associated with Abscesses beneath the Periosteum, and a Remarkable Production of Bone, in a New-born Child; with Remarks.' (*Bulletin de la Société Anatomique de Paris*, tome ix. p. 496, 1854.)

In addition, there is a case by Bargerol² in *Le Spécimeniste* for July, 1854. [Not seen by the reporter.]

To Wagner is undoubtedly due the credit of having shown that osseous lesions in hereditary syphilis, far from being uncommon, are very common, if not constant. Wagner's researches refer chiefly to the morbid anatomy of osseous syphilis; but Parrot has pointed out the symptoms by which the lesion may be sometimes recognized during life. Vallet, Bargerol, Sarvier, and Gabriel published only single cases of what they believed to be a very unusual condition. Vallet's case, now nearly forty years old, seems to be the first on record; it is well narrated, and an abstract of its leading particulars will serve as a good introduction to our topic.

The child, a girl, seemed to be in perfect health until the tenth day after birth, when it was noted that she could not move the left arm; in fact, that it was painful when moved; and yet, otherwise, the arm seemed natural. This arm impressed a little; but, on the twenty-first day, an abscess was found around the lower end of the right radius. Next day, an abscess appeared about the left shoulder, and the next day (the twenty-third) the child died, without having manifested so far as we can gather from Vallet's notes any other more definite symptoms of hereditary syphilis. The appearances *post mortem* were,—complete separation of the epiphyses of the humerus and radius; stripping of the periosteum from more or less of the shaft of the bone; and formation of a soft, spongy, bony ring at the spot where the separation of the periosteum ceased. The corresponding joints were unaffected. Precisely similar conditions were found at the upper and lower ends of the right tibia, and at the upper end of the left tibia; namely separation of the epiphyses, vascularity, &c.; and this in spite of both legs seeming to be perfectly natural, so far as could be judged from the outside. The lower epiphysis of the left tibia was not actually separated, but could be torn off the shaft very easily. There was an abscess in front of the sacrum, communicating with the lumbo-sacral and sacro-iliac articulations (the cartilages of which were extremely destroyed); and the left epiphyseal substance of the first bone of the sacrum was separated. One testicle was severed from its highest epiphysis, and bathed in pus. At the end of the case, Vallet gives his opinion that the abscesses were probably due to disease of the bones, dependent upon the syphilitic disease. His remarks, for the most part, refer to the osteo-epiphyseal growths.

In Gabriel's case, the immobility of the four limbs was so great that he suspected a lesion of the cervical portion of the spinal cord. The separation of the epiphyses of the tibia, which was present, he attributed to violent traction upon the legs during birth. But after death the nervous centres were found to be quite natural; and Gabriel quite lately has declared himself to be convinced that the child was syphilitic.

Parrot thus sums up the chief characters of this form of disease. The state of the limbs in these

patients is like that due to fracture, and still more like that due to acute articular rheumatism. There is more or less complete immobility, sometimes not fully ascertained, sometimes absolute. When there is no pain the limb looks as if it were dislocated, but when pain is present it is not always possible to manipulate the limb so as to make the flexibility manifest. The arms commonly lie alongside the trunk, and are protracted. The legs likewise are stretched out straight (which is not the natural condition in an infant), and when the child is raised they hang loose, and sway from side to side. The number of limbs affected differs; sometimes all four are motionless. Occasionally a joint is bent and stiff; when this is so, it is due to an abscess in the neighborhood. These abscesses are often very large and painful. Occasionally a cyst can be produced between the shaft of the bone and the epiphysis. *Foot nerves*, the nervous and muscular systems are found natural. The false paralysis is satisfactorily explained by the condition of the bones, being due partly to the separation of the epiphyses, partly to the concomitant pain. And lastly, the children presenting this form of disease are the subjects of hereditary syphilis.

Wagner, Parrot, Wilderoy and Köhner, all agree that in dead syphilitic infants, whether still-born or not, the osseous lesions are always present, and are, moreover, in most cases, manifested to the naked eye. In non-syphilitic infants, on the other hand, the lesions are never present. Not only are these lesions pathognomonic of syphilis *post mortem*, but occasionally in living children they are the only evidence of syphilis, as was well seen in a case of Köhner's. The changes, no-doubt, begin *in utero*, and they are said by Waldteufel and Köhner to be independent of any specific treatment of the parents. It is obvious that in miscarried and still-born children which are free (as they often are) from characteristic visceral lesions, an examination of the bones may throw great light upon the condition of the children's parents. Köhner asserts that these special bone-changes do not occur in acquired infectious syphilis; such, for instance, as that dependent upon syphilitic vaccination. Under these circumstances, the ossification processes are natural. Whether the lesions are present in hereditary syphilis of later development, is uncertain.

According to Wagner, there is no proportion as to severity of respective lesions between osseous and cutaneous or visceral syphilis.

The disease is never confined to a single bone; in most cases many long bones are involved. The order of frequency with which the lesions are found in the several bones is said by Parrot to be as follows: femur (the most frequent), humerus, tibia, ulna, radius, fibula, ribs; the os ilii is more often diseased than the scapula; and lastly come the clavicle, or calcia, astragalus, metatarsals, and metacarpal-bones. The bones of the head are sometimes attacked.

Before proceeding to explain what these syphilitic changes are, it may be well to define certain terms which will be employed. The zone of epiphyseal cartilage which is preparing for ossification, and which is consequently next to the end of the shaft (or diaphysis) of the bone, will be called the 'chondroid' layer (Broca). Between the chondroid zone and the cancellous head of the diaphysis already ossified comes a very narrow zone in which the ossification is going on; this is named, by Parrot, the 'chondrocalcaneous' layer.

The primitive causes of these syphilitic bones

less clearly than natural, especially towards the ends of the shaft. It is redder and thicker than natural; and sometimes tears away little calcareous specks. The shaft, at the corresponding parts, is swollen, misshapen, ragged, and has lost the natural colour and consistency of its exterior; it is very friable. These changes are due to a newly formed superficial calcareous layer (osteophyte), which is thicker towards the ends of the diaphysis than at the middle. The osteophyte is of a more opaque white than the rest of the bone; in fact, quite chalky in appearance. The thickness of the new layer may be oval inch or its thickest parts. It is not uniform, and may be absent here and there.

The chondroid layer is much thicker than natural—doubled or even quadrupled; its transparency and softness are very marked.

The changes in the chondrocalcaneous layer are quite characteristic. In a healthy bone it is very thin, hardly visible to the naked eye, not more than one or two inch thick. It is remarkably smooth and level on both surfaces, so as to appear, in a longitudinal section of the bone, like a very narrow even line, straight or gently curved. Now in syphilitic bones this layer is much thickened, even to oval inch. It becomes very uneven on both surfaces, and is seen, in a longitudinal section, to be undulating, rippled, even domed with both bone and cartilage by pointed elevations. Moreover, the friability of this layer is increased; and the adhesion between the epiphysis and shaft of the bone is hereby much loosened.

The adjoining cancellous bone is almost always altered in colour for a depth of $\frac{1}{8}$ to $\frac{1}{4}$ inch from the chondrocalcaneous layer, being marked with patches, some grayish with spots of a rose colour, some whitish, and some chamois yellow.

These lesions are followed, after a time, by others more severe, which may be described as being, in short, destruction of the bony tissue. The cancellous structure is attacked first, and afterwards, even the compact layer. These morbid conditions are of two kinds. One is called by Parrot 'granular softening,' and consists of a very soft material, somewhat transparent, amber yellow or brownish red. The bone is replaced by this new formation; and so, when it dries by exposure to the air, a cavity is left. The second condition consists in an inflammation of the cancellous structure with osseous tissue or less puriform; the lamellae of the bone become thinner and finally disappear. Hence arise cavities of different sizes containing this pus-like matter. The progress of these lesions ensures separation of the epiphysis; the rupture takes place in the shaft, close to the chondrocalcaneous layer, which for the most part remains adherent to the epiphysis. And lastly, the fracture is often followed by suppuration around the affected part. The joint is not involved.

These naked-eye characters are taken from Parrot. As for the microscopical appearances, the increased thickness of the chondroid layer is due to an increased multiplication of the cartilage-cells, and a corresponding diminution of intercellular substance; hence the osseous softness and transparency. The cells lose their normal characters, and, according to Waldteufel and Köhner, approach in shape and size small round granular-cells—such cells as are present in syphilitic gummatas.

In the chondrocalcaneous zone, the larger epithelial cells of health (osteoblasts of Copenhaug and Wilderoy) are replaced, more or less, by small

granulation-cells which lie close upon the bone, or by spindle-shaped elements (Waldayer and Köhner).

The gelatinous material is composed of bands of fibrous tissue, which enclose irregular spaces containing vessels, and cells and nuclei (like those of marrow), buried in a mass of albuminous and fatty granules. Towards the centre the connective tissue bands tend to break up, the nucleoli increase, the nuclei are seen only here and there (Farrar).

The puriform material has the character of an 'indifferent' granulation-tissue, similar to that of granoma. The natural lymphoid and myeloid cells of the cancellous spaces are replaced by small angular or spindle-shaped, but rounded elements, which hang together and are not easily parted; these constitute the puriform masses. Yet, even in the severest cases, true pus is not found; the syphilitic formations are always vascular, and the cells are held together by offshoots. Like granoma, these masses have a great disposition to necrobiosis in spite of their vascularity (Waldayer & Köhner).

To conclude: with regard to the nature of these changes, Wegner doubts that they indicate a specific osteochondritis; Farrar designates the lesion syphilitic dystrophy; Waldayer and Köhner considers that the process is precisely the same as that which leads to the formation of the common ganary tumour, a syphilitic granulation.

[The reporter need hardly refer to the resemblance between this syphilitic disease of bone and rickets, in some respects. He has not yet seen a paper upon this topic, read by Farrar before the Société de Biologie, on June 1, 1874. Farrar believes that the two forms of osseous lesion (syphilitic and rheumatic) are sometimes confounded.] SAMUEL GEE, M.D.

STROKE ON REMOVAL OF GROWTHS FROM THE LARYNX, ETC.—Dr. Karl Stöck has recently published an interesting pamphlet (*Laryngoskopische Operationen*, p. 28, Vienna, 1874), in which he describes an improvement in his laryngeal galletoine, makes some valuable practical remarks on the preparation of different kinds of caustic-holders, and discusses the relative values of various caustics. Dr. Stöck, who has given great attention to the subject of galletoines, and done much to render their effective and, at the same time, as slight and unobtrusive as possible, has now made a still further improvement by entirely removing the covering or shield of the galletoine. The instrument now consists of two blades; one of these is an oval ring with an outer blunt and an inner cutting edge, the other is a triangle, or rather a section of an oval, corresponding to about one-eighth of the shoulder of the oval blade, and having also an inner cutting edge. Instead of the ring of the galletoine being pulled through its containing sheath, as in the ordinary instruments, the cutting action is effected by the simple withdrawal of the oval ring against the shoulder of the other (triangular) blade, which is a fixed point. In other words, the action is like that of scissors; but, instead of two blades of equal size and shape being used, one blade is a galletoine-like ring, the other the shoulder of a similar ring. By thus getting rid of the sheath of the galletoine, the instrument can be brought into more immediate contact with the origin of a growth, and a small excrescence can be more completely removed.

For the application of strata of silver to the general surface of the larynx, Stöck recommends the powdered salt in preference to solution. The in-

strument used for this purpose is a curved hollow rod, provided with a piece of elastic tubing. The exact quantity of the powder required to be used having been put into the tube, the operator brings the point of the instrument exactly to the spot desired to be cauterized, and with his own mouth gently blows the powder in the requisite direction. In this way, after considerable practice, the caustic can be blown exactly on to one vocal cord. The best vehicles for the mixture of silver are gum arabic, sugar of milk, and calcined magnesia; common sugar is the worst. The preparation must be made fresh, as it rapidly spoils. It is very important to observe that, if equal parts of mixture of silver and the vehicle be used, a more intense cauterization takes place than if the caustic is touched with the solid caustic. For gentle cauterization, 20 to 30 grains of the caustic may be used with 60 grains of the vehicle. The solid mixture of silver, however, renders the best service, because its action can be most precisely localized. The salt should be fixed on to the convexity of a properly curved silver (or aluminium) sound. If both vocal cords have to be cauterized, the sound may be coated entirely in this way; but if it be desired to touch the right vocal cord for example, only the right side of the sound should be covered with mixture of silver, and the left side, while the sound is still hot, should be coated with a mixture of salt, deer, and water. When the *perforator* is introduced into the larynx in the case which we have supposed, the vocal cords approximate. The right cord is cauterized, and the left is covered with a little salt. A few moments later, when the *perforator* is withdrawn, if any caustic pass over to the healthy side, it is at once neutralized and converted into an insoluble non-caustic chloride of silver. Dr. Stöck also uses caustic potash, Vienna paste, and chromic acid for excruciations. In employing the first agent, the neighbouring and opposite parts are apt to be injured by the escharotic. This inconvenience may be prevented by coating the instrument with lard. The sound, instead of being flat, should have a deep trough-like extremity, and the potash should be fixed into it, only a very small projecting portion being left. The Vienna paste has about half the strength of the caustic potash. Chromic acid is applied by Stöck in the crystalline form. To produce the same effect, it has to be kept longer in the larynx than caustic potash, and patients complain very much of its disagreeable taste, which lasts long after its application. Both it and caustic potash are troublesome, on account of their rapid disappearance.

The pamphlet contains seventeen cases of polypus of the larynx, all of which were removed or destroyed except in one instance, in which the patient refused treatment and was suffocated. One of the cases was considered to be an example of hamorrhagic polypus and it was seen by the late Dr. Oppelner, who at once and without the laryngoscope diagnosed the disease to be strabotoid in the larynx. With the mirror, a large polypus was seen, in which a broad thick-black vein existed.

In another case, the growth was an inch and a half long, and as thick as the little finger. It was of fibrous structure and grew from both arytenoid cartilages. In a third case, one excrescence was situated in the left arytenoid cartilage, and another immediately in front of it. They proved to be *echinoderms* (Virchow). Both growths were removed, but the voice was not restored, owing, it was sup-

posed, to atrophy of the left thyro-arytenoid muscles, or immobility of the arytenoid cartilages.

[In judging of this paper by Dr. Steuk, it should be borne in mind that he applies remedies to the larynx in a different manner from most laryngoscopists. Instead of allowing 'the eye to direct the hand,' he, after introducing the remedy or instrument to the desired spot, removes the mirror, and waits for contact to be produced by the approximation of the vocal cords. It is in this account that his directions for protecting one side of the cæcæic holder become necessary. Probably it is for the same reason that he prefers gallicates and sends to Europe; the latter instruments he thinks cause more irritation, and if not guided by the laryngal image they would undoubtedly be open to this objection.]

MORRILL MACKENZIE, M.D.

CLINICAL REPORT ON HÆMANTHOPIRINUS PYELO-NEPHRITIS.—Auguste Olivier (*Archives de Physiologie Normale et Pathologique*, Jan., 1875) records a remarkable case, under the above designation. A man aged 71 had, without apparent cause, incessant hæmaturia for six years. There had been no lumbar pain, no passage of sand or gravel, no signs of vesical calculus. The urine always contained small blackish clots and fluid blood, which soon formed a sediment. He died of bronchitis. The left kidney was healthy. The right formed a tumour with a lobulated surface; some lobes felt hard, others soft, others elastic and fluctuating. The fibrous capsule was thickened, and unusually adherent to the surface beneath. The substance of the kidney, on section, was found converted into a series of pouches of various sizes; these were filled with fibrous coagula, the relative ages of which could be determined by their varying shades of colour, the older clots being gray or rose-coloured, while the more recent were red or black; a clot extended from the pelvis into the ureter. After removal of the clots by a stream of water, the kidney formed a cavity, divided into cells by the thickened septa which correspond with the divisions between the original lobes of the kidneys. The cells were divided from each other, but all opened into the dilated pelvis of the kidney. A very thin layer of glandular tissue was spread over the surface of the septa. The renal artery was atheromatous, and at its bifurcation, external to the kidney, had an aneurism of the size of a filbert. The smaller branches in the substance of the kidney presented here and there aneurismal swellings, giving them a racemiform outline. It is supposed, but not actually demonstrated, that the persistent hæmorrhage was a result of rupture of minute aneurismal arteries, and that the blood, partly coagulating in the pelvis, caused distension of the calyces and subsequently of the entire kidney, with resulting atrophy of the separating tissue from compression.— GEORGE JOHNSON, M.D.

RECENT PAPERS.

Pneumia. By Andrew S. Mearns, M.D. (*Philadelphia Medical Times*.)
Functional Therapeutics of Physical Medicine. By Dr. Dally. (*Quincy Medical & Surg.*, Jan. 4.)
Treatment of Mucoviscid and Scirrhus Tumour by Hypocyanic. By Dr. Gullison. (*Quincy Medical & Surg.*, Jan. 11.)
The Anæmia of Locomotor Ataxia. By St. Charcot. (*Mémoires Médical*, 18, 19, 24, 28, 37, 38, 39, 44, 45, 1874; Jan. 4, of 1875.) An important series of lectures by Dr. Charcot, reported by Dr. Bourneville, of which we shall shortly give an account.

SURGERY.

CRIMES ON RE-CURRANCE OF CONSTITUTIONAL SYPHILIS BY RE-INFECTION.—Dr. H. Krehl, (*Archiv für Klinische Medicin*, Nov. 11, 1874), contains at some length the opinions of Sigmond, and other eminent authorities, that syphilis once introduced into the body cannot be inoculated on the same person a second time. He refers to the analogy of undoubted repetition of small-pox, scarlet fever, &c., in the same individual. To support his proposition, the author quotes forty-five cases of recurrence of syphilis through re-infection; thirty-seven of other observers, and eight of his own. But in none of the cases carried is the evidence quite beyond dispute. The author, to establish evidence of second or repeated infection, is satisfied with a hard sore of the genitals and indolent enlargement of the neighbouring lymphatic glands. It is true that, in twenty-three of his cited cases, syphilitic eruptions of the skin took place, but we are not also informed whether in these cases the hard sore and gland-affection had been present also. One case touches upon a point of extreme interest, namely, the possibility of a person who has suffered from inherited syphilis in childhood being capable of contracting syphilis in the ordinary manner in after life. The author quotes Marchal (*Ann. Anat. Pathol.*, 35, 1865), who records of a girl, eighteen years old, having perforation of hard and soft palate with rough classical borders, pronouncedly the effect of inherited syphilis in infancy, who had, a few months after marriage with a man suffering from syphilitic skin-eruptions, inherited ulcer of the valve, maculopapular syphilitic, and affection of the lymphatic glands generally. On the whole, the evidence adduced by the author is far less satisfactory than the cases recorded by Hutchinson, Rodet, Hardie, and others, some of which are mentioned in this paper, but which establish so sufficiently clear grounds, in a very rare clinical phenomenon, the recurrence of syphilis by a second inoculation in the same person.

BREKIDLEY HILL.

DEATH FROM THE USE OF THE ASPIRATOR IN CHRONIC EFFUSION INTO THE KNEE-JOINT.—In an article translated in the *British Hospital Gazette* for Jan. 1, Dr. Valdemar Hasselmann, in some observations on the use of the aspirator, says: 'In arthritis of the knee, both chronic, which does not yield to ordinary treatment, and acute, which causes violent pain from the great distension, aspiration is also an useful remedy.' In the same journal for Jan. 15, Robert McDonnell records the case of a man who had no other ailment than that of chronic effusion into the knee-joint. With the aspirator, as much clear glairy synovia as twice filled the syringe was withdrawn, and the patient was carried back to bed. Severe pain, rigors, and suppurative arthritis set in, and the patient was dead within a week. Dr. McDonnell adds: 'I have never met within my practice any case which made a sadder or more profound impression on me.'

COLLAR ON TORSON AS A MEANS OF ARRESTING HÆMORRHAGE.—Dr. W. Colles (*British Hospital Gazette*, Jan. 15), writes: 'I would throw out a suggestion that even in the continuity of the artery we might adopt a modification of this treatment. Thus, after laying bare the artery, we might catch it transversely in a narrow forceps, and press it so as to divide the

inner layers, and then push them away from the outer coat upwards and also downwards, leaving the outer coat *in situ*, and to contract. I throw out the suggestion, hoping it may be made the means of inducing others to pursue the investigation of this subject. As the result of my observations, I have no hesitation in proposing the torsion of arteries as the safest and simplest means of arresting bleeding in wounds, merely recommending that the artery should be as free and isolated from surrounding tissues as possible, and that the surgeon should hold the parts in the point of the forceps, so as to cause the twisting to commence at the forceps, and from this gradually extend upwards along the vessel. For the last six or seven years, in St. Vincent's Hospital, my colleagues and I have seldom resorted to any other means of arresting hemorrhage, even from the largest vessels, and we have never had any reason to regret the adoption of the practice.

PERMANENT DESTRUCTION OF EXPOSED DENTAL PULP.—Dr. G. Coles (*Transactions of the Otolaryngological Society of Great Britain*, vol. v. 1872, No. 2), calls attention to *peptine ferri*, a new agent for the destruction of exposed dental pulp, which had in his hands proved very successful. Its application was attended with no pain. It might be left in contact with the dental pulp for a week with perfect safety; but he found, by experience, three days commonly sufficient to effect the object in view. In this respect its application was much safer than that of arsenic. It acts only upon the dead portions of the nerve. He mixed some of the powdered peptine into a paste with dilute hydrochloric acid, &c. with the dilute hydrochloric acid of the *Pharmacopœia*, diluted with one hundred parts of water. This he left in contact with the pulp, and covered over with wax, for three days. Upon removing it, he washed out the cavity well with warm water, and washed it with carbolic acid dissolved in glycerin. He then capped the pulp, filling the cavity temporarily for some months; after which it was filled permanently.

RECENT PAPERS.

Glaucous Abscess of the Neck and Ulceration of a Jugular Vein; Conservative Hemorrhoid; Death. By M. Martin. (*Société Anatomique*, Dec. 28. *Mémoires Méd.*, Jan. 15. A case with reference to an article in *Revue de Médecine*, 1872.)

Surgical Treatment of Otorrhœa. M. Rouze, of the Société de Médecine de la Seine Française (*Ann. Médical*, Jan. 2) has endeavored to prove that this always depends upon lesion of the bones of the nasal cavity. Hence the indispensability of ordinary therapeutic means, and the spontaneous cure accompanied by resolution of torpors. His operation avoids deformity. He divides the mucous membrane in the glaucous initial fissure from the left to the right nostril, dividing the lamina near its root; cuts down upon the anterior nasal spine; detaches by the lamina the cartilaginous septum; and if necessary divides with the scissors the nasal cartilage at their mucous attachment, and divides their septum. The nostrils are then beamed upwards. He then works for the removal of various portions of bone, removes them, and applies nitrate of silver to the mucous membrane. The parts are thoroughly cleaned and explained. Recovery by first intention has always followed. Recovery has been immediate, and the results quite successful in the seven cases on which he has operated. (*Mémoires Méd. de la Société Française*, Nov. 1872.)

Strangulated Hernia treated by Aspiration. By M. L. E. Dupuy. (*Mémoires Médical*, Dec. 2.)

New Means of Detaching Concretions Adherent to the Bladder. By Dr. Billroth. (*Annale des Chirurges*, Jan. 11, 1873.)

Surgical Applications of Electricity. By M. Tsigar. (*Mémoires Médical*, Jan. 2, of 1873.)

MATERIA MEDICA AND THERAPEUTICS.

SIBBERT AND QUHIL ON THE ACTION OF APOEMORPHIA.—Since the emetic properties of this drug were first pointed out by Dr. Gees (*Chirurg. Society's Trans.*, 1863, p. 166) it has become the subject of several investigations in Germany and Russia. One of the most important of these is one made by V. Sibbert, under the direction of the accomplished pharmacologist, Professor von Schenckeburg, who was then in Dorpat, but has since become one of the ornaments of the newly founded German University of Strassburg (*Unterforschung über die physiologischen Wirkungen des Apomorphins*; Dorpat). He noticed the same general symptoms as those described by Gees, both in man and animals, after the administration of apomorphia. One of the most remarkable of these is a kind of nystagmic movement observed in dogs. The dose required to produce vomiting in man when injected subcutaneously, he found, like Gees, to be about $\frac{1}{2}$ grain. A grain and a half given by the mouth produced only nausea. When nausea begins the pulse becomes quicker, and reaches its maximum when the nausea is worst. It sinks under the normal in the intervals between the vomitings, and remains so for three or four hours after the last attempt. During all the time the blood-pressure is but little altered. After the acceleration of the pulse begins, the respirations also become quick and irregular, but no coincidence could be noticed between the acceleration of the pulse and respiration. Shortly before each attempt to vomit, the rapidity and irregularity of the respirations are at their maximum; a few deep respiratory movements alternating with shallow and hardly perceptible ones. After the vomiting has ceased the number of respirations, like that of the pulse, falls below the normal. Apomorphia has little action on the temperature of the body, but probably lessens the production of heat. Division of the vagi does not completely prevent the emetic action of apomorphia. In this it differs from veratrin, which has been shown by Professor Henric Wood of Philadelphia (*Amer. Jour. of Med. Science*, July 1870) to produce no vomiting after division of the vagi. Sibbert sacrifices a considerable part in the act of vomiting to the vomitings. Max Quhil (*Ueber die Apomorphinische Wirkung des Apomorphins*; Halle, 1872), under the direction of Professor Köhler, has also examined the action of apomorphia with particular reference to the dose required. The dose for subcutaneous injection is 0.005-0.02 gram.; by the mouth, 0.2-0.6 gram.; by the rectum, 0.5-2.0 gram. It had no effect on a bitch when used as a purgative, nor when rubbed as an ointment into the inside of the thigh. Lung-contained use of the drug produced no tolerance, one did it injure the health, one dog having actually gained $\frac{1}{4}$ lb. in five weeks, although it had been made to vomit at least once every day by the administration of apomorphia. A most interesting observation is, that apomorphia only produced vomiting when small doses (0.005-1 gram.) were injected subcutaneously. Larger doses (2 gram. or more) caused no vomiting, but produced staggering, weakness of the hind legs, occasional dilatation of the pupil, great salivation, nystagmic movements, during which the animals uttered loud howls. They avoided objects in their way, and, after a while, sank exhausted to the ground, where they

stretched themselves and executed rotatory movements such as are seen in animals poisoned by picrotoxin. After large doses (107-1084 grs.) the animals lost their appetite, and remained alone for two or three days after the nastic movements had ceased, in a depressed and sleepy state. In four days at most, however, they recovered completely from 0.4 grs., so that little is to be feared from the administration of an overdose of the drug. On post-mortem examination of animals which had been killed by large doses, of apomorphia, no pathological appearances could be observed either in the abdominal or thoracic viscera, nor yet in the brain, with the exception of one case, in which a perfectly circumscribed congestion of the middle parts of the base of the brain, and especially of those adjoining the pons, was observed. In reference to the action of apomorphia on the nervous system, Quéf' did not find it affect either sensory or motor nerves. Division of the vagi prevented vomiting in every case. In this particular his results differ from Sieber's and agree with Wood's experiments on veratris. Narcosis by chloroform also prevented vomiting. Apomorphia has no action on the blood-pressure. It has no influence upon the rise of pressure which takes place when a sensory nerve is irritated. It has no action on the muscles, either voluntary or involuntary. Regel and Böhm (*Abhandl. f. d. Anst. Med. in. 211*), like Quéf, found that apomorphia had no action on the bowels. The apomorphia which they obtained from Macfarlane and Co., North Bridge, Edinburgh, was much more active than the German preparation obtained from Merck. The latter also caused more sleepiness, and the symptoms which preceded and followed the vomiting lasted longer than when the English preparation was employed. Blaser (*Arch. f. Anat. u. 171*) finds that the simple syrup is the best solvent for apomorphia for subcutaneous injection. He thinks that solutions which have become green have lost their activity, but this Kolber (*Schmidt's Jahrb. civ. p. 101*) denies.

T. LAURIE DIXON, M.D.

OBSTETRICS AND GYNÆCOLOGY.

SIMON ON THE MANUAL RECTAL PALPATION OF THE PELVIS AND ABDOMINAL ORGANS.—Dr. CAROL SIMON [in *Göteborg's Aftenskrif. Kåsk. N:o. 26*, 1872, as also in *Arch. für Klin. Chir.* vol. xii.] describes his method of exploring the pelvis. The patient is placed on the back, either in the lithotomy or ordinary obstetric position; chloroform to complete insensibility is given; and then first two, and subsequently three and four fingers, are passed gradually in by a rotatory movement. Bimanual manipulation is employed, the other hand being pressed over the abdomen. Tearing of the sphincter seldom occurs if care be taken, and the operator's hand be not too large; some temporary, but no permanent inconvenience may follow.

The examination is useful for all cases of disease of the pelvic organs, especially the uterus, ovaries, and broad ligaments, and of the bladder (in men) as also for tumors in the lower half of the abdomen. In midwifery, it is likely to prove very useful. The first cases examined were: vaginal leucæ, cancer, ovarian tumor, and fibro-myoma of the uterus. No inconvenience whatever ensued, the explorations being repeated three to five times.

NOTE ON CONSTIPATION IN CHILDREN.—Dr. Alois MASI (in the *Wien. Med. Presse*, viii. 25-28, 1871) contributes an exhaustive paper on this subject. He thinks it due to the defective development of the muscular tissue of the intestines, and to the peculiar form of nourishment at this period. He names up the various causes:—1. Mechanical impediments, as in congenital deformity, imperforate anus, invagination, hernia, &c.; 2. Defective nourishment, as from congenital defects of the lip and throat, too little secretion of milk, &c.; 3. Faulty nourishment, as from excess of cases or defect of fatty matters in the milk, bringing up by hard, starchy food, &c.; 4. Deficiency or diminution of the peristaltic movements of the intestines, atrophy, &c.; 5. Diminution of the intestinal secretion, as in long-continued diseases in consequence of anemia. Constipation is further a symptom of diseases of the head and spinal cord; also a consequence of deficiency of drinks, of the use of astringents, presence of ascariæ, fruit stones, &c.; and, in older children, it arises in consequence of deficient bodily exercise. The cause suggests the remedy—cod-liver oil and extracts of cold water, mineral waters, &c.

SCHLEINGER ON REFLEX MOVEMENTS OF THE UTERUS.—Dr. Schleinger (in *Stricker's Medicinische Jahrbücher*, 1873, vol. 1) recounts some interesting experiments, undertaken with the view of ascertaining whether uterine movements may be induced by the reflex excitation of the centre. His conclusions seem to prove that they may be. 1. Electrical irritation of the central end of a spinal nerve induces general and energetic uterine movements in five to fifteen seconds; so does irritation of every nerve containing sensory fibres—in the vagus. This is explained the so-called mammary sympathy. 2. There is no reflex connection in the spinal cord between sensory nerves and uterine motor nerves. The centre must, therefore, be in the encephalon only. 3. The tract which the motor impulse traverses to reach the uterus is not the vagus or the sympathetic, but (for some distance) the spinal cord; and in regard to the abdominal and pelvic nerves, the aortic plexus is a powerful, but not the sole conducting nerve to the uterus, some of the sacral nerves probably sharing in this function.

ROTHMUND ON THE TREATMENT OF FURUNCLE AND FURUNCLE BY CARBOLIC ACID.—Dr. Rothmund (*Königl. Anstaltsgesellsch.* 35, 1872) states that the internal administration of carbolic acid in purulent excels every other method. He has tried also the hypodermic injection of it with marked success, there being no local irritation produced as one would expect beforehand. Solutions of pure carbolic acid seem to be more efficacious than those of carbolic acid of soda.

ARTHUR W. ERSS.

RECENT PAPERS.

Clinical Lectures on Proctitis of the Womb. By W. H. COOKE, M.D. [*Philadelphia Medical Journal*, Nov. and Dec. 1873.]

Personal Examinations of Statistical Research. By ELLIOTT F. HARRIS, M.D. [Notes on Errors in the published Reports of Mortality from Cancerous Operations.—*Id.*]

A Study of the Chronic Diseases of Prostatic Origin. By Dr. AUGUST OHLIVIER. [Lectures delivered at Strasbourg, Jan. 1873.]

Multiple Mirth; Abnormal Presentations. By M. VINGIER. [*Gazette des Hôpitaux*, Jan. 20, 1874.] Ten pregnancies; presentations mostly abnormal (but not twisted), maintained in presence of a basket carried on the left side of the abdomen.

PUBLIC MEDICINE AND EPIDEMIOLOGY.

PETENOLGIES ON THE DIFFUSION OF CHOLERA IN INDIA (*Continued from p. 29*).—In the fourth section, the question of the influence of Human intercourse on the Diffusion of Cholera in India is discussed, the conclusion being that this influence is very slight. "It cannot be contended that the behaviour of cholera in India agrees much more with the miasmatic than with the contagionist view." "The natives never run away from cholera patients, but only from cholera localities; say, man . . . they take along with them from the choleraic locality those sick and dying from the disease." Dr. Murray's description of the outbreak of cholera among the Herbaric pilgrims in 1857 is discussed at length; and it is concluded "that persons leaving an infected place, as the result of infection which had already taken place in that locality, seldom on the way or on the march, and that such intercourse can possibly contribute to the spread of cholera in such districts and localities as furnish the local and seasonal predisposition for it, but that in others it cannot do so." Anecdotes upon cholera patients do not connect cholera with the place or building have become infecting, in which case the locality should be abandoned. Finally, Bryden's remarks on the contrast which exists between the course of a contagious fever like jail typhus, the mortality from which gradually rises to a maximum and then as gradually declines, and that of cholera, the mortality from which attains its maximum in the first few days and then gradually declines, are quoted with approval. After this, it is not surprising that in the next section our author professes very little belief in the efficacy of quarantine regulations. Disinfection is hardly discussed at all; latrines are not looked upon as affording any special facilities for the communication of the disease, and drinking water (in which the eighth section is devoted) is considered to have very little influence, and certainly not to be a necessary factor in its spread; of one of the best established cases it is said that it "conveys absolutely no proof at all to those who do not already believe in the influence of drinking water." It is urged that, even were it shown that the use of a particular drinking water was necessary to cause the spread of a cholera epidemic, we should still require to know "why the drinking water only acquired this property in certain places and at certain times." The case of the Broad Street Pump is even depicted as affording evidence in favour of Snow's theory; for, from the rapid decrease in the number of cases, Pettenkofer concludes "that the cholera would have ceased, even had the well not been closed by the police on the 8th of September."

The length of the period of incubation is briefly discussed, instances being given of bodies of troops who were exposed for one day in an infected locality, and among whom the disease afterwards appeared; it would seem that a period of three days is about the minimum time of incubation.

Change of locality then passes under review. This has always been resorted to, though with very variable results, "for it is possible to pass from better to worse in such changes of locality." However, there are the most unequivocal instances to show that, when cholera breaks out in a place, all who can should go away, and that the most beneficial re-

sults have frequently been obtained by this plan. Although they take cholera away with them, and although fresh cases occur during the next few days, the disease will not spread unless the locality to which it is taken be a suitable one.

With regard to the duration of cholera in troops on the march, Bryden has shown that for the native regiments "the minimum duration is nine days, the maximum twenty-two, and the mean thirteen; an entirely similar space of time to that given by our investigations on the average duration of deaths in the individual houses of an epidemically affected locality, or in house epidemics;" by the "duration of cholera" is here meant the time during which fatal cases occurred, reckoning from the first case.

In the section on "Cholera on board Ships," Pettenkofer maintains that "a ship can as little ever undertake the part of the soil in the cholera-process as the human beings in it; cholera on board ships is always conditioned by, and dependent on, antecedent processes on shore."

Bryden's description of the outbreak of cholera on board the *Arrow*, which left Gibraltar on August 21, 1862, cholera having appeared there on the 19th, is given at length; and it is pointed out as a very important fact, that the period of maximum intensity of the outbreak on board coincided exactly with that in the Gibraltar garrison. Bryden says, "It may be suggested that this cholera was latent in the individuals attacked, or that the vessel sailed into a cholera-bearing stratum of air a freight after leaving Gibraltar. Neither possibility has any degree of probability attached to it. The germ was evidently brought on board with the ship."

The investigations made by Cunningham and Bryden into the statistics of this matter are quoted; the several results being that, among ships leaving Calcutta for America and Mauritius, 16 or 17 per cent. were attacked with cholera, only about an average of 1 per cent. of the passengers being affected; "on the average, in every cholera-ship there are 350 passengers and four cases of cholera."

This shows how very unfavourable to the spread of cholera are the conditions on board ship, and seems us to hesitate before rejecting the theory of "the indispensable part of the soil in the cholera process," on account of the numerous cases of cholera appearing on board ship.

In a short section on "Individual Predisposition," we are told that among the troops 1568 per 1,000 of the Europeans, and only 475 per 1,000 of the natives, die from cholera during epidemics. This difference is probably due to race, for the hill tribes of the Himalaya, the Gurkhas, who are Hindu, and have all the customs of the inhabitants of the plains of the Ganges, but are of a different race, are almost as susceptible as Europeans. But "acclimatization or accommodation" has a good deal to do with it, for recruits newly arrived from England suffer more than any others. Travellers in India, whether civilians or soldiers, are, according to Macpherson, specially prone to cholera, and this is true even of natives.

W. H. COCHRAN, M.D.

(To be concluded next week.)

M. CIVIL, honorably known for his researches on the nervous system of the heart and other subjects, has been recently appointed Professor of Physiology in the Medical-Chirurgical Academy of St. Petersburg.

REVIEW.

Comptes Rendus des Séances de Médecine de la Société de Biologie, An 1870. 4 lithographic plates. Paris: A. Delalaye.

The volume contains thirteen *mémoires*, which it will suffice at present to summarize, reserving the opportunity of publishing fuller analysis under the proper heads in other pages. They are as follows: New Anatomy of the Vertebral Column observed in a horse (supernumerary dorsal vertebrae and different number of ribs in each of the thoracic walls), by M. A. Gobaux; A Case of Traumatic Tetanus, by M. A. Jaffroy; Maxillary Tumor of the Umbilical Cord, by M. J. Régnat; A Case of Double Uterus and Vagina; Intermittent Classification in Man; Special Coloration of the Skin in Silver-polishers; Pathogenesis of Puerperal Albuminuria, by M. Gillette; Insects Injurious to the Fruit of the Walnut; Description and Figure of the Larva of the Elm's Girdler; Calcareous Corpuscles of the Echinococci; Physiological Observations on the Tania Solitaria, by M. Laboulbène; Researches on the Tactile Organs of Insects, by M. Jobert; Researches on the Toxic Action of Carbolic Acid, by M. Bert.

MISCELLANY.

THE FATE OF EMPEROR.—M. Finay has written to the *Académie de Médecine* to express regret that, prior to the Franco-German war, the size and shape of the kidneys in the late Emperor Napoleon III. were not investigated by "pleurotic percussion." A little more pleurotic, and Finay might have been saved. On such threats does the life of empire hang.

THE GEOGRAPHY OF CALCULI.—Dr. Macnamara stated at the meeting of the Dublin Surgical Society, Jan. 3, that vesical calculus was very rare in Ireland in proportion to the population. None of the most eminent Irish surgeons in the largest practice had not had more than fifty cases of lithotomy. Sir Philip Cusack had only had fifty two, while when on a visit to Scotland he had witnessed the 288th and 289th case of Mr. Keith of Aberdeen. [The general law seems to be that calculus is relatively rare on western coasts, and common on eastern coasts; thus it is very common in Suffolk, Norfolk, Lincolnshire, Yorkshire, and along the coast to Aberdeenshire, and rare on the opposite coasts. All the great lithotomists of the country have belonged to the eastern coast.]

PHYSICIANS AT FOREIGN SPAL.—British visitors to foreign spas are apt to attach some importance, in selecting their medical advisers, to the official rank of the *Médecins Supérieurs des Eaux* who hold state appointments there. The report of the *Académie de Médecine* of the Commission des Eaux Minérales affords some rather uninteresting and not unimportant information on this subject. The reporter, M. Guibé, in the name of the Commission, points out that the mercuries administered to the Academy by these officials are quite valueless; and most commonly contain absolutely nothing. The authors confine themselves to copying text and there a few chemical analyses and pathological details. These inspectors, it is evident, functionaries without function, simply profit by their titles to make as much money as possible by not-taking to cure all sorts of disorders. They are nominated not by scientific works and medical value, but according to the caprice of the central authority. The Commission, while recognizing the fact that the inspectors are of no use, have not asked for them to be suppressed, but the Academy has decided that the report shall be printed and discussed, and

it is hoped that the suppression of the inspectorship will be voted.

A HINT FOR THE POLICE.—By order of the Prefect of Police in Paris, large tablets comprising the elementary precepts of aid to be given to the sick and wounded, are to be suspended in all the police-stations of the city, in order to avoid errors in conducting the incompleteness of epilepsy, &c., with that of drunkenness, and to prevent mistakes in immediate proceedings before the *docteurs* arrive.

SOCIETY OF MEDICAL HYGIENE, PARIS.—The officers for 1875 are M. Le Dant, President; N. M. Gollier and Roussin, Vice-Presidents; M. Verjon, General Secretary.

SOCIETY OF MEDICINE, PARIS.—The officers for 1875 are M. Lagneau, President; M. Frier, Vice-President; M. Charrier, General Secretary.

SOCIETY OF ANTHROPOLOGY, PARIS.—The officers for 1875 are M. Boudin, President; General Faidherbe and M. Dally, Vice-Presidents; M. Rives, General Secretary.

REPORT of the illness and death of the late Napoleon III., Dr. Guyot Suard, physician of the baths at Caudebec, announces a paper for this evening at the Société d'Hygiène de Paris on Uræmic Blood-poisoning.

THE assembly among the members of the *Académie de Médecine* continues to be very great. During the past fortnight of the year two deaths were announced, those of M. Huguier and M. Dubois d'Amiens.

STUDY are being taken to encourage the study of ophthalmology in France. M. Panas, *agrégé* of the Faculty of Paris, has been charged with delivering a course of ophthalmology in the said faculty. M. Monod has been appointed to the same function in the Faculty of Medicine of Nancy.

THE position of *agrégé* of the Faculty of Medicine of Paris has been awarded, after a 'brilliant aggrégation' on three written by such candidates, to M. Durril. M. Durril's thesis was on the structure and uses of the retina. M. Gillette presented in the same competition a thesis on sensitive tissue, which he identified with the connective substance, lamellar tissue, and cellular tissue of connective, all of which he considers as identical. M. Fanchon presented a thesis on the epidermis and epithelium; and M. Le Gouz one on the vaso-motor system.

PRIZES OF THE SOCIÉTÉ DE CHIRURGIE OF PARIS.—At the annual dinner of the Société de Chirurgie, on Wednesday last, the prizes of the Society were distributed as follows:—The Dural prize to Dr. Albert Mathias in Nancy for his thesis, 'Féverie in the Diseases of the Urinary Passages; Researches on its Relations to the Affections of the Kidneys.' The Laboulbène prize was not awarded, but 'encouragements' were awarded to Dr. Guyot, of Lyon, for his 'Experimental Researches on the Capable of the Crystalline Lens; surgical applications'; to Dr. Depiret (of St. Quentin) for a work entitled 'On the Emulsion of the Crystalline Lens in the Operation for Capsulo-lenticular Cataract'; to M. Faut for two *mémoires* entitled 'On the State of the Inter-muscular Veins on the Surface and in the Vicinity of Wounds when Suppurating; Relations of this State with the Ergatic Theory of Frensis,' and 'Notes towards the History of Inguinal Phlebitis consecutive to the Compression of the Femoral Artery in the fold of the Groin.'

THE MEDICAL FACULTY OF GENEVA proposes to candidates the following questions:—1. To study, proceeding from clinical and experimental data, the modes of transmission of tuberculous, other than hereditary; 2. To study, by experiments and observations, the part played by the liver organisms in the production of miasmatic and contagious diseases; 3. To study the alcohol from the point of view of their physiological action; 4. To determine the inconveniences of the employment of preparations of silver administered in therapeutic doses; 5. The employment of

electricity in the treatment of the insane; 4. To study the influence of the body on the mind from the point of view of moral responsibility, supporting the study by well-ascertained facts; 5. The action of sulphates of quinine on the system; 6. Therapeutic by facts the value of simple combination and of combination combined with instruments of union, in the treatment of urea genital fluids. The memoirs, in French, Finnish, or Latin, must be sent free by post, according to Academy forms, to Dr. C. Williams, Secretary of the Society, Rue de Epingle, No. 10, at Ghent. The author of a memoir which is judged worthy of a prize will receive—1. A gold medal of a value to be determined by the importance of the work; 2. The title of corresponding member; 3. Fifty copies of the memoir.

PRIZES OF THE ACADEMIE DES SCIENCES.—At its recent annual meeting the Academy awarded the following prizes (for the two years), For 1873. *Prix Solon* (the annual income), M. Charvaz, for his *Recherches on the Venere; Prix Monjean*, a sum of 2,500 fr. to M. Guibaut, for his *Physiological and Medical Researches on the Respiration of Man*; honorable mention to M. Houdart (Nancy), for his *Zoological Researches* (2,500 fr.); to M. Bousquet-Ferrand, for his *Traité on Direct Immobilization in Fractures* (1,500 fr.); to M. Colin, for his *Traité on Intermittent Fevers* (2,500 fr.); mention to Dr. Batschert for *Experimental Researches on the Transmission of Malignant Pusule* by Filix; Dr. Baccopy, *Clinical Lectures on the Diseases of the Heart*; Dr. Hayem, *Symptomatic Myositis, and the Relations existing between Nodules Dentis and the Venereal Alterations of the Heart in Typhoid Fever*; *Prix Gouard*, Dr. J. Joly, on *Cancer of the Prostate*; Dr. Fanch, *Alveitis*; honorable mention, MM. Chevrand Goujon, for their *Researches on the Functional Properties of Nerves and Muscles during Uterine Life. Prix Serber*, M. Desquand, *pharmacology, on Crystallized Ammonia*. For the year 1874: the *Prix Solon*, to MM. Grimaud de Cass and Thebaud, each 2,500 fr.; honorable mention to Dr. Brogniez, *on. Prix Chauvau*, M. Tardieu, *Work on Medical Jurisprudence*, 25,000 fr. *Prix Alphonse*, 2,500 fr., to MM. Lecomte and Lachet, *for their Treatise on Pathological Anatomy*; 2,500 fr. to M. Charazay (Ponroy); 2,500 fr. to MM. Goss and Feltz (*Infectious Diseases*); Dr. Jousset (*Studies on the Scorpion*); Dr. Douhaire (*Pathology*); Dr. Duperré (*Illustrations of the Nuclei of the Ovary*); honorable mention, Dr. Victor Fournier (*Absorption of Urea of Blood*); Dr. Bergeret (*Alterations of the Uterus and the Ovary*); M. Ernest Cahet, *Statistical Atlas; Marriage in France*, Dr. Ely; honorable mention, *The Army and the Population. Prix Gouard*, Dr. Houdart, *Studies of Reflex Sympathetic Nervous of Hemorrhagic Epithelioma*.

FOREIGN BIBLIOGRAPHICAL RECORD.

RECENT FRENCH WORKS.

- De la *Thrombose artérielle dans le Diabète*.—Par le Dr. R. Babin, Interne des Hôpitaux, 1873. Paris; A. Delahaye, 25 pp.
- Étude sur la Réaction des Lévures acides dans l'Épilepsie épileptique. Considérations étiologiques sur l'Hydrocéphale des Adultes*.—Par le Dr. Vignot. In-8. Paris; A. Delahaye, 25 pp.
- Étude des Causes des Parties molles de la Jante*.—Par le Dr. F. Lefebvre, 1873. Paris; A. Delahaye, 25 pp.
- Des Analyses des Fluides pendant la Grossesse et l'État puerpéral*.—Par le Dr. J. Comillon, ancien Interné. In-8. Paris; A. Delahaye, 25 pp.
- Léçons de Clinique médicale faites à l'Hôpital LaPitrière*.—Par S. Jaccoud, Professeur agrégé à la Faculté de Médecine de Paris, etc. 1 vol. in-8, accompagné de 25 planches et chromolithographies. Paris; A. Delahaye, 186.
- De la *Causation du Choléra, de la Cholémie, et des principales Maladies qui précèdent sur les Bords, les Montagnes, les Charbon, et les Cholères*, à l'aide de la nouvelle méthode d'Analyse Physique.—Par le Dr. Doehle, ex-Médecin. 1 vol. In-8. Paris; A. Delahaye, 25 pp.
- Alimentation du Cerveau et des Nerfs*.—Par le Dr. Tassin

- Despiches*. 1 vol. in-8, avec 3 planches. Paris; A. Delahaye, 25 pp.
- De *Méthodes nouvelles pour le traitement des Hémorrhoides*.—Par le Dr. Ch. Baiter, Interné. Paris; A. Delahaye, 25 pp.
- Traité d'Anatomie Descriptive, avec Figures intercalées dans le texte*.—Par M. Guyon, Professeur d'Anatomie à la Faculté de Médecine de Paris, en collaboration avec M. Bouchard. T. 4. six parties. Splanchnologique. Appareil de la Digestion. Paris; A. Delahaye, 25 pp.
- Contributions à l'Étude du Métrite, ses Nerfs et ses Troubles annexes*.—Par Louis Jullien, Interne des Hôpitaux de Lyon. In-8. Paris; A. Delahaye, 25 pp.
- De *Point Appuyé dans les Névralgies et de l'Étiologie Spéciale*.—Par le Dr. Armand Gaudet. In-8. Paris; A. Delahaye, 25 pp.
- Des Catarrhes de la Voie urinaire la Femme et chez les Petites Filles*.—Par le Dr. Hyalard, ancien Interne des Hôpitaux. In-8. Paris; Lefebvre, 25 pp.
- Traité de Physiologie Comparée des Animaux vertébrés dans son rapport avec les Sciences Naturelles, la Médecine, la Zoologie et l'Économie Rurale*.—Par H. Colin, Professeur à l'École vétérinaire d'Alfort, membre de l'Académie de Médecine. Deuxième édition, considérablement augmentée. 257 p. 1 vol. in-8, avec six figures intercalées dans le texte. Paris; J. B. Baillière, 25 pp.
- Éléments de Thérapeutique et de Pharmacologie*.—Par A. Babin, Docteur en Médecine, et de docteur Babin. 200 pages. Paris; H. Lavoisier, 25 pp.
- Principes de Psychologie, avec une Étude sur l'Éthique et sur la Méthode de Gênes*.—Par le Dr. F. A. Marquis. 1 vol. in-8 de 100 pages, avec 4 planches. Paris, 1873, 25 pp.
- Revue des Sciences Médicales en France et à l'Étranger, second trimestre, analyses, critiques et bibliographies, dirigé par M. G. Hayem. No. 1. In-8. de 440 pages. Paris; G. Masson, 25 pp. Prix de l'abonnement annuel: Paris, 25 fr.; départements, 30 fr.*
- De la *Névralgie intercostale*.—Par Dr. Krüthner. In-8. G. Masson, 25 pp.
- De l'influence de l'Alcool sur l'Acidité Viscérale.—Par Dr. M. Th. Klein. In-8. 25 planches. Paris; G. Masson, 25 pp.
- Clinique chirurgicale de l'Hôpital de la Charité*.—Par L. Guérin. Tome 1. In-8 de 200 pages, avec figures intercalées dans le texte (sous le titre) et gravées. 25 pp.
- Préface et documents sur la tentative de la Langue des Indes de 1721-22 (Guerres, Vices et Non-Langues), suite de celle de M. de Lamoignon*.—Par Dr. Ribot. In-8. A. Delahaye, 25 pp.
- De l'Établissement chez les anciens et chez les modernes et des Conceptions pour l'Étude de l'Anatomie.—Par Dr. Senequet. In-8. Paris; A. Delahaye, 25 pp.
- Revue clinique sur le diagnostic et le traitement des différentes Épidémies de Névralgies et de la Dépression Anémique des Reins*.—Par Dr. Guizé. In-8. Paris; A. Delahaye, 25 pp.

BOOKS, &c., RECEIVED FOR REVIEW.

The *Footprints of Life*. By Dr. Charles Bastian, M.A., M.D., F.R.S. Macmillan & Co. 1873.
Another World. Tinsley, 25 pp.

NOTICES TO CORRESPONDENTS.

The suggestion of Dr. Hausing (Cherry) shall, as far as possible, be adopted.

Communications have been received from Dr. Crockett, Dr. Macpherson, Dr. Boncompagni (Paris), Dr. De Rancé (Paris), Dr. Alphonse, Mr. Berkeley Hill, Dr. Morrell Macpherson, Dr. Harcourt Woodman, Dr. Playfair, Dr. John Murray, Mr. William Lewis (Berlin), Dr. Cox, Dr. Lockhart Charles, Dr. Evans, Mr. Maxon Beck, Dr. George Johnson, Dr. Caldwell, Mr. Schaefer, Dr. Coffin, Dr. M. Watson (University of Edinburgh), Dr. Louis Champagnolle (Paris), Dr. T. Leitch Brunton, Dr. Russell Martin, Dr. J. E. Murray, Dr. Playfair, Dr. Bastian, Dr. Franklyn.

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THE LANCET, March 9, April 20, and Nov. 2,
1871;
MEDICAL TIMES AND GAZETTE, Nov. 11,
1871;
THE PRACTITIONER, Nov. 1871;

BRITISH MEDICAL JOURNAL, Aug. 11, 1872;
MEDICAL PRESS AND CIRCULAR, Oct. 18
and Nov. 8, 1872;
PHARMACEUTICAL JOURNAL (3rd Series),
vol. 1, p. 156.

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