AN EPITOME OF CURRENT MEDICAL LITERATURE.

MEDICINE.

(329) The Passing of Neurasthenia.

AT a meeting of the Medical Society of the County of New York (*Med. News*, October 8th), Charles L. Dana read a paper bearing this title. He said that he was associated with Beard when he introduced the word "neurasthenia," and at that time he considered it, as he did still, a useful word; unfortunately, however, a number of affections had come to be included under it which might well merit a more definite designation given them in the course of the development of diagnosis. Neurasthenia replaced a series of even more indefinite terms, as dyspepsia, latent gout, hypochondria, hysteria, the spleen, the vapours, liver troubles, or the apparently more scientific yet scarcely less definite designations, lithaemia, oxaluria, and even vaguer terms. The word "neurasthenia" itself, however, had come to impede progress somewhat by making practitioners satisfied with hasty diagnosis. Dana's attention was first called to the too wide application of the word "neurasthenia" by having patients who were evidently suffering from melancholia tell him frequently that they had suffered some time before from neurasthenia or nervous prostration. Careful investigation of these cases seemed to make it clear that many of the hypochondriacal states of middle and later life, which were really of melancholy nature, were made to appear less serious to patients by the comforting term "neurasthenia." Of a series of 100 cases of melancholia, one-third of them had suffered from previous attacks which had been diagnosed as nervous exhaustion. In all of these apathy, retardation, difficulty, and slowness of thought were present. The real ailment was evidently recurrent melancholia. The difficulty in the diagnosis was the differentiation between the psychoses and the neuroses. Beard laid considerable stress in many cases of neurasthenia on the presence of unreasoning fears. For these he invented many of the names by which they have since become familiar—"misophobia," "siderophobia," "acrophobia," and the like. In the severer forms these patients were really insane. The basis of their condition was evidently a psychosis and not a neurosis. It might be spoken of as a neurasthenic insanity. There was a term, however, for this which is coming into more common use—phrenasthenia or psychasthenia. General practitioners were familiar with one form of this so-called sexual hypochondria, in which patients got a fixed sexual idea that their sexual powers were seriously impaired, or that they were suffering from loss of manhood. In women there were hysterical conditions, evidently of mental or nervous origin. Many of these might be spoken of as abortive types of exhaustion psychoses. When young persons became queer and lost interest in their work, and failed to have the ordinary interests that young persons of their state in life enjoyed, it was the custom sometimes to speak of their condition as "neurasthenia." Such persons might run away from home, or run away from school, or insist on staying home from school, pleading that they were unable to work. In these cases the difficulty was mental and not neurotic. Of late years the insanities of adolescence had come to be studied more than formerly, and the serious condition known as dementia praecox (precocious dementia), might be preceded by pseudo-neurasthenic symptoms. Paranoiacs often suffered from symptoms that were not manifestly psychical, and yet were due to their congenital mental condition. Depression was not uncommon, and often was the keynote by which these cases were recognized from true neurasthenia. A certain number of physical conditions that were very different from neurasthenia might be confounded with it when the symptoms were incipient and obscure. In young people the status lymphaticus, with the phlegmatic condition sometimes consequent upon it, might prove difficult of recognition. In older people, arteriosclerosis might give rise to the tired feelings, the sluggish mental operations, the ready occurrence of fatigue and the general discouragement which was sometimes considered to be one of the most prominent symptoms of neurasthenia. During the next ten years, as the result of more careful diagnosis, the use of the word "neurasthenia" would probably disappear completely, or certainly to a very great extent, from serious diagnosis. In discussing Dana's paper Rockwell said that while many groups of nervous symptoms with psychic manifestations had been grouped under the word neurasthenia, in Beard's mind there seemed to be one ailment that was pathognomonic of the disease. This was some form of phobia, or morbid fear. When patients suffered from this and were unable to control it, there was often found a physical basis in a tremor evidently originating in the nervous system, and the symptoms were corporeal rather than mental. For this group of cases the word "neurasthenic" should still be preserved. Robert T. Morris said that surgeons saw many cases of neurasthenia, and Dana's explanation that they were psychoses rather than neuroses was helpful. Another interesting feature was the declaration that migratory fever—what the Germans call *Wanderlust*—which sometimes made young folks run away from home, and which seemed to be a sort of reversion to the migratory instinct that occurred so commonly in birds and in a few animals, was of psychic origin. Martin pleaded for the use of the word "neurasthenia" for charity's sake. There were many patients and their friends who were satisfied with the diagnosis of neurasthenia, when perhaps the true condition was a slight mental aberration. So many persons, however, suffered from slight mental aberrations that it would be too bad to label them all. As had been said, "Nearly all the world is cracked, but some succeed in concealing the crack better than others." The use of the word "psychosis" would inevitably lead to the suspicion of insanity and to unfortunate consequences, especially to the arousing of prejudices. Dana, in closing the discussion, said that major psychoses must be confined in asylums; minor psychoses, however, could well be treated quite apart from the prejudices as to insanity, and quite successfully.

(330) The Mode of Turning, in Walking, of Organic Hemiplegics and Spastic Paraplegics

L. J. KIDD contributes a note on this subject to the *Review of Neurology and Psychiatry* for November. He has watched some hundreds of cases of organic hemiplegia and spastic paraplegia with the object of determining to which side the patient turned round in walking. In fully 99 per cent. the patient spontaneously turned to the spastic or more spastic side when told to walk to the end of the room, turn round, and come back. In many of the cases the gait was tested thus two or more times; in no case did the patient turn to the opposite side to that chosen at his first trial. In the very small minority (less than 1 per cent. probably) there was not in a single case the slightest doubt, from a consideration of other physical signs, that the condition was organic. He has never seen a functional hemiplegic turn round to the affected side. As far as his one year's experience on this point goes, he looks upon von Schuller's phenomenon as a diagnostic point of the highest importance. He thinks he will not be going in excess of the facts if he enunciates the following propositions: (1) If a spastic hemiplegic or a spastic paraplegic turns round in walking to the affected or the more affected side, an organic lesion is present; (2) if he turns to the sound or less affected side, the case is either one of functional or of organic affection. If the latter, there will be no difficulty in deciding in its favour by a careful physical examination. A point of much interest and of possible importance, says Kidd, arises out of his observations. In the few cases (five or six) he has seen during the last twelve months of what is often called "hemichorea," the patient in every instance turned to the affected side. He thinks von Schüller's phenomenon may have a much wider range than that of hemiplegia, and that a wider and longer experience will very likely show that in cases of unilateral weakness of organic origin the patient usually turns to the weaker side. He urges clinicians to watch, in testing the gait of all nervous cases, to which side the patient turns, especially in those that show unilateral weakness, or spasm, or stiffness. Observations are needed also to decide whether flaccid organic hemiplegias follow the rule of the spastic cases.

SURGERY.

(331) The Mortality of Appendicitis.

AT a meeting of the Mississippi Valley Medical Association (*Med. News*, November 5th) Channing W. Barrett, of Chicago read a statistical paper on this subject, which was accompanied by a series of tables. Table 1 showed that Chicago still had a mortality in appendicitis

about equal to 0.01 of the mortality from all causes. Table 2 showed that the percentages of female mortality from appendicitis varied very little from the percentage of female mortality from all causes, and that appendicitis was to be looked for as common in the female, notwithstanding the old belief that it was rare. Table 3 showed the greatest mortality at the best period of life, early adult life, the greatest number dying at any one year of age being 22 at the age of 19 years, the average age for all deaths being 26.54 years. Table 4 showed that leaving out the chronic cases, the average duration of the disease in the 372 cases in which the time was mentioned was 8⅗ days. Murphy's mortality cases showed that the average time after operation until death was 2 8 days. This demonstrated that his vast number of fatal cases were operated upon at the end of the sixth day, while all authorities conceded that an operation on the first or second day was safe and desirable. Table 5 showed that the most frequent cause of death from appendicitis was suppuration of the appendix, caused by perforation, gangrene, or passage of the infection through the wall and peritonitis; and, further, that adhesions and obstruction were common. Many cases did not have the advantage of hospital treatment or an operation. An early diagnosis was more desirable, yet the Bureau of Vital Statistics considered that a diagnosis was not made at all in 105 cases; a few of the remainder were made by the coroner. Some were made *post mortem*, and one could never know how many were made too late for any operation to save life. The long, but only partial, list of vague diagnoses copied from the death certificates showed that in all probability some cases escaped detection. The author submitted the following conclusions: (1) An early diagnosis is of the first consideration. (2) All troublesome appendices should be removed without waiting for an acute attack. (3) All acute cases should be dealt with surgically in the interval between the onset of appendicitis and the dangerous rupture, without waiting for pus outside the appendix, for peritonitis for adhesions, or for a possible but remote interval. (4) Cases of perforation or gangrene, with localized abscess, should be operated on, with drainage or removal of the appendix, according to the judgement of the operator. (5) Cases with perforation or gangrene without a wall of adhesion are in still greater need of an outlet for the infection to lessen the tendency of infection to travel inwards. (6) Price, Murphy, Hawkes, and others have shown a better percentage of recovery by the operative treatment of acute perforative peritonitis. (7) A case of acute appendicitis should be operated upon at any time if the patient's condition will admit of an operation, unless the case is rapidly and beyond a question of doubt convalescing. In this latter case we should wait until all acute symptoms have passed. (8) Healthy appendices should be left alone. (9) Proper treatment does not contraindicate the use of stomach lavage, or the withholding of food, and when proper, these things should be employed, with or without operation. (10) Life is not the only consideration. The time of cure and after-conditions are important. A case going through an acute attack without operation is saved by the adhesions. Adhesions are life-saving for the time, but they may be death-dealing afterward. The waiting treatment favours adhesions; early operation avoids them. An early operation sends the patient home in from ten days to three weeks. Twelve cases treated by the rest treatment, reported in the *Journal of the American Medical Association*, June 22nd, 1902, showed an average of 60½ days from the onset of the disease to the discharge of the patients from the hospital.

(332) The Treatment and Histology of Roentgen Ulcers.

Baermann and Linsar (*Münch. med. Woch.*, Nos. 21 and 23, 1904) describe 8 cases of Roentgen-ray ulcer treated by transplantation of predunculated skin flaps. Thiersch's epithelial grafting is useless. Regarding the histology of these ulcers, examination shows that the surface vessels are, to a large extent, destroyed, and in the deeper layers a marked endarteritic process can be seen, the vessels being much narrowed in lumen; the connective tissue has a swollen appearance, and stains badly. The ulcers treated by transplantation were examined histologically. Shortly after the operation numerous young vessels proliferated into the badly-vascularized tissue, and the histological features of the connective tissue became distinct. At the end of four to six weeks excised portions showed the ordinary appearances of scar tissue. Damage to and destruction of blood vessels appears to be the chief factor in the pathogenesis of these ulcers, and this explains the difficulty of getting them to heal and the futility of the ordinary epithelial graft. At the edges of the ulcers there is often considerable epithelial overgrowth, but on the ulcer surface the epithelium cannot establish itself. In their second communication the authors describe certain researches which give experimental proof of their contention that in these cases the vessels suffer chiefly and primarily.

(333) A New Operation for Varicocele.

Vince (*Journ. de Chir. et Ann. de la Soc. Belge de Chir.*, No. 6, 1904) describes a novel procedure for the radical cure of varicocele, which he has practised with good results in the course of the past four years. Opposed to the practice of venous resection, except in cases of very large varicocele, and objecting to free removal of the scrotum on account of the risk of haemorrhage, this surgeon has been led to rely mainly on partial resection of the cremaster. This, he points out, is the suspensory muscle of the testicle, the contraction of which approximates the gland to the pubes and thus facilitates the return of blood. Whilst elevating the testicle it compresses the whole surface of the venous plexus, and by this direct pressure drives the blood towards the pelvis. By shortening this muscle the surgeon will not only assist the useful effect of its contraction but will also suspend the testicle in a good position. The following are the different stages of the author's operation: Incision of the integument from the external inguinal opening to the upper pole of the testicle; longitudinal section of the fibrous sheath of the cord over the same; longitudinal section of the exposed cremaster and isolation of the spermatic cord, which is held over to the outer side of the scrotum; the cremaster having been compressed by two long forceps applied at a distance of about 6 cm. from each other, the whole of the intervening portion of the muscle is cut away; the two margins of the resected cremaster are brought together by a continuous suture, and the spermatic cord is replaced over the shortened muscle; the margins of the incised fibrous sheath and of the wound in the skin are brought together by sutures. The cremaster, the author points out, varies in thickness in different subjects, but is always developed to a degree permitting its recognition.

(334) The Treatment of Brain Tumours.

Einar Brunniche, in a graduation thesis presented to the University of Copenhagen, had embodied a careful review of some 209 cases of cerebral tumours. Amongst these were 17 cases of tuberculous masses, 11 due to syphilitic changes and 125 new growths. The diagnoses were verified either by operation or *post mortem*. In 14 cases the tumour was localized sufficiently to permit of operation being advised. Radical operations were undertaken in two instances; one patient was cured and the other was considerably benefited. In 4 cases, palliative operations were undertaken and of these, 2 were much improved, 1 living for seven years after the operation. Brunniche considers that with improved technique, as well as a possible better localization of the tumours, the operation offers a degree of success which medical treatment cannot in any way hope to attain.

MIDWIFERY AND DISEASES OF WOMEN.

(335) Cardiopathy and Uterine Fibromyoma.

T. Wilson (*Journ. of Obst. and Gyn. of the Brit. Emp.*, vol. vi, No. 2) has observed the frequent coexistence of functional and organic affections of the heart and of fibromyoma of the uterus—an association of conditions of which numerous isolated instances have been previously given, and which has been discussed in some textbooks. Strassmann and Lehmann found that 40.8 per cent. of 71 patients with myomata presented objective changes or marked functional disturbances of the heart, and Fleck came to an almost identical conclusion after examining 325 cases. The subject may be studied either from the pathological or clinical side. At the Birmingham General Hospital there are accounts of ten autopsies carried out on patients who died after operation for fibroids, and in four of them some pathological condition of the heart or large vessels is described. In three the form of degeneration was a mixture of brown induration and of fatty degeneration, and in the fourth fatty degeneration alone. The evidence of direct connexion between the cardiac and uterine conditions is not very convincing, especially as there had been in

most of the cases some additional factor which might in itself have led to the degeneration, but the coexistence of the cardiac and uterine lesions in 4 out of 10 cases is at any rate suggestive of some link of causation between the two. Of 16 cases of fibromyoma seen by the author in the early part of the year, 7, or 43.7 per cent., gave objective evidence of changes in the heart or circulatory system, and a similar state of things was present in about 46 per cent. of the 72 cases of fibromyoma on which he operated during the preceding eleven years. These cases included 1 of adherent pericardium, 6 of valvular disease, 14 of myocardial affections, and 12 of heart murmurs which were probably haemic. A history of rheumatic fever was present in 3 out of the 6 cases of valvular disease, and in a large proportion of all the cases there was some other disturbing factor as well as the fibroid. The presence of a uterine tumor may react upon the heart in one of several different ways —for example: (1) Respiration may be embarrassed, and direct pressure made on the heart and large vessels by a fibromyoma of large size; (2) degeneration of the kidneys may be induced by pressure on the ureters; (3) long-continued anaemia due to menorrhagia often leads to defective nutrition of the heart walls; (4) a fibroid may act through the medium of the nervous system, cerebrospinal or sympathetic, and give rise to disturbances of the functions of the circulatory system; (5) the heart may possibly hypertrophy to meet the extra demand made upon the circulatory organs by the presence of enormously enlarged vessels in the neighbourhood of the tumour, or the fibroid may set up a condition of essential hypertrophy, or the fibroid and the hypertrophy of the heart may both depend on some common, but as yet unknown, factor; (6) in a patient already the subject of valvular disease the extra work due to the presence of a fibroid may lead to a rapid failure of compensation. The author recommends that in every case of fibromyoma of the uterus a careful examination be made of the state of the heart and vessels, and that where there are physical signs or serious symptoms of circulatory disturbance which do not readily yield to medicinal treatment, a radical cure of the uterine tumour be undertaken. Where dilatation or degeneration is already present, the patient should be treated by rest in bed before the operation. Where there is menorrhagia and also cardiac weakness the use of ergot is contraindicated, as being likely to lead to further embarrassment of the heart's action. After successful removal of the uterine tumour the prognosis of the accompanying heart disease becomes distinctly more favourable, and very remarkable improvement is often observed.

(336) Hydrocolpos and Imperforate Hymen in Infant.

COMMANDEUR (*L'Obstétrique*, July, 1904) observed this condition in a very robust female infant which weighed over 8¼ lb. at birth, on the next day the midwife observed that when it cried a protrusion like a prolapse appeared at the vulva. The urethra was patent and the anus and rectum normal. The tumour at the vulva was surrounded by a groove and on close inspection the hymen was seen to be imperforate and pushed forwards by the mass. An incision was made from behind the urinary meatus to the posterior fourchette and 3½ fluid oz. of a white viscid fluid escaped. It had been secreted by the vaginal mucous membrane, but the uterus was not dilated—a complication met with in some cases of dilated vagina with imperforate hymen and watery contents. In haematocolpos the uterine complication is yet more usual. Commandeur's patient recovered.

(337) Fibroma of Abdominal Wall diagnosed as Ovarian.

FÜTH (*Zentralbl. f. Gynäk*, No. 37, 1904) publishes a case of some importance, as the tumour was diagnosed as an intraperitoneal growth even after careful examination under anaesthesia; he further observes that Olshausen has already recorded a similar error. Füth's patient was 48, unusually old for a subject with this class of tumour; she had not been pregnant for twenty-seven years and had noticed enlargement of the abdomen for one year, her neighbours believing her to be pregnant. The period remained regular and the patient, annoyed by suspicions, consulted three doctors who all diagnosed ovarian tumour. Admitted into the clinic of a university, the diagnosis was confirmed, indeed the shape of the tumour was very like that of a solid ovarian fibroma. Under anaesthesia the right ovary could not be detected on palpation; this appears to have confirmed the diagnosis, whilst the small extent of mobility of the tumour was attributed to parietal adhesions. At the operation the tumour was found to be entirely external to the peritoneum, it sprang from a kind of pedicle connected with the anterior sheath of the rectus and weighed a little under 6 lb. It was made up of very dense fibrous tissue with much fat in its peripheral part, but apparently no sarcomatous elements. The incision was drained and the result was satisfactory.

THERAPEUTICS.

(338) Serum Treatment of Typhoid.

M. EINHORN (*Zeit. für Diät. und Phys. Ther.*, October, 1904) reviews the subject of the serum treatment of typhoid fever, and has himself treated by this means 10 cases of the disease. The particular form of serum used was Jez's antityphoid extract, which is claimed to be a specific treatment for typhoid and an aid to diagnosis. It is said, also, that Jez's extract can be given uninterruptedly throughout an attack; that it leads both to a lowering of the temperature and strengthening of the pulse; that it shortens the duration of the attack and diminishes or absolutely neutralizes the action of the typhoid toxine. Einhorn gave the serum for the most part subcutaneously, in doses of 6 c.m. to 12 c.m. daily until the temperature remained below 38° C. Occasionally he gave it in smaller doses by the mouth. The injections were made as soon as the diagnosis was established beyond doubt, in no case earlier than the ninth day. Seven of the 10 cases gave a positive Widal's reaction, and the remaining three presented all the other signs of typhoid, such as swelling of the spleen, roseola, etc. They were either severe or moderately severe cases—one was complicated by otitis media and two by double pneumonia. All the cases recovered, and the author arrived at the conclusion that (1) the serum treatment did not in most cases cut short the attack; (2) that on the first or second day after the injections were first made a remission of fever set in—about 1° to 2° greater than before—and that the remission was of larger duration; the general condition, and especially the sensorium and nervous symptoms, showed marked improvement, so that sleeplessness, restlessness, headaches, and delirium almost completely disappeared. It is possible that even better results might have been obtained if the serum treatment had been begun earlier in each case. The only side-effects of the injections were that in 2 cases a transitory erythema was observed at the site of the injection, and in a third a rigor followed the injection.

(339) The Diatetic Value of Sanatogen.

BENNO CHAJES, assistant in Senator's Clinic at Berlin, in a paper entitled Refractometric Estimation of Proteids as a Control of Therapeutic Feeding (*Therap. d. Gegenwart*, October, 1904), says that a few months back H. Strauss and he in a paper on Refractometric Estimation of Proteids in Human Blood Serum and its Clinical Signification, referred to the clinical value of this method after Strubell, Grober, Reisz, had taken up the question. They were able by means of this method to determine the proteid contents of the blood serum with accuracy sufficient for clinical purposes, with a single drop of blood. It can, in particular, be used for the determination of an abnormal dilution of the blood serum in cases of heart disease, blood and kidney diseases. This method is also adapted for use in experiments by which the effect of a particular diet on the proteid contents of the blood serum is studied. It immediately occurred to them to supply the organism with large quantities of proteid and to observe the effect. Experiments were made to determine the effect of a diet rich in proteids on the proteid contents of the blood serum of a series of patients suffering from the most various complaints. The patients were given daily 40 gr. to 45 gr. of sanatogen, which consists of 95 per cent. casein, and 5 per cent. glycero-phosphate of sodium. This preparation has, in the author's experience, had a very beneficial effect, and can be taken in large quantities for a prolonged period with ease. Then Chajes estimated the refraction point of the blood serum for a period of eight to fourteen days, according to the case, before the sanatogen diet was taken, in order to determine accurately the degree of possible variations in the proteid contents of the blood serum, and exclude other influences. He took the blood from the patient always at the same time—shortly before the midday meal—and thus again avoided accidental variation. They used Abbe's refractometer, and collected the blood taken from the finger in a glass capillary tube, both

ends of which were then closed by heat. The tubes were left upright at the ordinary temperature of a room, and the next day were opened with a sharp-edged file at the place at which the serum stood. This then either flowed out on the prism or was projected on to it by means of a small suction tube. The experiments were carried out at a temperature of 17°. Chajes examined in all 9 cases, and only chose patients in whom no alteration of the blood was due to their disease, and who remained at least three weeks (the shortest time the experiments lasted) in hospital. Again, all cases were excluded in which, through the presence of sugar, proteid, or retention nitrogen, the refraction could be altered or affected. He also in some cases gave the sanatogen intermittently, in order to see if any alteration in the blood serum was thus produced. In a series of cases an increase of proteid contents in the blood, according to all appearances due to the sanatogen diet, occurred. The increase varied from 18 to 200 mg. per 100 c.cm. Excluding 3 cases in which the increase was only 18 to 30 mg. per 100 c.cm., and was probably due to normal variations or mistakes, there remains 6 cases in which an important increase occurred. In regard to all the experiments it must be remembered that the improvement in the condition of the patients, and their stay in hospital, may have had an influence on the increase of proteid contents in the blood serum, though it is not very probable that this was so in all cases. The authors conclude from these experiments that a diet containing large amounts of easily assimilated proteid (in this case sanatogen) produced, in a series of cases, an increase in the proteid contents of the blood serum.

(340) Agurin.

AGURIN, a compound salt containing 60 per cent. of theobromine, has been in use as a diuretic for the last three years. It can be obtained in the form of a powder or in tablets, the usual dose being 1 gram three times a day; it is easily soluble in water, has a salt taste, and an alkaline reaction. Heinrichsdorff (*Therap. Monat.*, October, 1904) has given it to twenty-eight patients suffering from anasarca, oedema or ascites, with good results in many of the cases. The patients treated could be divided into three groups according as the heart, the kidney, or the liver was the organ affected. The cases in which the use of agurin is especially indicated are those of dropsy due to heart disease and Heinricksdorff found that cases of cirrhosis were absolutely uninfluenced, while of the 2 cases of kidney disease which improved under treatment, one was complicated by marked arteriosclerosis, the other by myocarditis. In every instance agurin was given by itself and not until the effect of a few days' rest in bed with some indifferent medicine had been tried. Only 4 out of 17 cases of dropsy due to heart disease did not respond to the agurin treatment; in one of these the drug caused nausea and vomiting and its use had to be discontinued, in another the patient died on the second day, and in the remaining two the patients had been previously treated with heart tonics and diuretics and after agurin had been tried and proved useless, all the other heart tonics and diuretics were given without result. In many instances the improvement was striking: in one, for instance, the output of urine increased in a few days from between 300 to 400 c.cm. per day to a maximum of 3,500 c.cm. Nausea and vomiting occurred in 9 cases, but in only 3 to such an extent as to forbid the use of agurin; in 3 out of the 9 cases the vomiting was uraemic in origin. The effect of agurin becomes apparent during the first few days of its administration, usually on the first day. In the majority of cases the amount of urine was increased during the whole time in which agurin was given and in two of the three instances in which this was not the case, the dropsy disappeared before the quantity of urine excreted fell. It is doubtful whether the drug acts primarily upon the heart or the kidneys, but during its use the pulse becomes more regular, full and slow, and the blood pressure rises. It should be given alone, without heart tonics, which usually act best when the dropsy has been removed. Diuretin and agurin produce similar results and agurin forms a useful substitute for diuretin when the latter gives rise to vomiting. It also possesses an advantage over diuretin in that it contains no salicylic acid, a compound which is known to have an irritating effect on the kidneys.

PATHOLOGY.

(341) Variations in the Agglutinating Properties of the Blood in Typhoid Fever.

AXEL JORGENSEN (*Habilitations-schrift*, Copenhagen, 1904) says the quantitative measurement of agglutinin is best performed macroscopically, and when undertaken by Madsen's and Jorgensen's method, given in the "Festskrift ved Indvielsen af Statens Serum Institut, Copenhagen," gives an error of less than 9 per cent. After a single injection of a culture of B. typhosus, B. coli or V. cholera curve may be made from the measurement of the agglutinins, which shows three distinct phases, a first phase lasting two to three days, in which no agglutinin is present in the blood (latent period); a second phase occurring from the sixth to ninth days, during which the quantity gradually rises to a maximum; a third phase, which begins suddenly and slowly continues. The extent and the form of the curve shows an individual type. Daily injections with small quantities of the cultures gives a curve in which the first and second phases are lengthened. Injections made every third day produce a curve showing variations which answer somewhat to those following each single injection. In 29 cases of typhoid fever the amounts of agglutinin were daily measured, and the results gave a curve which corresponded exactly to that obtained from animals who had been injected daily. The variations in the amount of agglutinin in the blood of typhoid patients cannot be taken as any indication for prognosis, but they are a great help in the diagnosis of typhoid fever, as well as an indication of the intensity of the infection and resistance.

(342) Methods of Infection in Pulmonary Tuberculosis.

J. O. COBB (*Zeits. für Tub. und Heilstatt*, Bd. vi, Heft i) discusses the sources and methods of infection in pulmonary tuberculosis. He assumes that the bacillus probably does not grow on a mucous membrane with mucus as a medium, and that it can and does penetrate mucus membranes, alimentary or respiratory, without leaving the slightest sign of its passage. The first disputable point is whether foreign matter can be inhaled directly into the lungs, and the author bases his affirmative answer largely upon the study of anthracosis and the allied conditions. The basement membrane of the bronchi is not perforated by the lymph radicles, and foreign matter can therefore only reach the bronchial glands by penetrating the air sac to the lymph radicles below or as by being "screened out" of the pulmonary circulation into the interalveolar lymph radicles. In favour of the former as a possible method is the fact that in rabbits which have been confined in a heavy atmosphere of lamp black the pigment is found both in the air sac itself and sticking through the walls of the sac. Another observation pointing in the same direction is that the pneumococcus when introduced experimentally into the circulation of animals seeks a serous membrane and does not cause pneumonia. By analogy it would appear probable that in pneumonia as met with clinically infected dust has been able to reach the air sacs of the lung directly. The question whether foreign matter can reach the lungs by way of the intestinal tract is also answered in the affirmative. The method by which the cow contracts the disease is important. The author believes it to be by ingestion of food infected by tuberculous sputum, and probably never by inhalation. Against the view that in man the infection is due in many cases to food infection is the rarity of abdominal tuberculous lesions, but little weight attaches to this argument when it is remembered that the site of the lesion does not indicate the point of entrance of the bacillus. A useful formula in this connexion is that "a specific organism seeks an organ, serous or mucous membrane, for the reason that the particular animal tissue furnishes the exact kind and exact amount of nutritive medium under exact biothermal conditions which make it possible for it to multiply, colonize, and survive its incubative period in the animal organism." In adults such tissue is found in the lung, while in children intestinal affection is more common. That tuberculous milk is only a minor link in the chain of infection to man is indicated by the prevalence of tuberculosis among oriental nations, to whom milk as an article of diet is almost unknown. The author believes that infection by either the alimentary or respiratory tract is possible, but that the former is a frequent and possibly the most frequent method, and that the common house fly forms a medium for the conveyance of the bacilli from the ejected sputum to the food.