

FILARIASIS AND ELEPHANTIASIS IN FIJI. By P. H. Bahr. London: Witherby and Co. Price 6s. net.

In this first supplement of the *Journal of the London School of Tropical Medicine*, Bahr gives the results of his investigations into filariasis in Fiji, the report is very detailed and elaborate, and it is only possible to mention some of the leading points. Filariasis is extremely prevalent in Fiji, 64·8 per cent. of the male and 40·3 per cent. of the female population showing signs of infection in one form or another; of these, about half the cases show signs of filariasis, but no microfilariae in the peripheral blood. Bahr suggests as possible explanations, that the adult worms may be immature, that they may be so situated that the larvæ are unable to enter the circulation, that the female may only produce larvæ at intervals, or that there may be only one sex of adults present; in seven cases the author has seen microfilariae disappear, apparently permanently, from the blood; in each instance inflammatory phenomena and fever preceded the disappearance. The microfilariae exhibit no periodicity, and although *Culex fatigans* is an efficient intermediary, the more usual one is *Stegomyia pseudoscutellaris*, which is the common mosquito of the Fiji group of islands; the author describes in great detail his experiments with this mosquito, as well as with *C. fatigans*, and others. With regard to the identity of the parasite, morphologically the microfilariae are identical with *Microfilaria bancrofti*, and Bahr thinks that from its general characters and from its absence of periodicity, it is the same parasite as "*Filaria philippinensis*," as described by Ashburn and Craig. The adult again is morphologically indistinguishable from *F. bancrofti*, for which the author has proved *S. pseudoscutellaris* to be an efficient carrier. Bahr suggests that the filaria of Fiji is really a *F. bancrofti* which has been modified in the direction of losing its periodicity. The rest of the monograph deals with the question of the relations of elephantiasis to filariasis.

The book is very fully illustrated, and represents the results of an enormous amount of painstaking work. One criticism might be made, and it applies to a very great number of medical writings, that is, that percentages drawn from a small number of cases are utterly illusory, and the labour spent in calculating them is wasted.

W. S. H.

Current Literature.

Beri-beri. — Schaumann (*Transactions of the Society of Tropical Medicine and Hygiene*, vol. v, No. 2, 1911) describes experiments which go to show that beri-beri is dependent on the absence from the diet of two substances: (1) Organic compounds of phosphorus; (2) a substance which is essential to phosphorus metabolism, and which acts as a catalase. The latter substance is found in rice, bran, rice polishings, meat, yeast; in certain grains, e.g., rye; and in certain beans (katjang-idjoe), &c. It can be extracted from these substances by alcohol and by 0·3 per cent hydrochloric acid, after previous treatment with acetone and ether; it is labile, and is destroyed by heating to excess, as in an auto-

clave or by prolonged keeping. Animals which had become paralysed after feeding on a beri-beri producing diet, could be restored with remarkable rapidity by the administration of the second substance, which Schaumann terms "the activator." Similarly animals fed on a beri-beri producing diet, plus a small quantity of the activator, do not develop paralysis, but they waste; whereas when rice polishings are added to a beri-beri producing diet the animals neither waste nor become paralyzed. Schaumann interprets these differences as due to the necessity for organic compounds of phosphorus in the diet in addition "the activator." He puts the position metaphorically, that the activator acts as the match to the fire—i.e., the organic phosphorus compounds in the first place, and that these in their turn communicate the fire to the other elements, the nitrogen compounds, carbohydrates, &c. One interesting property of the "activator" is that it acts as a powerful stimulant to the appetite, and Schaumann attributes the distaste produced by a diet of stored or over-heated foods to the absence of "the activator."

Axel Holst at the same meeting showed that the beri-beri on Norwegian sailing ships began to appear in 1894, when the diet of the sailors was changed. Prior to that date they fed largely on rye bread, salt meat and peas. Wheaten bread was substituted for rye bread, and it was found experimentally that animals fed on wheaten bread developed neuritis, whilst those fed on rye bread did not do so. Similarly rations of tinned meat and fish were substituted for salt meat, these tinned foods were heated to a temperature of about 120° C., and when animals were fed exclusively on them they developed neuritis, whilst if they were fed on fresh boiled meat they did not get neuritis. Salt meat, however, when boiled for an hour at 100° C. was capable of giving neuritis when animals were fed on it exclusively. Lastly, as a result of the new regulations in 1894 there was a great reduction in the amount of peas in the sailors' diet, and Holst has shown (1907) that peas added to a diet which otherwise causes neuritis will prevent the disease from occurring. Lastly, Holst referred to the possibilities of there being a connection between beri-beri and scurvy—e.g., pigeons fed on polished rice get neuritis, guinea-pigs on the same diet get scurvy, and pigs which are fed on polished rice get both neuritis and scurvy; the latter also develop these symptoms when fed on the ordinary diet of Norwegian sailors. There is evidence, however, that although the diseases are closely allied in their pathology they are not identical; the antiscorbutic property is much more labile than the antineuritic property, and, whilst peas will prevent the neuritis of fowls, they will not prevent the scurvy of guinea-pigs; if, however, the peas are allowed to sprout they will prevent the scurvy of guinea-pigs, and this antiscorbutic property is not destroyed by boiling; the same applies to grains like oats and barley, which develop antiscorbutic properties when allowed to sprout. On the other hand, Grijns has found that katjang-idjoe beans, when sprouted and boiled for one hour, lose their power of preventing experimental neuritis.

Casimir Funk referred to the antineuritic substance which he had isolated from rice polishings, and which was extraordinarily effective in curing paralytic symptoms in pigeons. The polishings are extracted with alcohol containing gaseous HCl, and the extract, after being freed from alcohol and fatty substances, is precipitated by phosphotungstic acid in acid solution; the precipitate contains the active substance, and from this

it is possible to separate off a small quantity of crystalline nitrate of a base having roughly the formula $C_{12}H_{18}O_4N$ (HNO_3).

Kerr reports an outbreak of beri-beri in Northern Siam among a population which lived on hard-husked rice, stored from the previous year's harvest. He gives no details as to the symptoms, &c., but the circumstance is so contrary to most of our other experiences of beri-beri, that it would be desirable to have very detailed facts concerning the outbreak.

W. S. H.

The Estimation of Arsenic in Organic Substances and Organic Arsenic Compounds.—For those interested in the estimation of the quantity of arsenic excreted from the body after the administration of salvarsan, atoxyl, soamin, &c., the method described by Paul Bohrisch and F. Kurschner (*Pharm. Zentr.*, H.52, 1911) is one thoroughly to be recommended. It is reliable, takes little time, and in the case of urine does not require a preliminary evaporation.

A determination of the arsenic in organic combination, which does not involve the usual laborious methods, while being at the same time sufficiently accurate, is naturally of considerable use to sanitary officers and clinical pathologists in the Service both at home and abroad.

Paul Jannasch and T. Seidel (*Berl. klin. Woch.*, No. 43, 1910) described a method for the quantitative volatilization of arsenic from solutions, whereby arsenic chloride can be reduced to arsenious chloride by hydrazine salts. They recommended the following method of analysis: The sample is washed into a special distilling flask with a little water and the addition of 80 to 100 c.c. of arsenic-free hydrochloric acid (sp. gr. = 1.19), 1 gm. of potassium bromide, or concentrated hydrobromic acid, and 3 gm. of hydrazine hydrochloride or sulphate. The flask is then connected with a condenser by means of a ground glass joint, to the end of which a 50 c.c. pipette is sealed on and allowed to dip into a receiver containing water. The contents of the flask are then distilled until the volume of the residue is from 25 to 30 c.c., which takes about an hour to complete. All the arsenic is volatilized in this one operation, and the amount may be determined either volumetrically or gravimetrically. They state that their method is accurate in the presence of antimony, copper, mercury, silver, lead, and phosphoric acid, which may afterwards be estimated in the residue.

W. Ney (*Pharm. Zeit.*, 1911, No. 15, 616) recommends that the substance containing arsenic, such as a portion of an animal organ, should be distilled with 100 c.c. of hydrochloric acid (sp. gr. 1.19), 2 gm. of potassium bromide, and 5 gm. of hydrazine sulphate, until the mixture has been reduced to a syrupy consistency. The distillate is received into 200 c.c. of water, and after neutralization and the addition of sodium hydrogen carbonate, titrated with iodine solution in the usual way.

Paul Bohrisch and F. Kurschner (*Pharm. Zentr.*, H.52, 1911) have still further improved the process, and state that it is inapplicable to metallic arsenic and arsenious sulphide, owing to their being incompletely converted into the chloride by hydrochloric acid, but that satisfactory results are obtained from atoxyl and salvarsan, or from milk and urine containing these compounds.

For estimating the amount of arsenic excreted in a sample of urine,

from 50 to 75 c.c. of the urine are distilled with 100 c.c. of arsenic-free fuming hydrochloric acid, 4 gm. of hydrazine sulphate, and 2 gm. of potassium bromide. The distillation is best carried out, without a condenser, by means of a 50 c.c. bulbed pipette connected with the flask and dipping into a receiver containing 100 c.c. of distilled water. The receiver is kept cool by a stream of running water directed on to the outside.

The distillation, which takes about one hour, should be carried almost to dryness.

The arsenic present comes over as the trichloride $AsCl_3$, and in the presence of sufficient water arsenious oxide is precipitated. The contents of the receiver are then cooled and neutralized with concentrated sodium hydroxide.

Three grammes of sodium hydrogen carbonate are added, with a few drops of starch solution and decinormal iodine run in until a permanent blue colour is produced.

One cubic centimetre of decinormal iodine solution represents 0.004911 gm. of pure arsenious oxide.

W. W. O. B.

Venom in Malignant Disease.—V. Dungern (*Berl. klin. Woch.*, February 12, 1912, p. 330) has succeeded in causing the disappearance of sarcomatous tumours of rats by means of injections of rattlesnake venom. He has also observed the effects of this endothelial toxin in some hopeless cases of human mammary cancer. Although cure did not result, yet the favourable action was so pronounced that further experiments seem justified.

C. B.

Antivenene and Adrenalin in Sarcoma.—H. G. and A. S. Grünbaum (*Lancet*, March 9, 1912, p. 644) state that they have cured large sarcomata of rats and mice in 70 per cent of thirty-four animals by the simultaneous injection of adrenalin and antivenom serum (Pasteur Institute), whereas in only 19 per cent of untreated animals the tumours underwent regression. One human inoperable recurring sarcoma has shown diminution in size and relief of symptoms under this treatment.

C. B.

Chemotherapy of Malignant Growths.—V. Wassermann, v. Hausemann and M. Wassermann (*Berl. klin. Woch.*, January 1, 1912, p. 4) refer to the failure which has attended the treatment of cancer with the serum of animals which have been immunized with emulsions of malignant tissues. Some measure of success was attained by Reicher, who caused the disappearance of cancer in mice by injecting adrenalin into the periphery of the tumour. Wassermann and his collaborators, wishing to study the vitality of cancer cells in the serum of healthy and infected persons, recalled the researches of Gosio in 1905. He had found that the sodium salts of tellurium and selenium are reduced by living cells in which a red or black precipitate is deposited. They therefore examined tumours which had been treated with these salts, and observed that only the cancer cells became impregnated with the deposit. Remembering Ehrlich's dictum that substances do not act except where they are fixed, they asked themselves whether an affinity between the tellurium and selenium and

the malignant growth existed in the living body. They therefore injected watery solutions of these salts into the malignant tumours of mice, with the result that these disappeared in many instances. After this had been established, they endeavoured to suppress the cancerous growth by means of intravenous injections. The salts, however, proved to be highly poisonous, and non-lethal doses were without effect. The experimenters then searched for some substance which should guide, so to speak, the tellurium and selenium to the selected spot. They give the name cytotrochine (τροχία, path) to such an agent. v. Wassermann had shown fifteen years previously that dye-stuffs of the triphenylmethane group, e.g., fluoresceine, had an affinity for certain tissues when their solutions were introduced into the veins. After experimenting with some two hundred combinations of these with selenium and tellurium they discovered an eosin-selenium preparation of a very perishable character which exerted a specific action on cancer of mice. If 2.5 mgm. were injected into a healthy mouse, the tissues throughout the body became bright red, whereas the same dose, given intravenously to a cancerous mouse, was concentrated almost entirely in the new growth, leaving the rest of the body almost unchanged in colour. Microscopical examination showed that the selenium was deposited on the nucleus of the cancer cells in the form of very small black granules. It is probable, therefore, that it is the chromatin which reduces the selenium salts. After the third injection the tumour became softer, nuclear fragmentation, known as pyknosis, was apparent and the tissues disintegrated. Under subsequent doses liquefaction proceeded and absorption commenced, until, finally, in place of the swelling only an empty sac could be felt, and the animal recovered. No recurrence took place. In those mice the malignant growths of which exceeded a cherry in size, the amount of disintegrated material set free was so great as to cause their death. If the treatment was not sufficiently intensive to destroy all the cancer cells, relapses were frequent, usually within eight or fourteen days. These were not amenable to any further injections.

Selenium and tellurium are elements of the sulphur group. The former is obtained chiefly from iron pyrites, the latter is a rare substance which occurs as telluride of gold, silver and lead in Hungary and North America. Sodium selenate, Na_2SeO_4 , exists as colourless crystals which contain water of crystallization like its homologue sodium sulphate, Na_2SO_4 .

C. B.

The Growth of Tissues Outside the Body.—S. Hadda (*Berl. klin. Woch.*, January 1, 1912, p. 11) states that Harrison was the first investigator who studied cell growth *in vitro*. He demonstrated proliferation of a frog's nerve-fibres mounted on a slide in a drop of lymph. Next Carre and Burrows were successful in cultivating the tissues of warm-blooded animals. Carrel's technique is based on absolute asepsis. All operations must be done in a dust-free chamber. He uses as a culture medium plasma which has been allowed to clot. To obtain this, he centrifuges blood, drawn directly from an artery into paraffin-coated tubes at 0°C . until the corpuscles are separated. He then decants the plasma and preserves it in paraffin-coated capsules in the ice-chest. It is very perishable. A fragment of living tissue, no larger than a pin-head, is

placed on a slide and is covered with a drop of plasma which rapidly clots. A cover slip is applied, and is sealed with paraffin. The temperature of the tissue must not be allowed to fall below 37° C. They have grown embryonic and mature tissues of dogs, cats, rats, pigeons and rabbits, malignant tumours of the lower animals, and human sarcoma and carcinoma. Lambert and Hanes have made use of this method in experimenting with the sarcomatous tumours of rats and mice. Between 70 and 90 per cent of their cultures were successful. Rous has shown that small wounds in fragments of skin of the frog or guinea-pig will heal *in vitro*. He found that the new cells which develop in cultures of malignant tumours of animals are infective.

Hadda learnt Carrel's methods, and has been carrying out his researches since April, 1911. Particles of embryonic tissues show signs of proliferation in a few hours. With adult tissues, two or three days must elapse before changes are visible. Granular processes spring from the fragment, which become thicker, branching and interlacing. Nuclei appear at the points of intersection, and round cells like leucocytes arise in the meshes. Gradually the processes assume the form of spindle cells. The maximum development of cultures of the pigeon's embryo is attained in two or three days. After five to eight days, clear, round dots appear in the cell, which quickly enlarge and seem to be a sign of fatty degeneration, for then the culture dies. Before this occurs, the culture may be successfully transplanted. The original morsel of tissue can undergo proliferation anew if placed in fresh plasma. Hadda has made 105 cultures of embryonic tissues of which seventy-three were successful, including those of skin, spleen, cartilage, choroid, kidney, heart, intestine and brain. The greatest proliferation was observed in the skin and spleen preparations, and the least in the brain. He has had eleven positive results in twenty-seven attempts to grow the organs of the adult rabbit. With human tissues he has had nothing but failure. He noted that growth of the animal tissues may be accelerated by mixing the animal's plasma with that of another species. Nevertheless a mixture of human and animal plasma did not permit a growth of human tissues.

C. B.

Measles in the Monkey.—Grünbaum succeeded in inducing measles in the chimpanzee. J. F. Anderson and J. Goldberger (*Public Health Reports*, June 9, 1911, p. 897) have experimented with *Macacus rhesus*. Out of nine of these monkeys which they inoculated with the blood of measles patients withdrawn from fourteen to thirty-two hours after the outbreak of the rash, four contracted the infection. After an incubation period of ten or eleven days the animals passed through a mild febrile attack, accompanied with a papular eruption which lasted four or five days. The passage of the virus from these to other apes has been successful in three out of five attempts. The blood of the measles patients was sterile in culture in the usual media.

Nicolle and Conseil (*Compt. rend. Acad. Sciences*, 1911, p. 1522) injected into an ape 6 c.c. of the blood which was abstracted from a child suffering from measles twenty-four hours before the appearance of the rash. The *M. sinicus* developed fever nine days later, which continued for six days.

C. B.

Infective Endocarditis.—Jochmann (*Berl. klin. Woch.*, March 4, 1912, p. 436) has examined by blood culture twenty-eight cases of infective endocarditis, also called septic, ulcerative or malignant endocarditis, and has found micro-organisms present. He has thus confirmed Kraus and Grawitz' observations. Lenhartz also had obtained positive results in thirty-seven blood tests. The infecting agents which occur most frequently are streptococci, next come staphylococci, then pneumococci, gonococci, *Bacillus coli communis*, meningococci and *B. pyocyaneus*. We may distinguish clinically between acute and chronic cases. In the former, after short prodromal symptoms, such as headache, pain in the limbs, lassitude and slight feverishness, a rigor occurs and the temperature suddenly rises. The patient soon has the appearance of profound illness. The spleen is enlarged and palpable. Hæmorrhages take place in the skin and retina. Under the advancing anæmia and heart failure he succumbs in a few days' time. Though no age is exempt, between 20 and 50 is the most usual epoch. The endocardial site of the infection is generally the mitral valve; rather less often the aortic orifice is implicated; more rarely the pulmonary and tricuspid valves are involved. The localization of the lesion as a rule can be determined by auscultation, though instances are not uncommon in which extensive endocarditis is found post mortem undetected during life through the absence of bruits. Valves which have been damaged by past endocarditis, or by arterio-sclerosis, are prone to be attacked by fresh infections. Nevertheless such puckered valves often escape, for infective endocarditis develops in only 20 per cent of the cases in which bacteria invade the blood-stream.

Two varieties of streptococci give rise to endocarditis. (1) *S. hæmolyticus*, which has the power of laking blood; and (2) *S. viridans* (Schottmüller) which grows in more delicate colonies on blood agar, of a greenish tint, without hæmolytic properties. The former causes an illness accompanied by repeated rigors and high fever, fatal in a few days, while it is to the latter microbe that most instances of chronic infective endocarditis are due. Jochmann has met with seven of these chronic cases. The onset has been insidious, there have been indefinite aches in the joints and limbs without any local cause, malaise, pyrexia, acceleration of the pulse and respiration, slight cough, suggesting influenza or early tubercle, since the sufferer looks pale and ill. Murmurs may now become audible in the mitral or aortic areas. The fever continues, the spleen is enlarged and is painful on palpation. The hæmoglobin is lessened and the leucocytes are increased. The skin is somewhat jaundiced. Embolic infarcts of the brain, spleen and kidneys may occur. Moreover, aneurysms on the cerebral vessels may arise from streptococcic foci on their intima, hence hemiplegic attacks and meningitis are not rare. Hæmaturia and acute nephritis are frequent. Purulent pericarditis is not uncommon. The temperature ranges from 100° to 102° F., though it may remain between normal limits for periods of several days. When joint pains occur they are without objective signs and are uninfluenced by salicylates. The disease may run on for months, e.g., eight or ten, and has a high mortality.

The chief characteristic of staphylococcic endocarditis is the tendency to the formation of pyæmic abscesses in the lungs, kidneys and muscles, and suppurations in the joints and pericardium. The pyrexia is usually

high and continued. Rigors are comparatively rare in spite of the numerous metastases. The prognosis is unfavourable.

Pneumococcic endocarditis is rare. Pneumococci are present in the blood in about 70 per cent of cases of pneumonia. They infect the cardiac valves in less than 1 per cent. After the crisis the patient may remain comparatively well for some days, when his temperature ascends and becomes irregular. Remissions of 3° to 4° F. are not infrequent. Purulent meningitis is often noted which may cause stiffness of the neck, Kernig's sign, paralysis of the cranial nerves, optic neuritis, delirium and coma. Large effusions into the joints may ensue. These cases uniformly end in death.

In gonococcic endocarditis the prognosis is somewhat better. The temperature is often intermittent. The pericardium and myocardium are sometimes involved. Collargol has proved useless in infective endocarditis. Vaccine therapy offers some slight hope. Alcohol should be forbidden on account of the tendency to heart failure and embolism.

C. B.

Sandfly Fever in Catania.—Giunta (*Munch. med. Woch.*, February 12, 1912, p. 2682) reports an outbreak of sixty-two cases of sandfly fever which occurred in a convent in Catania, Sicily, during the months of May and June, 1911. No malarial parasites were discovered in the blood. The *Phlebotomus papatasi* was captured in considerable numbers in the sleeping apartments.

C. B.

Detection of Blood in Fæces.—Zoeppritz (*Munch. med. Woch.*, January 23, 1912, p. 1807) recommends the following method for the detection of traces of blood in the intestinal contents. Three to fifteen c.c. of the fæces, reduced to semi-fluid consistence by the addition of water, are stirred with $\frac{1}{3}$ to $\frac{1}{2}$ the volume of glacial acetic acid. The solids are allowed to fall to the bottom and the liquid portion is decanted, and is mixed with 3 to 5 c.c. of ether. Should the mixture be agitated too violently a turbid emulsion results, which may, however, be cleared by adding a few drops of alcohol. If the ether and the watery dilution of the fæces do not separate readily this may be effected by the addition of more water. The ether extract is next poured off, and after washing with water, is put into a test-tube into which a small quantity of finely-powdered guaiacum resin has been introduced. This is then trickled on a filter-paper which has been moistened with mature turpentine. A blue tint appears along the edges of the meeting of the fluid with the paper in from one to sixty seconds if blood be present. Any colour which may arise after this interval must be disregarded.

C. B.

Frequency of Duodenal Ulcer.—Simmonds (*Berl. klin. Woch.*, February 12, 1912, p. 328) has ascertained that in 15,000 post-mortem examinations duodenal ulcers were found thirty-six times and their scars seven times. Gastric ulcers and their cicatrices were ten times as frequent. In 40 per cent of the duodenal ulcers that condition was the cause of death. The greater frequency of scars of stomach ulcers com-

pared with duodenal scars indicates the smaller tendency of duodenal ulcers to heal. Only one-quarter of the ulcers occurred in women and one-sixth in children. No relation between burns and ulceration in the duodenum was noted. He draws attention to the fact that hæmatemesis may be caused by varicosity of the veins of the cardiac end of the stomach, and that cancer of the stomach may remain without symptoms for long periods.

C. B.

A New Method of Immunization against Trypanosome Diseases.—Professor Schilling (*Deut. med. Woch.*, No. 1, 1912) has published an account of some interesting work on this subject. His procedure was as follows:—

Rats, heavily infected with the trypanosome of nagana were bled into bouillon containing 2 per cent of sodium citrate; the mixture was then centrifuged, and the upper turbid layer drawn off by a pipette and mixed with an equal quantity of bouillon in which tartarated antimony, 1 in 700, had been previously dissolved. The fluid was again centrifuged, the sediment mixed with a small quantity of bouillon and allowed to stand for at least two hours. One-half to two cubic centimetres of the resultant fluid injected into the peritoneal cavity of a rat produced in the course of twenty-four hours a distinct immunity against trypanosome infection.

C. E. P.

Observations on the Effect of Various Drugs in Expelling Hook-worm.—Burton Nicol (*Journ. Trop. Med. Hygiene*, January 1, 1912) has published an interesting account of some observations on the action of various drugs on the hook-worm.

His conclusions are as follows:—

“The effect of the various drugs employed may be best demonstrated by a table showing the percentage of parasites expelled by the first and subsequent treatments.

PROPORTION OF HOOK-WORMS EXPELLED.

	First treatment per cent	Second treatment per cent	Third treatment per cent	Fourth treatment per cent	Fifth treatment per cent
Thymol (90 gr.)	97·87	2·13	0·0	—	—
Eucalyptus (2·5 gr.)	74·2	7·2	17·0	1·13	0·37
Izal (4 drm.)	90·0	10·0	0·0	—	—
Beta-naphthol (60 gr.)	86·0	14·0	0·0	—	—
“ (90 gr.)	97·32	1·58	0·89	—	—
Pelletierine tannate (12 gr.)	0·0	0·0	—	—	—

“Thymol and beta-naphthol gave much better results than any of the other drugs. There is probably very little difference between them in anthelmintic power, but the constitutional disturbance caused by thymol is so great that it cannot, in these doses, be used on a large scale. Beta-naphthol causes comparatively little disturbance, is effective, easily administered, and costs much less than thymol.”

Venereal Prophylaxis.—Neisser and Siebert introduced a fat-free cream for the prevention of venereal disease two years ago. Sklepinski (*Deut. med. Woch.*, April 4, 1912, p. 656) has remedied a defect in its

composition by increasing the amount of glycerine and decreasing that of alcohol. His prescription is as follows :—

Tragacanth. (powdered)	..	..	..	..	2	parts
Glycerine	..	..	..	..	27	„
Mix and add—						
Sodium chloride	..	..	..	..	1	part
Starch (powdered)	..	..	..	..	4	parts
Gelatine	..	..	..	..	0.7	part
Water	..	..	..	..	50	parts
						dissolved by heat.
Then thoroughly incorporate—						
Corrosive sublimate	..	..	..	..	0.3	part
						dissolved in alcohol
	..	..	..	..	15	parts

C. B.

The Abortive Treatment of Syphilis.—K. Stern (*Münch. med. Woch.*, February 13, 1912, p. 348) has treated fourteen cases of primary syphilis with salvarsan. No secondary symptoms appeared except in one instance in which roseola was observed three months after a third intravenous injection of 0.4 gm. of “606” In eight the Wassermann reaction was negative before and after treatment. In the remaining six an originally positive reaction was changed to negative, though in three of these it again became positive. Patients must be kept under observation for more than six months before deciding whether they are cured.

Queyrat (*Berlin. klin. Woch.*, March 3, 1912, p. 483) reports the results of the administration of salvarsan in seventy-eight initial lesions. In fifty-one no secondaries appeared, and the Wassermann reaction remained negative. In sixteen the serum reaction became positive, though no symptoms arose. In eleven, syphilides and a positive blood response were noted. He thinks that salvarsan is capable of destroying all the treponemata if injected within fourteen days of the date of infection, though this cannot be affirmed in the later stages of the infection.

C. B.

Salvarsan in Malaria.—Tuschinsky (*Deut. med. Woch.*, March 21, 1912, p. 548) has given 0.5 gm. of salvarsan intravenously in thirty-six cases of tertian, in four of quartan, and in thirty of æstivo-autumnal malaria. The attacks of benign tertian ague were aborted. The plasmodia disappeared from the blood in twelve or twenty-four hours. The spleen became smaller. The dose of 0.5 gm. was repeated in ten days. Notwithstanding this, recurrences were observed in one-sixth of the patients treated, at intervals of from fifteen to eighty-five days.

If the dose of salvarsan were smaller, there was some evidence that the parasites became resistant to arsenic. The patients who suffered from the quartan and æstivo-autumnal infections were not benefited by the remedy.

C. B.

Russian Army Medical Service.—The following notes have been extracted from an article (*Militär. Wochenblatt*, No 7, 1912) reviewing the reorganization of the Russian Army :—

Some important reforms have recently been made in the Army Medical Service. Formerly the District Medical Inspector administered the medical service with the troops while the military hospitals were

under the control of a Hospital Inspector, who was a non-medical staff officer. The latter appointment has now been abolished and the whole of the medical services placed under the District Medical Inspector.

C. E. P.

Catgut prepared with Tincture of Iodine.—Stabsarzt Professor Dr. Hoffman and Stabsapotheker Budde (*Deut. med. Woch.*, No. 13, 1912) reported the results of some investigations as to the effect of tincture of iodine on catgut. Their conclusions are as follows:—

(1) Catgut can be as thoroughly sterilized in 5 per cent alcoholic tincture of iodine as in a 1 per cent watery solution of iodine.

(2) The tensile strength of the catgut is not reduced by soaking it for five days in 5 per cent tincture of iodine provided the catgut is tightly wound on a frame. Catgut placed loose in the tincture becomes untwisted and loses 50 per cent of its tensile strength.

(3) The action of tincture of iodine on catgut results in the formation of hydriodic acid in the fibres of the gut. Tincture of iodine which has been used once for the preparation of catgut always contains a considerable percentage of hydriodic acid which is readily taken up by the albuminous constituents of the gut. Therefore only freshly prepared tincture should be used.

(4) Catgut sterilized by dry heat and placed loosely for thirty minutes in 10 per cent alcoholic tincture of iodine to which 3.5 per cent of potassium iodide has been added, does not take up so much iodine and is therefore more easily absorbed in the body.

C. E. P.

Mechanical Asepsis in the Treatment of Wounds.—Dr. W. v. Oettingen (*Deut. Militärärztl. Zeit.*, No. 6, 1912) published a paper on his "Mastisol" treatment of wounds in peace and war (see *JOURNAL OF THE ROYAL ARMY MEDICAL CORPS*, January, 1912, p. 119). During the battle of Mukden, v. Oettingen treated over 1,000 wounds by this method, and the results were so good that he was induced to perfect the method on his return to Germany. Mastisol fixes the bacteria in the skin and prevents them from reaching the wound. It has the further advantage of securely fixing the dressing in position thus eliminating all need for bandaging. No preliminary shaving or washing is required. It is obvious therefore that in dressing wounds in the field the mastisol method effects a great saving in time and material.

v. Oettingen uses sterilized twill for covering the wound. Twill permits evaporation and oozing to take place through its substance, at the same time it is strong and can be used to draw the skin together and so reduce tension on the stitches; this is especially useful after laparotomy, as the patient need not be lifted to have a circular bandage applied. The dressing can be easily removed by rolling it off the skin but not by a direct pull. v. Oettingen dips all his sutures into mastisol; bacteria will not grow along material treated in this way.

The mastisol dressing of wounds does not require any water; in field surgery this is an immense advantage.

C. E. P.

Extensive Food Poisoning in Barracks.—Stabsarzt Dr. Bofinger (*Deut. Militärärztl. Zeit.*, February 20, 1912) reported the following occurrence: From September 2 to 4, 1911, 186 men belonging to the

six companies of infantry in the Moltke Barracks, Stuttgart, reported sick with the following symptoms: headache, abdominal pains, diarrhoea and a temperature of 102° to 104° F.; about a quarter of the patients suffered from severe attacks of vomiting; in most cases the tongue was furred and the abdomen swollen and tender. The illness lasted about four days.

In fifty of the cases the stools were examined bacteriologically and the *Bacillus enteritidis* of Gaertner recovered. The patients' serum also agglutinated this bacillus in high dilutions. An important point in regard to the isolation of these cases is that bacilli were still plentiful in the stools up to the ninth day and only disappeared on the twelfth day.

Origin of the Outbreak.—An inquiry as to dates of onset pointed to the infection having taken place on September 1. Further inquiry suggested that the meat served at dinner that day was the infecting agent. Naturally no sample of this could be obtained. It was found, however, that three persons employed in the kitchen had suffered from diarrhoea on September 1. Gaertner's bacillus was recovered from the stools of one of them and the serum of all three persons agglutinated the bacillus in high dilutions. On September 1, the six companies had been out on field training and did not get dinner till four hours later than the usual time. The meat was cooked at the usual time and cut up for serving. It was then kept warm for four hours awaiting the return of the men. In all probability the cooks infected the meat when cutting it up. During the four hours waiting the bacilli multiplied rapidly and were consequently able to produce the attacks of poisoning. Experiments were made to test the effects of four hours' incubation on pieces of cooked meat, artificially infected with minute quantities of Gaertner's bacillus; the experiments showed that in this condition an enormous increase of the bacilli takes place. None of the men who received their dinner at the usual time showed any signs of poisoning.

C. E. P.

To Measure the Hardness of X-ray Tubes.—Assistant-Surgeon Dr. Broese (*Deut. Militärarzt. Zeit.*, No 5, March 5, 1912) describes a simple apparatus which he has constructed for measuring the penetration of X-rays. It is made by taking a sheet of aluminium 4 mm. thick and cutting it into strips. One strip is hammered so as to reduce its thickness to 2 mm. The pieces of aluminium are then fastened on to a board to form a series of steps. The first step has a thickness of 2 mm. the next of 4 mm., the next of 6 mm. and the last 8 mm. In the centre of each a small strip of lead 2 mm. thick is fastened. Along one side of the scale a broad strip of lead 2 mm. thick is attached. No rays penetrate the lead, this therefore affords a standard for comparison as to the number of millimetres of aluminium which the rays can penetrate. The scale is empirical, but in the hands of the same worker it gives useful results.

C. E. P.