

bowls to show us, and some stone-marten skins that he had got from trappers in the Zanskar. They were not cured, but a very pretty colour and so soft that I could not resist them. Mr. Kunick came up to ask us to dine with them, but I had a nasty bilious headache and R. was tired, so we went off early to bed after a light meal.

Two men came to say that sharpu had been seen on the hills behind the bungalow. R. had not intended to go out again, and we had planned to have a day free for packing, but on hearing they had been seen so near he thought he would have one more attempt. After I was in bed and R. was looking out field glasses and ammunition for next morning, I heard Burra Subhana's voice, and then Khazir But talking very excitedly on the verandah. R. went out to ask what had happened, and I just heard the word "mila" found. By the light of a candle the head was examined and measured. It measured 31 inches and was a beauty, better than any we had seen or could have hoped for. I sat up in bed and wrote a hurried note to the Padre. He had been so kind in helping that I wanted them to know the good news at once. As we told Mr. Kunick afterwards, if it had not been for them we should never have stayed so long in Leh and so would not have got a sharpu. In a few minutes he himself arrived just as pleased and excited as we were over the good fortune. Two ladies from the Dak Bungalow were dining with them, but he had just run up to say his congratulations in person.

We went off to sleep very happy that night, feeling that all those days of strenuous labour had been of some avail.

(To be continued.)

Current Literature.

CUMMINS, S. L., and WILLIAMS, ENID M. An "Acid-Fast" other than Koch's *Bacillus* Cultivated from sputum. *Tubercle*. 1933, v. 15, 49-53.

The organism described in this paper was obtained from the sputum of a young lady suffering from acute pulmonary disease which had come on shortly after a confinement. The clinical, radiological and systemic picture was that of acute phthisis, but the sputum had been reported negative on several occasions. The patient had suffered from the œsophageal condition called by Hurst achalasia of the cardia, and in the course of X-ray examinations in connexion with this a year before the onset of the acute lung disease an opacity had been detected in the right lung. With the sudden onset of acute pulmonary disease she became intensely cachectic, with high hectic temperature accompanied by much cough and sputum and appeared to be in the last stages of "galloping consumption." Blood examination

showed extremely rapid sedimentation of red cells, a bad Arneht count and a marked increase of monocytes as compared with lymphocytes. The sputum was found to contain numerous acid-fast bacilli, for the most part indistinguishable from tubercle bacilli but showing a few curious "balls" of curved rods sufficiently peculiar to raise the question of an unusual morphological type. The organism was markedly acid- and alcohol-fast, homogeneous or nearly so when stained by Ziehl, markedly granular with Much's stain and also ordinary Gram's stain. Morphological differences occurred, depending on age and on the medium, some elements being short, others long and often curved. No sign of branching was noted. Growth was rapid on egg medium, with or without glycerine. Original cultures developed within five to seven days, and subcultures were well advanced in twenty-four hours, being most profuse on media commonly used for tubercle bacilli. Cultures on solid media were at first white or cream coloured, then slightly yellow, and later became markedly corrugated. When exposed to sunlight the cultures developed a marked brownish coloration. The organism was found to emulsify much more readily than the tubercle bacillus.

Guinea-pigs inoculated subcutaneously with doses of about $\frac{1}{2}$ milligramme showed no signs of either local or general disturbance. A dose of 1 milligramme led to well-marked inguinal adenitis, persisting for some weeks. Of two animals treated in this way, one died after four months of intercurrent broncho-pneumonia and was found free from tuberculosis. Although cultures were negative acid-fast organisms were seen in sections of lung and inguinal lymphatic glands. The other animal, killed after five months, was completely negative. Nine guinea-pigs inoculated in the left groin all developed well-marked adenitis of the left inguinal glands. From one of them (killed on the tenth day) a positive culture was obtained from the liver. Another was killed and appeared normal except for a slightly enlarged spleen; the cultures were negative. A third showed an abscess in the abdominal muscles in the pus of which numerous acid-fast bacilli were found. The remaining six are still alive. Intravenous inoculation of a rabbit produced a large abscess around the ear vein; cultures from the pus produced a profuse growth of the bacillus. When the rabbit was killed no organic disease, apart from some lymphoid hyperplasia in the lungs and considerable degeneration of hepatic cells, was found and the organs were free from acid-fast bacilli though these were still present in the ear abscesses. Guinea-pigs, pigeons and a rabbit exposed in a closed glass chamber to the inhalation of the bacillus gave negative results.

Intradermal tests were carried out on laboratory animals and on human beings with "tuberculin" made from the bacillus. Positive results were obtained in guinea-pigs infected with the bacillus, while normal guinea-pigs were negative. Results with tuberculous guinea-pigs were inconclusive. Three normal human adults and four tuberculous persons were tested, and

with the exception of one normal and one tuberculous person who gave positives with 0.2 cubic centimetre of 1 in 1,000, the results were negative. The patient from whom the bacillus was isolated declined to be tested.

As other lines of treatment appeared hopeless bronchoscopy was carried out, and some fluid was abstracted and lipiodol introduced. It is believed that the lipiodol may possibly have been responsible for the favourable turn in the course of the illness but this point cannot be definitely settled. The patient ultimately recovered.

The authors believe that the most important conclusion to be drawn from the case is that even when the clinical picture is convincing, the finding of acid-fast bacilli in the sputum is not necessarily proof-positive of tuberculosis and suggest that in all doubtful cases cultural verification should be resorted to. They propose to designate the organism the "M. bacillus."

S. ROODHOUSE GLOYNE.

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GRIFFITH, A. S. **Observations on the "M" strain of Acid-Fast Bacilli.** *Tubercle.* 1933, v. 15, 53-9.

The author has investigated the pathogenicity of the M. bacillus described in the above abstract. The results of experiments with guinea-pigs were similar to those described by the above authors and showed that the bacillus was not virulent for the guinea-pig and was incapable of producing lesions resembling those of tuberculosis.

Cockerels, about eight weeks' old, were inoculated with a two-day-old subculture. Two of them were given one milligramme intravenously and were killed after 181 and 186 days respectively. No sign of disease was observed post-mortem and cultures were sterile. The cockerel, given a dose of ten milligrammes intramuscularly died after thirteen days from cold and wet. At post-mortem a tough yellowish white necrotic mass $\frac{3}{4} \times \frac{1}{2} \times \frac{1}{3}$ inch was found in the pectoral muscles and smear, from this showed a pure culture of pleomorphic acid-fast organisms. Other smears and cultures were negative. A dose of twenty-five milligrammes intramuscularly caused a thin fibrous patch between pectoral muscles but nothing else. The failure of the strain to produce disseminated lesions or toxic effects in chickens shows that the organism does not belong to the avian group of tubercle bacilli.

Experiments on the rabbit in which a large dose of M. bacilli was injected intravenously showed that the bacilli may become lodged in various tissues and multiply and produce lesions. The seats of election were the synovial membranes of the joints and tendon sheaths and, in one rabbit, the lymphatic vessels of the subcutaneous and subperitoneal tissues. The kidneys showed lesions of a retrogressive nature. The author concludes that the bacillus is pathogenic for the rabbit, but suggests that more

experiments, with smaller doses of bacilli, are necessary in order to determine the degree of pathogenicity.

Five mice inoculated intraperitoneally with *M. bacillus* died; three which received large doses of 10, 10 and 5 milligrammes, died in two, two and a half and three and a half days respectively. At autopsy in each case there was marked pallidity of the liver, the omentum was rolled up and the mesentery and peritoneum showed foci. Smears from the liver, spleen, peritoneal foci and anterior mediastinal glands showed extremely numerous acid-fast bacilli. Another mouse which received a dose of five milligrammes died in twelve days and showed severe generalized disease, and most of the kidney substance was replaced by purulent foci. Sections showed abscesses in the cortices swarming with bacilli, and masses of bacilli in the tubules. The mouse with a one milligramme dose died in twenty-nine days and showed little disease except in the kidneys, one of which was more than half replaced by abscesses while the other contained one large and one small abscess. The mouse inoculated with ten milligrammes subcutaneously survived and when killed after 126 days showed no definite lesions and cultures from the organs were sterile.

Two frogs were inoculated in the subcutaneous tissue of the right groin with five milligrammes of the culture. One frog died after eleven days and bacilli were disseminated over the body and had evidently undergone abundant multiplication. The other frog was found dead after ninety-five days but there was no naked-eye lesions. The bacilli were much less numerous than in the first frog and the author concludes that the strain is not virulent for frogs.

S. ROODHOUSE GLOYNE.

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The Efficacy of the Open Method of Burning Sulphur for the Fumigation of Unloaded Ships.¹

GENERAL CONCLUSIONS.

The experiments—the conditions of which were severe—show that in fumigation of an empty ship by burning good quality sulphur in trays (in the proportion of three pounds of sulphur per 1,000 cubic feet of space) a lethal concentration of sulphur dioxide is reached and maintained for more than the corresponding lethal period. Places where it is obvious that gas will hardly penetrate must be thoroughly opened up. If an empty ship is properly prepared for fumigating by the opening up of closed spaces, either sulphur dioxide or hydrogen cyanide will prove an efficient fumigant, but

¹ A note by Drs. P. G. Stock and G. W. Monier-Williams (Ministry of Health), Drs. A. B. Page and O. F. Lubatti (Imperial College of Science), and Dr. C. F. White (Medical Officer of Health, Port of London), submitted to the Permanent Committee of the Office International d'Hygiène public, Paris, October, 1933.

if the ship is not properly prepared, neither gas will be completely effective.

It seems clear to us that whilst individual authorities should be left a full discretion as to the particular method they prefer to adopt, all authorities can safely accept the open method of burning sulphur as a practical and efficient means for the fumigation of empty ships in order adequately to meet the requirements of Article 28 of the International Sanitary Convention.

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Reviews.

A SIXTH VENEREAL DISEASE. By Hugh Stannus, M.D., Ph.D.Lond., F.R.C.P.Lond., M.R.C.S.Eng., D.T.M. & H.Cantab. London: Baillière, Tindall and Cox. 1933. Pp. xii + 270. 9 plates. Price 12s. 6d.

The title of this work may seem somewhat obscure to those unacquainted with venereal treatment. Syphilis, gonorrhœa and soft chancre are the three classical diseases of venereal origin and no others are recognized by the Law or the Services.

A number of other conditions are however of venereal origin. The Americans have described a genital infection due to Vincent's organism and granuloma venereum has also been recorded. The sixth, which is the subject of the present volume, is divided into lymphogranuloma inguinale of the temperate regions and the better-known climatic bubo of the tropics. We need not be unduly confused over this nomenclature for these are really one and the same disease and the classification is purely geographical.

Much has been written of this condition and much still remains obscure. The author has, however, been at pains to consult practically every known authority on the subject and the bibliography to which he refers covers no less than 900 publications.

Whilst infectivity from venereal sources has been clearly established no organisms have been isolated and the disease would appear to be due to a filter-passing virus.

Many forms of treatment are recorded which of course means that so far no real cure has been discovered. Nearly every intravenous type of treatment has been tried from arsenic to antimony, and a number of cases have been exposed to X-rays and radium. In a limited experience one's personal predilection is to aspirate whenever possible on the lines of the ordinary bubo and by so doing one obviates the great length of stay in hospital which a contaminated incision inevitably involves. Should how-