Current Literature.

SPARK, T. E. HESTER. **Infectious Mononucleosis : A Problem in Diagnosis.** *M. J. Australia.* 1942, November 7, v. 2, No. 19, 413-21. [26 refs.]

Infectious mononucleosis is defined as an acute febrile illness with a benign prognosis characterized by the great variability of its clinical signs and its typical hæmatological changes. It is to be regarded as a generalized reaction to infection and not as primarily a disorder of the blood, and it is of practical importance in its capacity to mimic much more serious diseases. A brief summary of the relevant literature is given under which the contributions of Pfeiffer (1889 and 1908), Sprunt and Evans (1920), Tidy and Morley (1921), Paul and Bunnell (1932) and Bernstein (1940) are epitomized [but the important monograph of Glanzmann is not mentioned]. Experimental evidence of the infectious nature of the disease was obtained by Wising (1939). Injection into monkeys of emulsions of lymph nodes from infected patients produced a very similar disease in them which was transmissible from monkey to monkey. A laboratory worker contracted infectious mononucleosis after pricking his finger with a knife which had been in contact with a gland from one of the animals.

Tidy has described three clinical forms: (1) glandular, (2) anginose and (3) febrile, but the author finds that in practice the disease is so protean as to defy classification, the only factor common to all forms being the increase in the non-granular elements of the blood. Sore throat is of frequent occurrence but is so variable in degree as to require a separate classification into four types (Bernstein), ranging from mere diffuse injection to membranous ulceration resembling diphtheria. Glandular enlargement, the most widely recognized sign, is itself very variable in extent and distribution, the involvement of the mesenteric and mediastinal groups of nodes appearing to produce the abdominal and thoracic symptoms which are sometimes prominent. Enlargement of the spleen is commonly observed and jaundice is occasionally seen. This may be attributed to obstruction of the bile duct by enlarged glands in the portal fissure. Although numerous epidemics have been described the degree of contagiousness is probably low. Sporadic cases are frequent and may be due to transmission by symptomless carriers. Very few cases have been recognized in Australia.

In adults the total number of leucocytes does not much exceed the normal limits, ranging from 5,000 to 15,000 per c.mm. A predominance of neutrophils early in the disease is soon succeeded by the typical increase in monocytes ranging between 60 per cent and 90 per cent. An abnormal form of monocyte, showing variability in size, structure and staining properties, is a characteristic feature in a blood film. The heterophile agglutination test, discovered accidentally by Paul and Bunnell, has identified many forms of the disease not previously recognized. Agglutination of sheep corpuscles by a serum dilution of more than 1 in 64 represents a positive result.

The differential diagnosis from sepsis, secondary syphilis, tuberculosis, lymphadenoma, leukæmia, diphtheria and typhoid is fully discussed and the paper concludes with a summary of the notes on 10 sporadic cases of the disease diagnosed in three Sydney hospitals since 1934. An abbreviated differential white cell count is shown for each case. Eight of them gave a positive reaction to the Paul-Bunnell test. Four were of the severe anginose type, tonsillar membrane being noted; mild icterus was described in another case. A biopsy of a lymph node made in the last case of the series showed fibrosis affecting the medullary tissue, the follicular structure being unaffected.

J. W. HEALY.

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HARRIS, L. C. and SANER, R. G. **Rats as Vectors of Disease : A Survey of the Rats of Johannesburg.** *S. African J. M. Sci.* 1942, July, v. 7, Nos. 2-3, 160-72. [88 refs.]

In this paper are reported the results of an investigation planned to ascertain the incidence of disease in rats caught in Johannesburg, with particular reference to diseases transmissible to man. Only two large-scale surveys had been carried out previously, one by Moll (1917) in America and the other by Balfour (1922) in England. Six live rats (*Rattus rattus*) sent daily from the Johannesburg Public Health Department were killed with carbon monoxide and examined as follows: Blood, stained with Leishman's stain, was examined for *Spirillum minus* and *Bartonella muris*, and at the same time wet blood preparations were examined for *Trypanosoma lewisi*. For the detection of rabies, brain emulsion was injected intraperitoneally into guinea-pigs. For the detection of bacteria of the Salmonella group, the spleen and a portion of the liver were incubated in broth and cultured on MacConkey slopes and blood agar. Suspicious colonies were examined for the fermentation of sugars. Those positive were identified by agglutination. Where the agglutination test was positive the organisms were either brought to their highest titre, agglutinated with monospecific serum, or submitted to an agglutination absorption test. The rats were also inspected for superficial ulcers or other lesions such as might occur in rat leprosy, plague, tularæmia and sporotrichosis. Dark-field microscopical examinations of kidney emulsions were made for leptospira. Livers were inspected macroscopically for lesions of *Hepaticola hepatica* and *Cysticercus fasciolaris*, the bladder form of *Tænia crassicollis*. The intestines were searched for adult intestinal parasites and the fæces examined both for ova and parasites. A summary of the results is as follows (the numbers in brackets are the number of rats examined and the numbers following are those found to be infected): Rabies virus (132) 0; *Rickettsia mooseri* (132) 0; *Pasteurella pestis* (250) 0; *Bact. tularense* (250) 0; Salmonella (100), *S. typhi-murium* 4, *S. enteritidis* 1; *Trypanosoma lewisi* (75) 19; *Spirillum minus* (132) 1; *Leptospira icterohæmorrhagiæ* (100) 0; Sporotrichum (250) 0; *Tænia crassicollis* (42) 7; *Hymenolepis nana* (18) 1; *Hymenolepis diminuta* (28) 9; *Trichinella spiralis* (30) 0; *Hepaticola hepatica* (60) 10; *Syphacia obvelata* (18) 7; *Giardia intestinalis* (8) 0; *Cercomonas muris* (6) 5; *Clonorchis sinensis* (18) 0; *Bartonella muris*, unsplenectomized (84) 0, splenectomized (3) 2; *Myco. lepræ-murium* (250) 0.

The authors' comment on these findings. The fact that murine typhus was not isolated requires an explanation since it has been found in Potchefstroom rats. It cannot be the absence of vectors (*Xenopsylla cheopis*) since these fleas are found on Johannesburg rats. A possible reason lies in difference in temperature. The annual mean maximum temperature of Johannesburg is 5° F. lower than that of Potchefstroom. It is possible that *Rickettsia mooseri* does not thrive in the flea vector at the lower temperature. In support of this belief is the fact that murine typhus does not occur in colder climates. The absence of plague conforms with other experience. From 1906 to 1939, 99,095 rats and mice were examined by the South African Institute for Medical Research without a positive result. 5 per cent of the rats examined were infected with Salmonella. In view of the fairly high incidence of this disease in rats, stricter regulation of the rodent population should be observed, especially in places where food is stored or prepared for human consumption. The reason for the absence of Leptospira in South Africa remains to be discovered. In cases of jaundice of which the cause cannot be established, the introduction of agglutination tests might reveal the presence of this disease.

The authors also publish a very comprehensive table of the incidence of disease in rats (excluding plague) in various countries as recorded in available literature. They conclude that there is a high incidence of disease in Johannesburg rats, that many of these diseases are transmissible to man and that rigorous control of the rodent population is to be regarded as an essential public health measure, a conclusion with which many experienced public health officers in England will agree.

B. T. J. GLOVER.

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HUDDLESON, I. F. **Immunity in Brucellosis.** *Bact. Reviews.* 1942, June, v. 6, No. 2, 111-42. [85 refs.]

The data concerning active immunity to Brucella infection in man and some species of animals is collected and reviewed. Many years ago it was noted that many infected cattle aborted only once and the possibility was suggested that an immunity against abortion could be acquired from infection. There is no doubt that this is the case. Another important series of observations concerning Brucella infection and calves indicates that newly-born calves are capable of resisting infection. Although Brucella can be recovered from calves during and shortly after the feeding with milk containing live organisms, these bacteria disappear from the tissues some weeks after the feeding is discontinued. This resistance does not necessarily come from colostrum which may contain specific antibodies, for calves from non-infected cows, which do not receive colostrum containing Brucella antibodies, appear to be just as resistant to infection up to a certain age as those that do. A small percentage, however, may become infected under natural conditions and remain so to maturity.

The early studies on the production of immunity in cattle by artificial means were directed towards preventing the chief symptom, premature expulsion of the fœtus. Little consideration was given to the prevention of active infection; this objective was pursued even after it was known that Brucella may be present in the milk of infected cows. Some of the later literature demonstrates that it is possible to inject both pregnant and non-pregnant cattle with a live culture of very low virulence without harmful results, although the agglutinins formed because of this make it difficult to detect infection by the agglutination test. A culture of moderate virulence, Strain 19, is now used and reports suggest that calves between the ages of four and six months should be treated with this strain. Numerous records are cited of the encouraging results obtained with this strain in protecting cattle after they reach breeding age and a prolonged agglutinin titre is avoided by vaccinating calves at ages between four and eight months. A high degree of active immunity may be produced against natural infection during the first pregnancy and this immunity remains even during the second and third pregnancies. The organism, when injected in calves, does not establish itself in the animal body and produce the carrier state; calves and young heifers show an agglutinin titre for only a few months after vaccination.

The infected goat continues to be a great source of infection throughout the world, and so far the injection of goats with live *Br. abortus* or with a culture filtrate prepared from *Br. melitensis* appears to be of no value in actively immunizing them against infection with *Br. melitensis*.

Recently Huddleson has obtained from live Brucella a water-soluble immunizing antigen which is destroyed by most antiseptics and by heat. It appears that it is now possible to induce an active immunity without the use of living cells, a result hitherto not attained and the immunizing antigen in the cell possesses labile characteristics.

In man, there is evidence that an acquired immunity following clinical or sub-clinical infection occurs and in fact is common in veterinarians, certain packing house employees, farmers and laboratory workers. There is, however, no certain indicator of active immunity to Brucella infection in man and the evidence rests on the results of skin sensitivity and opsonic tests. As yet there is no safe and effective vaccine for human use.

From observations made it would seem certain that an immunity which is produced against one of the types of Brucella will protect against an infection by the other two. R. LOVELL.

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PURRIEL, P., PIAGGIO, A. A. and RISSO, R. Investigaciones sobre infección brucelosica realizadas en las usinas de pasteurización de leche de Montevideo "Conaprole." **[Incidence of Brucellosis in a Pasteurizing Plant in Montevideo.]** *Arch. Uruguayos de Med., Cirug. y Especialidades.* 1942. Mar., v. 20, No. 3, 225-31.

The plant referred to employs 1,200 workers and at it nearly 200,000 litres of milk are pasteurized daily. There are four small establishments in the town selling raw milk. Inves-

tigation of the Montevideo cattle showed 34·4 per cent to react for Brucella. The author tested 1,173 of the workers and staff [stated as 1,193 and the percentage is worked out in the paper on this total]; 955 were men and 218 were women. Altogether 190 were positive, 16·2 per cent [wrongly given as 15·9]; 130 among the men, 13·6 per cent and 60 among the women, 27·5 per cent. The rate among the women, double that among the men, is ascribed to the closer contact of the former with the cattle and the infected milk. H. HAROLD SCOTT.

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Reviews.

THE UNFIT MADE FIT. By Dr. Harold Balme. Published for the British Council in Great Britain and Northern Ireland, by Sir Isaac Pitman & Sons, Ltd., and overseas (including Eire) by Longmans Green & Co. Pp. 32. Price 1s.

This brochure deals with the rehabilitation of the injured. While appreciating that such a process requires due consideration of the psychological trauma in addition to the physical injury, the booklet concerns itself chiefly with the physical measures undertaken to produce an optimum end result.

The recent advances in physical rehabilitation are considerable including, as they do, special lines of treatment to counteract the after-effects of injury or disease.

The photographic illustrations are excellent and the information contained in the text provides a review of the modern application of physical methods.

These and similar methods play an important part in the treatment of people whose illness is nervous or mental rather than physical and in this type of case the importance of "team-work therapy" is stressed.

The role of occupational therapy as an agent for diversionary treatment, vocational treatment and specific therapeutic treatment is discussed.

This brochure should serve to stimulate the interest of every medical man in the rapid growth and potentialities of this form of rehabilitation therapy.

A TEXTBOOK OF PSYCHIATRY FOR STUDENTS AND PRACTITIONERS. Sixth Edition. By D. K. Henderson, M.D.Edin., F.R.F.P.S.Glas., F.R.C.P.E., and R. D. Gillespie, M.D. Glas., F.R.C.P.Lond., D.P.M.Lond. Oxford University Press. London: Sir Humphrey Milford. 1944. Pp. xii + 719. Price 25s. net.

The appearance of the sixth edition of this well-known textbook by Professor D. K. Henderson and Air Commodore R. D. Gillespie is a sign of the times. From the way the four impressions of the fifth edition have disappeared it is obvious that this is a popular textbook and the demand for a sixth edition signifies also a growing interest in psychiatry. A comparison of this edition with the first, published in 1927, demonstrates the tremendous progress made in the subject in less than twenty years. It is a matter for sincere congratulation to both authors that this new edition has been brought so thoroughly up to date—it must be a formidable task constantly to maintain in modern form a textbook of seven hundred pages.

Extensive additions have been made to the text of the last impression of the fifth edition, and the authors have added a chapter on what they acknowledge as the "dramatic successes attained by methods of physical treatment." In this chapter are gathered such empirical methods of treatment as insulin therapy, continuous narcosis, cardiazol and electric convulsion therapy, narco-analysis and leucotomy. The description of these methods is sufficiently detailed to give a clear picture of their technical requirements. It is wisely stressed in the text that doctors should have first-hand experience at some clinic practising the methods