

œdema and the ability of the child to open its eyes. As the stick cannot reach the cul-de-sac and deep folds, the cauterization is to be followed by a large instillation of a 1 per cent. solution of nitrate of silver, seven or eight drops. This is free from danger, and can be used by any physician or capable nurse. In cases treated from the start and all mild ones such instillations repeated twice daily suffice without the use of the stick. When the child for any reason cannot be seen by the physician, weak solutions, 0.01 to 0.05 per cent., can be used by the nurse three times a day, following irrigation with permanganate. The stick is to be reserved for severe cases with great œdema and profuse suppuration.

The crux of the treatment is the irrigation. The difficulty is to have this properly performed. Efficiency without violence is the secret. When the pus has disappeared the silver may be replaced by astringent collyria of sulphate of zinc. The strength of the permanganate is to be reduced and finally replaced by borate of soda in solution. The eye should never be bandaged. The outflow of pus is to be favored and not restrained. The margins of the lids may be oiled with an ointment of simple vaseline or yellow oxide of mercury or aristol. Iodoform is to be avoided, being frequently an irritant.

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## PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

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**On the Pathological Changes in Hodgkin's Disease, with Special Reference to its Relation to Tuberculosis.**—DR. DOROTHY M. REED (*Johns Hopkins Hospital Reports*, 1902, Nos. 3, 4, and 5, vol. x. p. 133) states that since Hodgkin first described, in 1832, the peculiar enlargement of the lymphatic glands, the exact nature of the pathological changes in the glands and the cause of their lesions has been the subject of much discussion. At various times the disease has received different synonyms. Progressive multiple gland hyperplasia (Wünderlich, 1858), lymphosarcoma (Virchow, 1864), pseudoleukæmia (Cohnheim, 1865), adenia (Trousseau, 1865), and malignant lymphoma (Billroth) have all been used to designate this affection. Delafield, in 1887, reported a case of primary tuberculosis of the lymph glands simulating pseudoleukæmia, and other authors have made similar observations. Sternberg found tuberculosis in eight out of thirteen autopsy cases

of Hodgkin's disease, and concluded that the lesions in the glands were due to a peculiar tuberculous process. Clarke finds no warrant for the assumption that the process is a tuberculous one.

Two etiological possibilities have heretofore been considered, viz., that of a malignant growth and that of an infectious process. So far the bacteriological findings have been entirely unsatisfactory, but although the histological changes resemble somewhat those of a new-growth, the author believes that further investigation will show a great similarity to inflammatory processes. Tuberculosis has been considered the cause of Hodgkin's disease by several observers. With this view the author entirely disagrees, for although tuberculosis may exist at the same time with Hodgkin's disease, the two processes are totally distinct. In most of the cases when both affections coexist, tuberculosis appears as a secondary process.

Clinically the disease can be easily recognized. It occurs oftenest in early life, and much more frequently in males than in females. A tuberculous family history is not found in an unusual percentage of cases. Throat trouble and inflammation of the eye or ear often precede the growth. The one constant feature is a progressive enlargement of the lymphatic glands, usually beginning in the cervical nodes, and being at first unilateral. The single large glands can often be mapped out, and involvement of the skin or adjacent tissues rarely occurs unless there is secondary infection. Progressive asthenia, anæmia, and cachexia supervene. Other than the anæmia there are no specific blood changes. Irregular or continuous fever is the rule. Enlargement of the spleen is always present, and it may be enormous. The liver is less often enlarged. Pressure symptoms are common. The majority of cases last from one to four years, but the process may be of an acute nature.

No therapeutic measure is known which influences the course of the disease, and after extirpation of the glands recurrence is the rule.

The author reports eight cases of Hodgkin's disease, seven of which were in boys under seventeen years of age and one in a woman, aged fifty-five years. The duration of the growth varied from two to seventeen years. In all the cases there was anæmia, but otherwise the blood changes were not remarkable. All of the cases showed a slight, irregular fever, with occasional exacerbations. Tuberculin was given in five cases, but without reaction. Complete excision of the tumor mass was performed in five cases. In three cases the material was obtained from autopsies. In one of these cases there was generalized miliary tuberculosis; in the other two there was no sign of tuberculosis, and no tubercle bacilli could be demonstrated in sections from the glands. Macroscopically, the glands are discrete, and on section appear uniformly semitranslucent gray or broken by yellow streaks. The so-called metastatic nodules may appear in any organ where lymphoid tissue is found normally.

Microscopically, the earliest change in the lymph glands was an increase in the lymphoid elements, with beginning proliferation of the reticular endothelial cells. Later, the process was characterized by an extensive proliferation of the endothelial cells, from which large numbers of giant cells were formed, and the production of connective tissue, so that in the older glands the normal structure was completely destroyed. Usually eosino-

philes were present in large numbers, and plasma cells, "kugelzellen," endothelial phagocytic cells, and mast cells were also seen.

In the metastatic nodules the same series of changes take place, with the production of connective tissue and the presence of the different cells found in the lymph glands.

The conclusions are :

1. We should limit Hodgkin's disease to designate a clinical and pathological entity, the main features of which are painless progressive enlargement, usually starting in the cervical region, without the blood changes of leukaemia.
2. The growth presents a specific histological picture—not a simple hyperplasia, but changes suggesting a chronic inflammatory process.
3. The microscopic examination is sufficient for the diagnosis. Animal inoculation may confirm the decision by its negative results.
4. Eosinophiles are usually present in great numbers in such growths, but not invariably. Their presence strengthens the diagnosis.
5. The pathological agent is as yet undiscovered. Tuberculosis has no relation to the subject.—W. T. L.

**Report on Diphtheria Bacilli in Well Persons** (*Journal of the Massachusetts Association of Boards of Health*, July, 1902, by a committee of the Board working in co-operation with a number of recognized experts).—In all 4250 healthy individuals were examined in various parts of the United States, and it was found that in nearly 3 per cent. of these persons true diphtheria bacilli were found, using as a basis of judgment the three types of *B. diphtheriæ* described by Westbrook. As tested on guinea-pigs, about 17 per cent. of these true forms were found to be virulent. In healthy persons who have the *B. diphtheriæ* as a result of exposure to the disease the percentage of virulent forms is much higher, and in such cases the persons, although themselves immune, should be regarded as fully as dangerous to the public health as convalescents from the disease. It is concluded that it is impracticable to isolate well persons infested with diphtheria bacilli if such persons have not been recently exposed to the disease; and, furthermore, it is not advisable, as a matter of routine, to isolate from the public all the well persons in infected families, schools, and institutions.

**On the Cultivation of the Virus of Variola.**—T. ISHIGAMI (*Sei-I Kwai Medical Journal*, Tokyo, 1902, vol. xxi., Nos. 4 and 5) has been able further to identify the protozoon described by Guarnieri as the cause of vaccinia and variola, and also to cultivate this organism on a bouillon medium containing the epithelial cells of normal calves. That this is the true etiological factor in variola he has shown by reproduction of the characteristic lesions in calves by inoculations with cultures transplanted as far as the third generation. The protozoon resembles in its life cycle the microsporidia. It occurs in variola lymph, in scabs, and in the epithelial cells of the inoculated calf, in the form of sporozoites, which, under favorable circumstances in the animal, develop by direct division into cysts. In culture media the growth is less rapid, and the power to reproduce the specific lesions is lost at the third transplantation.—F. P. G.

**On the Sensibilizers of Sera Active against Albuminoid Substances.**  
—GENGOU (*Annales Pasteur*, 1902, vol. xvi. p. 734) shows that the blood sera of animals immunized with cow's milk, egg-albumin, pure fibrinogen, and heated serum possess, in addition to the precipitins, which have already been described, substances analogous to the "substances sensibilisatrices" (amboceptors), which have been so much studied in the hæmolytic and bacteriolytic sera. The presence of such sensibilizing substances may be detected by their power to absorb alexins (complements) from normal sera, as is shown by the inability of such mixtures subsequently to complete the hæmolysis of sensitized hen's red blood corpuscles. These experiments presuppose and would seem further to confirm Bordet's theory of unity of the alexin. Such albuminous sensibilizing bodies are further shown to be non-specific within certain limits, as is the case with the precipitins.—F. P. G.

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**The Pathology of Lymphotoxic and Myelotoxic Intoxication.**—FLEXNER (*University of Pennsylvania Medical Bulletin*, 1902, vol. xv. p. 287) describes the histological changes in the blood-forming organs of the rabbit and guinea-pig when inoculated with the blood of animals previously treated with sterile emulsions of one set of these organs (lymph nodes, spleen, or bone-marrow). Funck has already noted the effect on the various forms of white blood corpuscles *in vitro* and *in vivo* when treated with lymphotoxic, myelotoxic, and splenotoxic sera obtained by immunization of another species of animal with the substance of the different blood-forming organs; but hitherto no one has described the effect produced by such sera on the organs against which the foreign animals have been immunized. Lymphotoxins, splenotoxins, and myelotoxins are found to produce a most marked effect on their respective organs, but this activity is not entirely specific, as the other sets of blood-forming organs are also affected. In brief, the changes noted are, in the case of the lymph nodes, enlargement due to hyperplasia of the germinal nodes; in the spleen, enlargement through hyperplasia of the Malpighian bodies; and in the bone-marrow an enormous increase of the white blood elements. The three toxins are distinct and different in their action, and the myelotoxin possesses a far more active effect on the non-specific organs.

This community of interaction would indicate, it appears, the existence of common receptors in all the blood-forming organs, and further investigations along this line promise to reveal a more definite basis for the understanding of the origin of the formed elements of the blood.—F. P. G.

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**On the Actinomyces-like Development of Some of the Acid-resisting Bacilli (Streptothrices?).**—A. C. ABBOTT and N. GILDERSLEEVE (*Centralblatt für Bacteriologie*, 1902, No. 12, Band xxxi. p. 547), experimenting with the grass bacillus II. (Moeller), the timothy hay bacillus (Moeller), and the butter bacillus (Rabinowitsch), found that after intravenous inoculations of the organisms small nodules developed in the kidneys of the inoculated animals. This occurred at the end of twelve to fifteen days, at which time the animals were killed. The lungs were rarely affected. Histologically, these nodules closely resembled tubercles, and the author's findings practi-

cally coincided with those of Hoelscher. From these areas were recovered the acid-proof bacilli injected. Certain bodies unstained by ordinary histological methods appeared in the lesions, which, on account of their rosette-like shape, suggested the structure of a mycelium. Stained by the method of Gram or Babes and Leoarditi, they were readily recognized as mycelia, strikingly like actinomyces. The typical actinomyces mode of growth was common, but beaded threads were also found closely matted together and grouped like bacillus tuberculosis grown upon artificial media. A study of this mycelial development suggested that the original bacilli were really segments of the beaded mycelial threads. Small coccus-like bodies were found about the mycelia and often extended into the surrounding tissues. These were taken to be sections of hyphæ.

Comparing the distinguishing staining reactions of this group of saprophytes with those of bacillus tuberculosis; comparing the various morphological peculiarities exhibited by some of them with those now known to occur during the life of bacillus tuberculosis—notably branching, mycelial development under artificial conditions, and actinomyces-like growth in diseased tissues—and considering the fact that one of the results of the pathogenic actions of all is the production of nodular new-growths having often many features in common, the authors regard them as botanically closely allied and as morphologically improperly classified. They therefore suggest that they be grouped with the actinomyces or the streptothrices, in conformity with the suggestions made by others concerning bacillus tuberculosis.—W. T. L.

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**On the Bacteriological Findings in an Epidemic of Dysentery in Southern Syria.**—P. T. MÜLLER (*Centralblatt für Bacteriologie*, Abt. 1, Band xxxi., S. 558) reports his findings in a few cases at the end of a dysentery epidemic in this locality. He regards it as distinctly proved by the researches of Shiga, Flexner, Kruse, and Vedder and Duval that epidemic dysenteries in general are universally caused by a specific micro-organism, the *B. dysentericæ*—an organism which, however, may possess slight cultural variations in different localities. Müller himself isolated an organism varying in no particular culturally from the *B. dysentericæ* as described by the authors mentioned. Guinea-pigs and rabbits inoculated with this bacillus, and others with the organism of Kruse, showed interagglutinations, still further demonstrating the unity of the species.—F. P. G.

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