INFECTIONOUS DISEASES.

By CLAUDE B. KER, M.D., F.R.C.P.,
Medical Superintendent of the Edinburgh City Hospital, and Lecturer on Infectious Diseases, University of Edinburgh.

ERYTHEMA IN THE COURSE OF INFECTIOUS DISEASES.

Hutinel (La Presse Méd., 13th March 1912) writes an interesting paper on this subject. He refers especially to the erythema which occasionally supervenes in the course of enteric fever, and which, in his experience, is often associated with a certain group of severe symptoms. The erythema itself is usually polymorphous in character, assuming a resemblance to both measles and scarlatina in different parts of the body. The sites most favoured are the knees, elbows, wrists, and ankles, and, above all, the buttocks and the face. The eruption is not accompanied by itching, and is followed by more or less desquamation. This type of rash is, of course, seen not infrequently in enteric fever and in the course of the other acute infectious conditions.

Hutinel, however, regards it merely as a single element in a symptom-complex, of which the other signs are vomiting, diarrhoea, a retracted abdomen, a choleraic facies, and a low pulse tension. The temperature tends to fall rather than rise, and the appearance of the symptoms has sometimes suggested the occurrence of a perforation. There is in all cases a profound asthenia and well-marked wasting. So far as enteric fever is concerned, Hutinel has observed what might be described as an epidemic of this symptom-complex, 13 out of 36 patients being affected, and no less than 6, or nearly half, succumbing. He apparently regards it as identical with the erythema which complicates severe cases of septic scarlatina, which is occasionally observed in broncho-pneumonia following measles, which was recognised in diphtheria before the days of serum sickness, and which may be seen in acute intestinal inflammations and colitis.

The rash, in other words, is merely one symptom of a general condition, probably an infection depending upon streptococci or other micro-organisms. It is, of course, important to exclude the possibility of drug rashes. In discussing the pathology of the condition Hutinel lays stress upon the fact that in all his autopsies he has found the liver enlarged and fatty and the suprarenal glands increased in size and weight. Both medulla and cortex are affected, but the latter suffers most and may show areas of necrosis. In some instances both the thyroid and pancreas were also diseased. He believes these changes may be due to the direct action of micro-organisms or their toxins as in the case of diphtheria, and that the micro-organism con-
cerned may be either that which is responsible for the original illness or one which has become imported secondarily.

Roger considered the changes in the liver as being most important in the causation of the symptoms given above, but Hutinel agrees with Ribadeau Dumas and Harvier that the subacute inflammation of the suprarenal glands is in reality the cause. In favour of this view he describes the symptoms of a boy recently treated by him whose symptoms were much ameliorated by the administration of adrenalin, and recurred when the drug was withdrawn, only to disappear entirely shortly after its resumption.

It may be remarked that rashes of the type described often occur in the course of enteric fever, unaccompanied by any of the serious symptoms detailed above. Hutinel's paper, however, will doubtless lead to a careful examination of the suprarenal bodies in fatal cases of septic scarlatina as well as in typhoid.

**The Ophthalmo-Reaction in Typhoid Fever.**

When Chantemesse in 1907 adapted the principle already laid down for tuberculosis by Calmette, and devised a method of obtaining an ophthalmic diagnostic reaction for enteric fever, hopes were raised that the general practitioner would have placed in his hands an easy method of recognising that fever. Subsequent observations, however, published by various authors, did not tend entirely to confirm the value of the test, which, it was asserted, might be positive in normal persons, was not invariably present in enteric fever, and occasionally caused too strong a reaction. Austrian (Johns Hopkins Hosp. Bull., January 1912) has made a careful investigation of this method of diagnosis, and the results which he has obtained are worthy of attention. In preparing the antigen which is to cause the reaction he has slightly modified the procedure of Chantemesse. A large number of flasks of bouillon were inoculated with no less than 80 strains of typhoid bacilli, Austrian considering that failures to obtain reactions depend upon the fact that the strains infecting the patient may be sufficiently dissimilar from those used in preparing the antigen to nullify the test. He instances Durham's theory of the causation of relapse in fevers as a point in favour of this view. The typhoid cultures were centrifugalised and washed, and an emulsion made in sterile distilled water. This, after being exposed to 60° C. for two hours, was dried *in vacuo*. The desiccated culture was then ground in an agate mortar with crystals of sodium chloride for three hours, sterile water being added drop by drop. The resulting emulsion was then warmed for two hours at 60°, and this heating was repeated for half an hour on three successive days. Thereafter the supernatant fluid was slowly poured into ten volumes of absolute alcohol and the white flocculi formed were dried
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in vacuo. The residue was ground to a powder, and one drop of the solution of ten milligrams of it in one cubic centimetre of water was used for each test.

Austrian, after employing the reaction in 75 cases of enteric fever and in 190 persons either normal or suffering from other diseases, arrived at the following conclusions:—A solution of one-third to one-half of a milligram of "typho-protein" in a drop of water, when instilled into the conjunctival sac of a patient ill with typhoid fever, causes a typical inflammatory reaction. The most constant results are obtained when the "protein" is derived from numerous different strains of the bacilli. The typical response shows definite characteristics, being limited to, or maximal in, the palpebral conjunctiva of the lower lid and in the caruncle. It appears in from one to five hours, reaches its maximum intensity in about six hours, and persists twenty-four hours or longer. Its most characteristic sign is the deep purple congestion of the caruncle and lower lid. The response produced in other conditions is different, being shorter in duration, showing less congestion in the caruncle, and tending to affect the bulbar conjunctiva, while purulent inflammation is more common. The results of the test closely correspond with those of blood cultures, and the reaction is of greater assistance than that of Widal in early diagnosis. Austrian regards the phenomenon as anaphylactic in character, considering the patient as sensitised by his own micro-organisms. He thinks that the reactions obtained in normal persons, different as they are from the specific one, depend similarly upon the sensitisation of the individual by colon bacilli, which are so closely allied to those of typhoid. In proof of these views he cites interesting experiments showing that guinea-pigs sensitised by intra-peritoneal injections of "typho-protein" can be fatally intoxicated by a post-orbital injection of colon protein and vice versa.

The reader of Austrian's complete paper will be impressed with the accuracy of the test. Unfortunately an aqueous solution of the protein does not keep well, and the reaction cannot readily become popular if a fresh solution has to be made for each test. No doubt this difficulty will be overcome, in which case it is probable that in the ophthalmo-reaction of Chantemesse we will have the simplest method of accurately diagnosing enteric fever.

Pathology of Whooping-Cough.

Döbeli (Corr.-Bl. f. Schweiz. Aerzte, 1912, No. 4) gives expression to somewhat revolutionary views concerning whooping-cough. He considers that, so far, no micro-organism has been isolated which can be absolutely proved to be the cause of the disease, which he nevertheless admits to be communicable and to confer immunity for the future after
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a single attack. He says that children can develop whooping-cough without having been brought in contact with anyone suffering from the illness. Whooping paroxysms appear if the nervous system of the child is over-excitatable, and are severe in direct proportion to the excess of excitability. The infection is due to the catarrh which invariably accompanies pertussis, and which can be caused by all sorts of bacteria being communicated from child to child. To develop whooping, however, a child must have heard, and probably also seen, paroxysms in another patient, and this kind of infection is psychical. (It may here be not unfairly remarked that this last suggestion is in flat contradiction with Döbeli's first conclusion that a child may develop whooping-cough without having been in contact with one suffering from the disease.) The immunity is explained as a psychical immunity, the patient having developed sufficient will-power to prevent a repetition of similar attacks in future.

It is not easy to regard these conclusions very seriously, the more so as there is nothing in Döbeli's paper which can be said in any way to prove them. It is a well-known fact that the highly infectious prodromal stage of pertussis may last as long as six weeks. It is extremely difficult to assert, therefore, that a patient suffering from the disease has not been in contact with an affected child. As for the statement that it is necessary for a child to hear another whoop before developing the paroxysms, the records of every children's hospital will furnish scores of instances to the contrary. The infecting case is often some weeks in the wards before commencing to whoop.

These facts and others are discussed adequately by Feer (Corr.-Bl. f. Schweiz. Aerzte, 1912, No. 6) in a reply to Döbeli's contribution. In the first place he obviously considers, as many of us do, that the bacillus of Bordet and Gengou, if not the proved cause of pertussis, should be regarded seriously. He thinks there is no proof at all that any sort of bacterial infection of the respiratory passages can assume the characteristics of whooping-cough. It is quite true, however, that such conditions may in certain children produce symptoms of laryngismus which it may be difficult to distinguish from pertussis. Such children, however, are not found to be infectious to others in hospital wards. On the other hand, if by any chance a child in the prodromal stage gets by accident into a ward and remains there even a single day such an importation is often followed by a small ward epidemic of the disease. That infection is most to be feared at this early stage of the illness, before the development of the whoop, is strongly against the importance of "psychical infection." Deaf mutes, moreover, are liable to pertussis, and surely psychical influence can play little or no part in impressing the young infants who form such a large proportion of our patients. The immunity from a second attack so universally observed is the strongest argument in favour of the specific nature of pertussis.
The explanation of Döbeli that the immunity is psychical appears overstrained. It is still less satisfactory when we remember that in psychical infections, such as hysteria, there is no such immunity developed as the result of restraint, but on the contrary relapses are common. Again, why should children affected with whooping-cough let themselves be deprived of their sleep at night by the paroxysms, and even go so far as to die as the result of them?

Mental Diseases.

By Douglas M'rae, M.D., F.R.C.P.,
Medical Superintendent, Ayr District Asylum.

The Pathogenesis of a Delusion.

The author (H. Devin, Journ. Ment. Sci., July 1911) is of the opinion that there has been in the past a tendency to regard classification as the ultimate aim of psychiatry; the case being labelled, investigation is complete. The patient's point of view or the personal significance of his abnormal ideas and reactions are not studied. He affirms that the case is not one of a group but an entity in itself, no two cases of insanity being alike. The insane are to be regarded as types of mental variation rather than as beings entirely removed from the normal. The thoughts and actions of the sane and the delusions and impulses of the insane represent reaction to experience. Abnormal mental processes cannot be regarded as accidental and insignificant, but must have definite antecedents.

He cites the case of a woman whose malady apparently originated in an indefinite malaise, a feeling of "being different," and then goes on to show how the antecedent state of mind requires to be studied in order to account for the morbid idea expressed by her that she was a source of infection and the cause of illness in others. He briefly summarises the main thesis of Freud that morbid mental phenomena arise primarily out of certain states of mental conflict—experience out of harmony with the aspirations of the personality. Freud's laborious and complicated technique of psycho-analysis he believes can be considerably assisted by the employment of Jung's association experiments. Among these is the method of calling out a word to the patient and noting the time he takes to pronounce the first word which it suggests to his mind. A list of such words and the reply is kept and the experiment repeated. Considerable variation from the normal is noticed on account of emotion and mental distraction in the length of the reaction time, alteration in the character of the response, and failure to reply with the same word. In a test of 50 words, and after