persons, therefore, during the prevalence of scarlet fever may be classed as follows: (1) The well developed cases of scarlet fever; (2) the cases which are mild, but whose infection has resulted in sore throat and a slight, evanescent rash with subsequent peeling; (3) the cases in which there is a still milder grade of infection, not sufficiently concentrated to produce a skin rash, but which produces a sore throat and may produce "exfoliation" of the tongue. I have mentioned that in none of these latter cases which I have followed up has true scarlet fever developed, but the record of a very much larger number of cases is necessary to prove the hypothesis.

Tentatively, therefore, I hold it true that Class III, composed of persons exposed to scarlatina who have developed nothing but a sore throat and an unrecognizable degree of scarlatina, have received an immunizing subinfection which has protected them from the full attack. This subinfection has produced a response in the form of increased resistance, the host becomes better armed with antibodies, and a "positive phase" is produced in the same way as it is produced in vaccine therapy.

The possibility of this increased immunity being produced is strengthened by the fact that in persons exposed to infection, but who do not contract the disease, a definite leucocytosis may be demonstrated.

The Russian Vaccines.

In 1906 Gabritchewsky of Moscow introduced a vaccine made from the *Streptococcus scarlatinae*, which he used with a view to protecting children from attacks of scarlatina. As a result of the injection he obtained in a certain number of cases an erythema resembling that of scarlatina. Zlatogoroff and Langoway in Moscow obtained similar results, there being in some cases a slight rise of temperature and pharyngeal injection. These results are not conclusive, but at least they are in favour of the specific nature of the *Streptococcus scarlatinae*. The further research going on at the present time should give us more definite knowledge concerning the elusive streptococcus, but, in view of our present lack of knowledge concerning the causative micro-organism, it becomes necessary to seek an analogy in the case of specific bacilli concerning which we know a little.

An Argument from Analogy.

No practical work on the typhoid bacillus can be complete which does not take into consideration the group of closely related micro-organisms including the *B. coli* and the bacillus of Gaertner. There is evidence of a series of bacilli of gradually decreasing virulence, some of which can be surely recognized by definite culture reaction, and there is moreover a slight variation in the type of disease produced which has resulted in the description not only of typhoid fever, but also of paratyphoid fever. Again, a clear analogy is afforded by the variation of the virulence of the diphtheria bacillus, from the most toxic infection through all grades to the vanishing point at which the person harbouring the bacilli becomes merely a carrier.

The variation in the degree of infection produced depends to some extent on the natural resistance of the person attacked, but that it depends also on the absolute virulence of the micro-organism is evidenced by the varieties of the diphtheria bacillus, the pathogenic properties of which are traceable from the Klebs-Loeffler bacillus of high virulence, through the apparently inert Klebs-Loeffler, to the non-toxic or only to become toxic pseudo-diphtheria bacillus.

The Public Health Standpoint.

If the subinfections of scarlatina are immunizing, then they are of advantage to the individual. From the public health point of view it must be asked, "Are they sources of infection to others?" If so, they may be of disadvantage to the community, for the infection which will have only a protective and immunizing effect on one person may, when transferred to other persons of low resistance, result in graver pathological conditions. If these subcases of scarlet fever are infectious, it would appear that usually their infectivity is of low degree; the infection is not likely to produce otorrhoea or rhinorrhoea, but if these discharges are coincident, then the infection is likely to be spread. This would lead to the conclusion that every effort should be made to cure such discharges, especially in school children who come into close contact with each other, and

herein, as in so many other directions, there is hope of much benefit from the institution of routine school medical inspection.

ON THE RESULTS OF THYROID TREATMENT IN INFANTILE WASTING.

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ON examination of thyroid glands taken from at least 100 children dying of various diseases, pathological changes were noticed in a large number. The fact that these changes were especially constant in children who had died in a "marasmic" condition led me to inquire if this state of the thyroid might not play some part in the all too common condition of infantile wasting. In a former paper¹ I described the pathological changes seen, and also the results of treatment of 20 marasmic cases with small doses of thyroid extract. These results were decidedly encouraging, but the number treated was too small to make them at all convincing. Since that time I have had the opportunity of treating a much larger number of wasting cases (80), and this second paper deals with the results obtained from these.

In cases of infantile malnutrition the history is usually one of improper feeding, and this being so, one frequently finds that when put on a more suitable diet the children at once begin to improve, without the addition of any drug. All my cases were therefore at first carefully dieted for at least two or three weeks, and thyroid was only given to those who showed no signs of improvement after this time.

In dieting, some modifications of milk, such as peptogenic milk, peptonized milk, milk and cream mixture, whey and milk mixture, etc., according to the conditions present, was first tried. I found, however, that the diet which on the whole gave the best results when thyroid was being administered was a diluted milk and cream mixture treated with sodium citrate (1 to 2 grains to the ounce of milk). Cream was usually added after the first two or three days, beginning with half a teaspoonful to the bottle. Why thyroid reacts better with this diet than with the others it is difficult to say, but it may be due to the alkaline character of this milk mixture, as in cases of wasting there is frequently some intestinal disturbance which leads to the presence of fatty acids, and this acid condition of the intestinal tract may prevent the absorption of the drug.

Results in Cases Treated with Thyroid.

Out of a total of 80 cases treated with thyroid, 72 were infants under nine months, and their history was usually one simply of wasting. In the 8 over this age the wasting had supervened after some acute disease. Out of this total (80), 12 died and 5 did not return to hospital after treatment had been carried on for two or three weeks. Of the 12 cases which ended fatally, 2 were extremely ill when first seen, and probably the stage of their illness was too advanced to allow of the administration of thyroid being beneficial. In both these children the weight was under 4 lb., and both showed evidence of failing circulation, oedema of legs, etc. One died two days, and the other four days, after being first seen. Two others were cases of marasmus due to congenital syphilis; of the other 8 deaths, one of which improved for some little time, but eventually died of tuberculous meningitis, 2 were country cases and were only seen a few times, whilst the remaining 5 did not react to treatment in the slightest degree. The remaining 63 cases, however, all did well. No doubt a number of those infants would eventually have improved on dieting alone, but the fact remains that they failed to put on weight for the first two or three weeks on such treatment, and that on the addition of thyroid (the same dieting being continued) a number of them at once increased rapidly in weight, while some who remained stationary for a week or two showed beneficial results after that time.

In the cases treated some interesting points were noted. One specially instructive was that of the children of a woman who was suffering from well-marked chronic phthisis. Five years ago she brought her infant (aged

5 weeks) to see me. The history was that at birth the child had been big and well nourished, and seemed to thrive satisfactorily for the first two weeks on bottle feeding, but then began to go back and show signs of wasting. Thyroid treatment had not at this time been tried, so careful dieting alone was carried out, but the child grew steadily worse and died. The second child also appeared quite healthy at birth, but it too, after the second week, began to waste, and was brought to see me. I tried dieting alone until the child was 6 weeks old, but as it steadily lost ground, I then gave thyroid (the same dieting being continued). The child almost at once began to gain weight steadily, and is now big and strong. Eight months ago this woman had another infant, and practically the same history as regards wasting was repeated. She came to see me at the hospital, as she said "to get the powders." I dieted this child for three weeks, during which time it lost weight. I then added thyroid, and the result was that the infant began to pick up at once, and has since done excellently. These results are interesting from the point of view of the known condition of the thyroid in phthisical patients, and its probable effect on the thyroid of the infant.

Congenital Syphilis with Wasting.

Five of my cases were syphilitic, in which wasting was a marked symptom. Mercury was at first given, without any effect on the weight, then, along with mercury, thyroid was administered. The result was that 3 out of the 5 cases began to gain and eventually recovered. The other 2 (already noted) did not react at all and death ensued.

Wasting in Older Children.

Of 8 children over 9 months who were suffering from malnutrition, following an attack of an acute disease, 6 improved on thyroid treatment, 1 died of tuberculous meningitis, and 1 was lost sight of. I have only mentioned 8 cases of older children, but in the last six months I have used thyroid frequently for such children suffering from debility after such acute diseases as pneumonia, measles, and whooping-cough. The results have been very favourable, except in those cases which proved to be tuberculous; in such cases thyroid treatment would seem to be contra-indicated.

Dosage.

In the treatment of children under 9 months I begin with $\frac{1}{2}$ grain thyroideum siccum once daily. Formerly I used to give slightly larger doses, but in some cases this seemed to induce diarrhoea. In older children I go up to 1 grain once daily, according to the age of the child. In the giving of thyroid it is advisable to test the faeces to see whether they are acid or alkaline. In two cases in which thyroid appeared to produce no good results I found that the stools were very markedly acid. Sodium bicarbonate was then given three times a day, and shortly afterwards both children began to improve.

Complications.

In no case have I noticed any grave symptoms which might fairly be attributed to the use of the drug. I have already mentioned diarrhoea as sometimes occurring, but, even when this was so, it was impossible always to be sure that it was due to thyroid treatment. The diarrhoea was never either severe or prolonged.

In six cases a bright punctiform rash appeared, mostly on the body. In two cases it was confined altogether to the front of the chest. The rash was usually very evanescent, and disappeared in from twelve to twenty-four hours without any change of treatment. In only one case had I to stop the thyroid for a short time (three days). The rash thereupon soon disappeared, and on thyroid being again administered it did not recur.

In concluding I may mention that I found the result of cases treated in hospital to be not so satisfactory as of those treated at home, provided that in the latter case the mother was anxious and willing to carry out instructions. For instance, three patients under treatment in the ward showed no improvement; it was then decided to try them at home, the same dieting to be strictly carried out. An increase in weight was noticed almost from the first, and rapid progress was made toward recovery. It is difficult to explain why there should be such a difference between

home and hospital results; it seems probable, however, that the amount of nursing and general "mothering" that is impossible in a hospital ward is very beneficial in such cases and conduces to a more rapid recovery.

REFERENCE.

¹ *Scot. Med. and Surg. Journ.*, December, 1907.

Memoranda: MEDICAL, SURGICAL, OBSTETRICAL.

THE SAMAR TWINS.

In February, 1910, at Hong Kong, I had an opportunity of examining a remarkable case of united twins. They are natives of the island of Samar, one of the Philippine group, and were passing through Hong Kong on their way to the United States and Europe, where they are to be exhibited.

Two otherwise complete bodies are attached by an external bond, which consists of a union of the right and left buttocks respectively. The twins are of the male sex, and when seen were 22 months old. The genital organs are normal in every respect, except that the penis in each case is rather smaller than it should be. The most remarkable thing about them is the existence of a common anus. As far as I could tell by a rectal examination, the whole rectum is common.

For their age the twins are exceptionally healthy looking; there was no history of any kind of sickness since their birth. The mother is a fine type of a Filipino woman, and was still suckling the children, who are the only children she has had. I was unfortunately unable to obtain a clear account of the confinement, but it did not seem to have been very difficult. The children are able to walk about quite well; owing to their activity, the photograph was taken under great difficulties, and I was unable to obtain another view.

The twins are remarkably healthy, and it seems quite probable that they will live to become as famous as the Siamese twins, who reached the age of 46 years, married, and produced children. It will be remembered that in the Siamese twins the bodies were united by a band of flesh stretching from the end of one sternum to the same point on the opposite twin. As far as I can ascertain, this case of twins with a common rectum is unique.

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TREATMENT OF DEPRESSION OF SKULL IN NEWBORN INFANT.

THREE or four cases of depression of skull or depressed fracture in newborn children having been reported in the JOURNAL in the last twelve months or so, it may be of interest to record one in my own experience, which illustrates the simplicity with which such cases can be successfully treated.

After a tedious first labour, the child when born was found to have a depression in the left fronto-parietal region, about $1\frac{1}{2}$ in. or 2 in. in diameter. As it was hoped