tenement should be built that has not an open gallery off which the different doors may enter. In many of these properties which are so common, the doors to the houses number three and four on a flat, and all four doors when opened practically look into one another. The existence of a case of epidemic disease in one of these houses is almost certain to transmit infection to one or other of the houses, either by the rubbing shoulders of the children in the narrow dark passage, or the passing out and in of friendly neighbours. These tenements are invariably the foci of epidemic diseases.

But in this epidemic I had strong proof that the aggregation of children at see-saws and swings had everything to do with the spread of the disease. As a matter of fact, instead of the disease increasing in intensity when the schools began again in September, the notifications fell somewhat, and kept at a steady line for the next eight weeks. While therefore the mixing of the children was mainly responsible for the spread by contact, there was another method of infection to be considered. Boys especially are wont to wet their hands prior to seizing a rope or bar of wood. If then several infected cases damped their hands in this fashion, one can understand how the micro-organisms would be conveyed to many children's lips. As a further proof that these open-air gymnasia were the culprits, I was struck with the sudden decline in the numbers of notifications from a particular district where the continued prevalence of wet weather had caused the caretaker to dismantle some of the apparatus. In this way the children were scattered to their homes and were prevented from congregating in crowds. The villa population was seldom attacked. Once during the summer a string of notifications came from a series of villas. The milk supply was common. This was at once stopped, and with it the further infection of these houses ceased.

I have already hinted that one lesson to be drawn from this rapid mode of diffusing infection is to advocate a better system of building houses for the artisan population at least. The speculator buys a piece of ground and plants thereon a huge pile of buildings, the houses of which soon become a beehive of children. There is no method followed to establish a hollow square of blocks, nor is there any symmetry in the arrangement of streets so as to provide good air currents. This is a subject that receives too little attention from health authorities. Towns are developing into cities all round us, and if the disposition of streets and construction of dwellings are not guided under improved principles, our successors will be faced with very difficult hygienic problems.

It might be supposed that the open-air spaces must now come in for a share of my condemnation. I confess I find myself unable to say much on this point, because no better than open-air exercise could possibly be devised; but if the open-air spaces were more common their frequency would prevent very large collections of children. That such spaces may be breeding grounds for infectious disease is perfectly apparent.

The real solution of the whole difficulty seems to lie in the methodical examination of all scholars by medical men appointed by the School Boards for the several districts of every large centre of population. Every town should in fact possess its School Board of Health, controlled by the medical officer of health.

Quite recently I drew up a scheme in Paisley which met with the promised assistance from the members of the School Board. It was briefly as follows: There are twelve large schools in the burgh; four medical men were to be appointed, and each was to have apportioned to him three schools; these schools would be visited every fortnight, and during epidemics more frequently, in order to examine and isolate those suffering from infectious or contagious disorders. A schedule was to be prepared by the four doctors and the medical officer of health indicating the lines to be followed in inspecting scholars, as well as pointing out the chief points to be aimed at in isolating children liable to spread disease of any kind. A medical officer of health has the right to enter a school and to examine the scholars, but how can a solitary man possibly undertake, with any satisfaction, such a task when he is confronted with twelve, or even more, huge Board schools, and a widespread epidemic of disease on every side of him?

To leave off where I began, therefore, let me repeat that while compulsory notification has assisted us considerably, it is now necessary for us to go further, and to circumvent the disguised benefits of the Act. In fact the beneficial work of the Act has clearly indicated what our further duty must be to arrest the spread of disease.

A PRELIMINARY NOTE ON THE USE OF OX-SERUM IN RECTAL FEEDING.

By OTTO F. F. GRUNBAUM, M.A., B.C.CANTAB., D.Sc.LOND.,
London.

It is customary to give nutrient enemata consisting of milk and beef extracts, along with an occasional so-called nutrient suppository, as a rectal diet in cases where feeding by the mouth is contraindicated. In cases of hæmatemeses due to gastric ulcer or to a condition allied to epistaxis in young well-nourished girls, the result is most satisfactory, although there is but little doubt that they would recover if they received water only by the rectum. There are, however, conditions where it is essential that the rectal diet should more nearly accord with the requirements of the metabolism of the body.

I have had the opportunity, through the kindness of Dr. Donald Hood, Dr. Dawtrey Drewitt, and Dr. Seymour Taylor, of making observations on cases of gastric ulcer the results of which are applicable to other morbid conditions, which render feeding by the mouth impossible or inadvisable.

Since my observations have been chiefly upon women, it is my intention to limit my remarks to the metabolism of that sex. The average woman, doing a moderate amount of work, is said to require food which has a heat value of 2,400 calories, while one at rest would probably require a diet with a heat value a little less than 2,000 calories. This would be represented by 85 grams of proteid, 40 grams of fat, and 320 grams of carbohydrate. If nutrient enemata consisting of 60 c.cm. of milk and 60 c.cm. of beef-tea be administered every four hours, along with a few minims of liquor pancreaticus, practically all the proteid and lactose is absorbed along with the greater part of the fat; nevertheless the diet is most insufficient.

The nutrient value of beef tea may be neglected, for it contains, as a rule, too small an amount of proteid to be estimated; the 360 c.cm. of milk contains 12 grams of caseinogen, 1 gram of albumen, 15 grams of lactose, and 18 grams of fat, these together possess a heat value of 283 calories. There are, no doubt, many preparations which may with advantage be added to nutrient enemata, but it is not my intention to discuss the relative advantages of "plasmon," "somatose," etc., but rather to record some of the results obtained by the use of ox-serum, glucose, and milk with liquor pancreaticus. My reason for selecting ox-serum is that it contains a constant amount of proteid which is easily absorbed by the mucus membrane of the large intestine, it is inexpensive, does not require any tedious preparation, but simply the addition of a preservative.¹ I have been in the habit of adding two grains of chloretone to each ounce of serum, since that drug not only acts as an antiseptic but also as a sedative. Serum does not give rise to offensive stools which is often the case when egg albumen is used. By injecting 90 c.cm. every four hours 540 c.cm. of serum is introduced in the 24 hours, which contain 38 grams of pure proteid, by adding 60 c.cm. of milk to each enema the total proteid in the diet would be raised to 51 grams. It may be suggested that the introduction of the above into the rectum offers no difficulty, but it is questionable whether it be absorbed. Patients on rectal feeding received a water enema every morning to wash out the rectum, the analyses of these, which varied in amount from 300 to 500 c.cm., showed that they contained from 0.05 to 0.1 per cent. of proteid, and albumoses in so small quantities that I was often unable to detect their presence. It was thus proved that less than a gram of proteid was excreted unaltered. In no case did a rash appear, or any albuminuria or albumosuria.

Carbohydrates in the form of starch or glucose are readily absorbed when given in solution by the rectum, and if the strength of the solution is less than 15 per cent., it is well

retained and not irritating, therefore 90 grams may be introduced during the twenty-four hours. From personal observation I can assert that 30 grams are absorbed without the production of glycosuria; I have not had the opportunity of making observations when 90 grams have been given.

Fat is not easily absorbed by the mucous membrane of the large intestine; of the 18 grams in the milk, invariably some has been returned in the wash-out enemata; the quantity has usually been extremely small (the apparatus at my disposal did not permit of my making an accurate estimate).

The heat value of the above diet is 578 calories. This may be increased by another 300 calories by the subcutaneous injection of sterilised olive oil; 30 or 40 c.cm. may be given daily. Those who have adopted this method of supplying the fat element of the diet have never observed any untoward symptoms, but have noted that the nitrogen metabolism has decreased, which proved conclusively that the fat had been absorbed and utilised. By the above methods half the necessary energy can be supplied, and the loss in weight can be reduced to 750 grams a week.

NOTE.

¹ Messrs. Parke, Davis and Co. have supplied serum, and are, I believe, prepared to supply it in future.

THE VALUE OF DIPHTHERIA ANTITOXIN IN THE TREATMENT OF MEMBRANOUS NON-DIPHTHERIAL TONSILLITIS.

By J. N. D'ESTERRE.

Eastbourne.

THE following instance of the same affection occurring within an interval of six months in the same patient seems worthy of recording:

History.—M. N., aged 35, with a good family history, in 1886 had rheumatic fever, and has also had influenza, pneumonia, pleurisy, and several bad attacks of muscular rheumatism and constantly recurring sore throat.

History of Present Condition.—On April 27th, 1900, she complained of headache, of shooting pains in the joints, sore throat, and general malaise. Her temperature was 103° in the evening. On April 28th, after a very bad night, with severe headache and aching in every limb, her throat was so bad and the difficulty in swallowing so great, and the general condition of affairs such that her husband, a medical man, asked me to see the case, as he questioned if it was not diphtheria.

Anamnesis.—On April 29th I saw her for the first time, this being the third day of disease. Upon examining the throat, I found both tonsils considerably swollen, and all but completely covered with a distinct yellowish membrane-like deposit, which had not touched the faucial pillars or the uvula. The pharynx was hyperæmic, the submaxillary gland was enlarged and very tender; the post-cervical chain was enlarged, but not tender. Her temperature was 103.8°. The heart sounds were normal, and the pulse regular. From the appearance presented, we came to the conclusion that if the case was not diphtheria pure and simple, it had a diphtherial element, and therefore decided to use antidiphtherial serum. The case was seen by the medical officer of health, who agreed with us on our line of treatment, and I notified the case. A swab was taken from the throat exudate for bacteriological examination. At 10 P.M. that evening she had a subcutaneous injection of 1,500 units of antidiphtheria serum (B. W. & Co.) in the interscapular region.

Progress.—On April 30th, about 10 A.M., after a much better night, she could swallow much more easily. Upon examining the throat, the condition of the tonsils was highly satisfactory; instead of a continuity of the membrane-like deposit, the deposit was now patchy; at 10 P.M. that evening her tonsils were absolutely clear, that is, within twenty-four hours from the time of injection, and she felt almost herself again. In another twenty-four hours she was up and about, and all she complained of was feeling very weak. The result of the bacteriological examination was negative as regards the diphtheria bacillus, but an abundant growth of streptococci were present.

Second Attack.—On September 23rd, 1900, I was asked to see the patient again. This time the cause of her throat trouble was traced definitely to a chill. The throat presented the following appearance: The tonsils were swollen, and in and around the orifices of the lacunæ were seen yellow, cheese-like deposits. I diagnosed the case as one of acute follicular tonsillitis, and ordered her sodii salicylatis, gr.xv, t.d.s., with a Listerine and carbolic acid spray for her throat.

On the following evening the husband asked me to see her. Her throat symptoms were again suggestive of diphtheria. I found both tonsils completely covered—I use the word “completely” advisedly—with a yellowish, membrane-like deposit, with a suspicion of its spreading up the faucial pillars; the uvula was adherent to one tonsil and the pharynx congested. There was more difficulty in swallowing in this attack than in the first. The submaxillary and cervical glands were enlarged and tender. Her temperature was 104°. She was sweating profusely, and the general phase of the case was such that we could not make up our mind as to a definite diagnosis, and, having due regard to the nature of the last bad throat and the rapid and brilliant result, we decided to adopt the same treatment. A swab from the throat was taken and sent up for

examination, and at 10.30 P.M. she received a subcutaneous injection of antidiphtherial serum (1,500 units) in the interscapular region. At the same time her mixture was changed to one of liq. hydrarg. perchlor. and liq. ferri perchlor., and her spray to 1 in 1,000 mercury solution.

On September 25th I saw her about 10 A.M., when I found that she had passed a fairly good night; that at midnight her temperature had fallen to 102.6°, at 6 A.M. it was 100°, and that at that hour her tonsils were noticed to be clearing up. On examination now her tonsils were patchy, but the general condition was one of marked improvement. At 6.30 P.M. the membrane-like deposit had vanished—that is, in twenty hours from the time she received the injection, and she felt practically well. She made a rapid recovery, and was up and about in a couple of days. The result of bacteriological examination was again negative—after twenty-two hours' incubation—only large colonies of streptococci being found.

I take it that these were two attacks of membranous non-diphtherial tonsillitis, the only definite predisposing cause for which in the second attack was a chill. We know that the diphtheria bacillus is not the only micro-organism capable of giving rise to a fibrinous exudation. Under suitable conditions the streptococcus, staphylococcus pyogenes, the colon bacillus, and the pneumococcus of Fraenkel produce inflammatory sore throats with fibrinous exudations. The greatest difficulty must therefore exist in making a definite diagnosis clinically, especially as the characters of the pseudo-diphtheria bacillus remains unsettled. Hence I maintain that in cases similar to these antidiphtherial serum should be used, judging from the results obtained.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, Etc.

TRACHEOTOMY IN CASES OF THORACIC ANEURYSM.
In opening a discussion at the Medical Society on The Diagnosis and Treatment of Thoracic Aneurysm,¹ one of the points I suggested for discussion was, For what condition should tracheotomy be advised? The answers that were given to this question afforded little or no practical assistance, and as it is oftentimes a matter of the utmost urgency to settle whether tracheotomy should be performed, I was very glad to read the case recorded by Mr. F. W. Jollye.²

The only satisfactory way of deciding this important point is by the collection and examination of cases of aneurysm with laryngeal symptoms. Stenosis of the main air passage due to aneurysm may be brought about by spasm of the abductors of the vocal cords, paralysis of the abductors (these two conditions are often combined, there being a permanent state of abductor palsy with attacks of spasm) or by direct pressure of the aneurysm on the trachea.

When the obstruction is of laryngeal origin, as is the case in spasm or paralysis of the muscles of the vocal cords, then tracheotomy will be of use; but when there is direct pressure on the trachea, tracheotomy is of course useless. The difficult cases are those in which there is a double stenosis of the air passage, as for example, bilateral abductor paralysis combined with direct pressure on the trachea. If there be marked respiratory excursions of the larynx, the probability is that the obstruction is situated at the glottis, and consequently tracheotomy is indicated. The absence of respiratory excursions, on the other hand, points to tracheal stenosis. Unfortunately, this distinction is not uniformly maintained, hence the great difficulty of deciding as to the advisability of tracheotomy. It is therefore very important that cases of thoracic aneurysm, in which tracheotomy has been performed, should be recorded, and especially those cases in which the operation, as in the historical case of Earl St. Maur, has failed to relieve the patient.

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A CASE OF SPONTANEOUS VERSION.

THE following case may be of interest. I was called to Mrs. M. about 2 A.M., when she had been about six hours in labour. On examination I found the right hand protruding through the vagina, and the body of the foetus occupying the abdomino-anterior position. It was the thirteenth pregnancy, and the other twelve had been normal. I replaced

¹ BRITISH MEDICAL JOURNAL, 1900, vol. ii, pp. 1571 and 1710.

² *Ibid.*, February 9th, 1901, p. 339.