bear it very well, and no trouble of digestion is occasioned; on the contrary, it is a valuable remedy in some forms of gastric catarrh. Moreover, other disinfectant gargles (prepared with carbolic and salicylic acids) for the oral and pharyngeal cavities, were adopted in this and in the other cases. Against the fever, I administered salicylate of soda, and in one of the later cases, salicylic acid. Benzoate of soda was given in doses from a drachm and a half to three drachms daily. I have not seen any disagreeable effects follow its administration. Some of the patients who had received ten-grain doses three or four times daily as a prophylactic, observed that it improved their appetite, and that they became stronger under its use. They thought, therefore, that it acted as a tonic.

DIPHTHERIA AND MILK-SUPPLY.

By ARTHUR DOWNES, M.D., S.Sc.Cert.Camb.,
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IN a note in this JOURNAL on the papers of Mr. Power and Mr. Smee, it is very justly observed that, as far as the present evidence goes, "the whole theory is very much in the air as to the connection of the epidemic in North London with any other modes of pollution of milk than those by air and water", and one could not but contrast the scientific caution of the paragraph with the assertion of a contemporary that "the only possible conclusion was, that the milk derived its morbid potency from the animal itself".

That the probability of a causal connection between the milk-supply and the diffusion of infection in this epidemic is very great, is of course beyond cavil; but, admitting even the dissemination of diphtheria by milk to be a fact as incontrovertible as the propagation of enteric or scarlet fever by that medium, I contend that the milk-pail must be a rare and exceptional vehicle for diphtheria contagion.

Many years have gone by since the spread of scarlet and typhoid fevers in this way was pointed out by Dr. Taylor of Penrith; and, although diphtheria epidemics by the hundred have been investigated by competent observers, naturally on the *qui vive* for the discovery, there has not been recorded, so far as I am aware, until now, a single epidemic in which the infection of diphtheria has been spread by milk.

There is another strong *à priori* piece of evidence that the dairy is a very unusual focus of diphtheria. It is, that the incidence of diphtheria is not upon the milk-drinking portion of the juvenile population. Perhaps the best-established feature in the natural history of this disease is the fact that the localities chiefly invaded are purely rural; towns of all sorts enjoying a comparative but remarkable immunity. But it is in the towns that the milk-drinkers as a body are found. The bulk of the population in the agricultural districts, where diphtheria holds its strongest sway, are, as a rule, not milk-drinkers. Milk, brought to the door of the urban-dwelling artisan, is, to the agricultural labourer, an article of food rare and difficult to get. Moreover, in these self-same rural districts, the brunt of the epidemic falls on the non-milk-drinking children of the poor, but passes over the milk-drinking families of the well-to-do. Such, at least, has been my experience, both in my reading and in a score or more of widely diffused epidemics which I have personally observed. It is the parish school which spreads the infection, not the milk-supply.

I have made these remarks because I now find a tendency among the laity to rush to the conclusion that diphtheria is commonly, if not always, carried about in the milk-pail. The observations which I have next to offer refer to the, in my opinion, not less hasty assumption that the "only possible conclusion in the case of the North London epidemic is, that the milk derived its 'morbid potency' from the cow itself".

It is asserted, rather than by Mr. Power, whose paper is admirably cautious, that the possibility of contamination by infected air or water, well-established in the case of scarlet and enteric fevers, is disproved in the case of this diphtheria epidemic. But, considering the part which, as evidence from all sides shows, trivial and often unnoticed cases play in the spread of diphtheria, the difficulty of such disproof is enhanced a hundredfold. Nor does it follow that such contamination need be recent or repeated. There is circumstantial evidence, and some positive proof, that certain contagia are capable of self-propagation in suitable media, in a manner external to, and independent of, the animal body. Milk is a medium which, from its composition and from other considerations, might be expected to afford an excellent nidus for the multiplication of some disease-germs. It appears to me then, that, besides the theory of origin from the cow, there is this possibility to be considered in connection with the North London epidemic; namely, that an accidental inoculation, as, for example, by a light sputum from some slight case, never dreamed of as diphtheria, might,

long before the outburst of the disease, have supplied a germ which, multiplying in a congenial soil, infected the dairy plant and milk. I do not say that this is probable; I only put it forward as a suggestion to show how difficult a matter it may be to absolutely exclude the possibility of what I may call the ordinary sources of zymotic infection in milk. Whatever the cause of diphtheritic infectivity of milk, however, if it be some obscure and fortuitous inoculation such as I have suggested, it must be unusual; or, if it be that the virus is derived from some antecedent disease of the cow, then, for the reasons stated in the first part of this paper, that disease is probably uncommon, or has but seldom this imputed quality of transmitting a diphtheritic infection through the milk.

THE PROPAGATION OF DIPHTHERIA BY MILD CASES AND DISGUISED COMBINATIONS.

By E. HOLLAND, M.D., M.R.C.P.,
Assistant-Physician to the Hospital for Women, etc.

THREE years ago, a suburban school had been broken up from alleged scarlatina, and two of its pupils, supposed to be in health, after a week at home, were received into a large school in St. John's Wood. All went well for a week, when a French pupil, who slept with the new pupils, failed with decided scarlatina, and we found that the two new pupils, though doing ordinary school duties, had a nasal discharge and labial excoriation (attributed to cold), and that they were pale, asthenic, and a little feverish. It was also ascertained that they were strumous and had habitual rhinorrhoea, and that the discharge was only a little increased, and had passed unheeded. During the second week, the pupils fell ill in rapid succession, to the number of twenty-four or twenty-five, and the school was broken up. The invalids presented every conceivable variety of diphtheria and of scarlatina with and without rash. A was a typical case of scarlatina, with the usual throat and skin manifestations and subsequent desquamation; B was similar, *plus* limited false membranes in the pharynx; C was equally typical of recognised diphtheria, with false membranes, albuminuria, sequential pallor, and paralysis, but with no discoverable rash; and these varieties presented such a progressive fusion in their protean combinations that I regarded the diseased states as modifications of one process, and the evolution of a similar germ in dissimilar pabulum.

Dr. A. considered that the cases were scarlatinal; Dr. B., that they were diphtheritic; and Dr. C., that they were only cases of the "sore-throat that was about". It was my lot to inspect all the cases, and to follow the day-pupils to their homes; and I know the infection was spread broadcast in St. John's Wood, and, from the mild phases having been improperly interpreted, many a sorrowing *cortège* went shrouded to the grave. Two of my children brought the infection home, where eight suffered. The eldest, who had previously had scarlatina, resisted well, and were not in bed a day; the youngest two had malignant diphtheria as bad as could be short of actual destruction; they had no rash, but false membranes through the pharynx, nose, and mouth, albuminuria, sequential pallor, paralysis, and quasi-idiocy; and three years of careful treatment has scarcely restored their pristine vigour.

Here, then, we have an illustration of children only a little unwell, able to do their school-duties, with no local disease sufficient to attract the attention of friends, having, in fact, a slight nasal discharge only, and that unheeded; visiting and kissing in happy innocence, and yet imparting to confiding friends one of the most disastrous and to be dreaded of communicable diseases. Surely, it cannot require much effort to conceive the possibility and probability of diphtheria being as easily conveyed to a palace, when in disguise, as into the dormitories of a well appointed school or into the circle of home, especially when children abound and affection abounds, as in the princely home of Darmstadt.

COMPLETE TRANSPOSITION OF THE VISCERA OF THORAX AND ABDOMEN.

By STEPHEN MACKENZIE, M.D.,
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ON April 1st, 1878, I saw, in consultation with Dr. Dixon of Victoria Park Road, a male child aged sixteen months, suffering from rickets and bronchopneumonia. On proceeding to examine the chest, which was fairly well formed, no cardiac pulsation was visible in the ordinary position; and, on laying the hand on the thorax, the heart could not be felt beating in its usual place. Further examination revealed the impulse of the heart to the right of the sternum, between the fifth and sixth

right ribs. The sounds of the heart were natural. Percussion of the chest showed the left side in front resonant to about the level of the sixth rib; from this point to below the lower margin of the chest there was complete dullness. Posteriorly, there was dullness at the left base over the lower two or three ribs. On the right side in front, there was a small patch of dullness corresponding to the situation of the heart's beat; but the lower part of the right chest, front and back, and right hypochondrium, were perfectly resonant. Beyond the physical signs of bronchopneumonia, the chest showed no signs of disease. There was no peculiarity observed in the abdomen, except the dullness on percussion in the left hypochondrium, combined with the dullness over the left lower ribs. The splenic dullness, always difficult to define in the young subject, could not be ascertained.

From these signs, we inferred transposition of the viscera, at least as regards the heart and liver. I saw the child once more during life, and confirmed our previous observations. He died on April 30th, and on the following day Dr. Dixon and I made an examination of the body.

On opening the thorax and abdomen, the appearances shown in the zincograph, from a sketch I made at the time, were presented. The

heart was lying on the right side of the thorax, with its apex between the fifth and sixth right ribs. The liver was on the left side of the abdomen; the spleen on the right side. The stomach was situated in the right hypochondrium and epigastrium, the duodenum being to the left. The cæcum, with its appendix, occupied the left iliac fossa; the sigmoid flexure the right. On the viscera being removed from the body, it was found that not only was the heart placed on the right side of the thorax, but its individual parts were completely transposed. The apex was formed by the right ventricle. The left auricle received the systemic veins from the two venæ cavae, situated on the left, and the coronary vein. It further presented all the usual characters of the right auricle; viz., annulus ovalis, Eustachian valve, etc. The left auricle communicated with the left ventricle by means of the left auriculo-ventricular orifice, guided by a *tricuspid* valve. The left ventricle gave off a pulmonary artery, which divided as usual to supply the lungs. The right auricle received the pulmonary veins, and communicated with the right

ventricle through the right auriculo-ventricular opening, guarded by a *bicuspid* valve. The right ventricle, by far the thicker of the two, formed, as already mentioned, the apex; there arose from it the aorta, which, arching from left to right, gave off first a left innominate, and then right carotid and subclavian arteries, and finally passed down the right side of the spine. The right recurrent laryngeal nerve wound round the arch of the aorta; the left recurrent round the subclavian artery. The right lung had two lobes; the left three. The individual parts of the liver, like those of the heart, were transposed; the left lobe was the larger, and on its under surface, in a groove, lay the gall-bladder. The smaller lobes, usually partitioned off from the right, were in connection with the left lobe.

The case is interesting in the completeness of the transposition and in its recognition during life.

CLINICAL MEMORANDA.

SPREADING QUINSY, CATARRHAL PHARYNGITIS, AND DIPHThERIA.

DURING the last few weeks, I have had under my care a series of cases which portray such undecided symptoms, that I have been unable to satisfactorily class them with our well-known similar complaints. It will, perhaps, more efficiently explain them if I describe their differences from other diseases. There is certainly more difference between them and true diphtheria than between mild and severe cases of scarlet fever. The characteristic membrane of diphtheria I have not seen in any of these cases, but only some isolated patches of thick secretion on the surface of the enlarged tonsils. No paralysis of any kind has succeeded, but a relapse of former symptoms has occurred in a few cases. There has been slight glandular enlargement at the side of the neck, but to no great extent. The tonsils have been more swollen than in ordinary cases of diphtheria, giving rise to considerable difficulty in deglutition. There has been great depression in some cases, but not in others, and I have been unable to find even traces of albumen in the urine. The commencement of the disease is more gradual than the first stage of tonsillitis usually is, and, except in one case, there has been no suppuration. The constitutional symptoms of great depression, loss of appetite, constipated bowels, and thick urine have been much more persistent than the similar accompanying symptoms of acute tonsillitis. After the first few days, the temperature has been but slightly above the normal; at first, however, it was recorded in a few instances up to 103.5 deg. The fact of having a large number of these cases in different parts of the town negatives the idea of water-supply as the cause, and there having been no two cases in the same family manifestly shows the very slight, or perhaps absence of, infectiousness in this disease. I may mention, however, that there have been four cases in the workhouse; these, however, were in such circumstances as to disprove any idea of contagion from one to the other. The source of milk-supply I have as yet been unable to obtain. No case of true diphtheria has been reported.

Whether these cases, which might be termed those of spreading quinsy, though they differ in many points from ordinary acute tonsillitis, are really cases of mild diphtheria, seems difficult to decide. It would be absurd to include all forms of sore-throat under the head of diphtheria; but the fact of these cases showing merely the signs of catarrhal pharyngitis, with perhaps rather more tonsillar enlargement than usual, disinclines one to believe in their diphtheritic origin. That they are not cases of ordinary acute tonsillitis appears certain, from the fact of so many cases having occurred at the same time, and from the symptoms differing greatly from that disease. It is interesting to note that nearly every person attacked was either a delicate person, or had been frequently subject to throat-affection previously. If we call these cases spreading quinsy, we are as far from the cause as ever; for, if the discovery of origin of one can prevent its occurrence, we shall soon see whether the other is of similar or of a different nature. The treatment I have found most successful has been, to commence with a purge and tincture of aconite, and, after a few days, to give chlorate of potash and tincture of perchloride of iron. No local application, besides perhaps a poultice, has seemed necessary.

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FATAL CASE OF BILIARY CALCULI: NECROPSY.

MRS. D., a stout woman, aged 50, mother of a large family, was admitted a home-patient of the York Dispensary on June 10th. She was suffering from jaundice of ten days' duration. At intervals, there were attacks of agonising pain, with a tendency to syncope. She had passed