or, taking both series, 50 per cent. were poisoned. This appears to us a very important fact; it seems to show that the choleraic discharges possess, in a much higher degree than healthy alvine discharges, the power of exerting a violent action on the alimentary mucous membrane. And also this is evidently not mere putridity of the fluids, for the discharges were fresh, and when allowed to become putrid the toxic action was less marked.

The second experimental inquiry was a repetition of the experiments on the mesenteric and splanchnic nerves, which lead to the same result as before—viz., that section of the mesenteric nerves led almost invariably to copious secretion of fluid from the mucous membrane of the bowels, independent of any epithelial detachment, while section of the splanchnic nerves had no such effect.

What now are the conclusions we must come to from these observations? Here we must almost leave our authors, for they are so cautious, and so afraid of saying anything which is not absolutely certain, that we have some difficulty occasionally in exactly collecting their views. But we think they deny that the choleraic agent is a living creature of any kind; they cannot find such a creature, and they cannot destroy the toxic properties of the choleraic fluid by a heat of 212°. They therefore seem (if we may read between the lines) to believe that the toxic substance undoubtedly existing in the choleraic discharges is a chemical substance unaltered by a heat of 212°, and from the repetition of the experiments on the nerves we are led to surmise that they suspect this substance acts by paralysing the mesenteric nerves. If we are interpreting too fast or erroneously they must pardon us; our interpretations do not commit them, but it is impossible to go on reading reports for ever without trying to see whither they are leading us.

We trust the Government of India will vigorously push on this cholera investigation, and we would venture to suggest two points for special inquiry—viz., where the blood acquires its leucocytosis, and the red corpuscles their diffidence? is it in the spleen or liver, or in the mesenteric vessels or glands? And, secondly, what would be the effect of trying to dissolve out of the choleraic stools in some way its organic toxic substance (for such, we suppose, must exist), and trying the effect of that when obtained in a purer and more concentrated form? Also, what would be the effect of cold upon this toxic agency, whatever it may be?

Correspondence.

"Audi alteram partem."

CROUP AND DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—In reply to Dr. Moxon and to the very courteous letter of Dr. Wilks, I maintain that the action of such irritants as steam, acid vapours, and a foreign body in the trachea, throws no light on the relation between membranous croup and diphtheria. Dr. Moxon asks my judgment upon the argument that "it is surely to be expected that the simple tracheitis which is severe enough to kill is also severe enough to bring false membrane." Is it not obvious that Dr. Moxon's case, which is a type of a well-known class, negatives this proposition? Why was there no false membrane in that case? Can the severity of a disease be more than mortal, and produce a result *ultra mortem*? If tracheitis from cold may be so severe as to kill without false membrane, is it not reasonable to suppose that a false membrane when it occurs is due, not to the intensity of the inflammation, but to its specific character? Dr. Moxon writes as if this important question were to be decided by *a priori* arguments and theoretical considerations, and not by the careful observation and interpretation of facts.

I will endeavour as briefly as possible to set forth the main facts which bear upon this question. We know from abundant experience that the anatomical result of inflammation of the air-passages excited by cold (laryngitis, tracheitis, bronchitis) is a muco-purulent exudation, and not a fibrinous membrane. We know that the disease which

has prevailed for centuries, and to which in these latter days Bretonneau has given the name of diphtheria, is attended with a membranous exudation. As an abraded skin may become the seat of this specific membranous formation, so may a mucous membrane abraded by catarrhal, scarlatinal, or rubeolous inflammation. In other words, diphtheria may occur as a complication of other diseases. We know that in past times writers on croup—notably Drs. Home and Cheyne—confounded laryngo-tracheitis from cold (inflammatory croup) with laryngo-tracheal diphtheria; we also know that modern writers, still under the influence of this erroneous teaching, make an unnatural and perplexing jumble of these two essentially distinct diseases. We ask for some positive proof that simple tracheitis from cold, unassociated with evidence of a specific poison, is ever attended with an exudation of false membrane, and instead of proof we get arguments not plausible that so it ought to be, and illustrations not relevant to the point in dispute.

Dr. Moxon asks Sir William Jenner and myself whether, meeting with a case of sporadic croup, we enforce the same precautions as when a case of sporadic scarlet fever appears in a family. Not "the same" precautions, certainly, but, answering only for myself, if I am called to a case of sporadic membranous croup, which I hold to be synonymous with laryngeal diphtheria, I of course isolate the patient, believing that the disease, though much less infectious than scarlet fever, is in a perilous degree infectious, and I cause a most careful search to be made for the insanitary conditions within and around the house, which, in the absence of infection from a previous case, I know must have been the exciting cause of the disease. It surely would not be wise to defer these precautionary measures until, either through personal infection or through a common exposure to the poisonous air from a sewer or a cesspool, one case has been succeeded by others, and has thus ceased to be sporadic.

The fact of a case of croup occurring singly proves nothing as to its nature. Contagious diphtheritic membranous croup may be sporadic; non-contagious catarrhal croup much more frequently is so.

A few words on Dr. Monckton's case of "stomatitis from toothache," with submaxillary abscess, and a membrane under the tongue, "without a scintilla of evidence except the membrane that a poison was at work." An important exception certainly; and are we to suppose that the "toothache" was the ultimate fact in the etiology of this disease? To me it seems probable that some inhaled or imbibed poison was the primary cause of all the morbid phenomena. If I met with such a case I should make diligent search for an extraneous source of poisoning, and I should not be content to call it "stomatitis from toothache." Of course I agree with Dr. Monckton that the name of a disease should be unmistakably significant of its nature.

And now, with an apology to Dr. Moxon for my blundering substitute of "English cholera" for "English diarrhoea," and, with thanks to you, Sir, for your liberal allowance of space, I hope that my part in this discussion is for the present at an end.

I am, Sir, your obedient servant,
Saville-row, March 15th, 1875. GEORGE JOHNSON.

To the Editor of THE LANCET.

SIR,—If Dr. Moxon will kindly allow me to comment on his letter of the 9th inst., I would wish to indicate to him that the two cases which he therein describes were not tracheal diphtheria at all, nor did the symptoms during life (so far as they are given) point to that disease. His cases were instances of acute laryngitis, one certainly, the other probably also, due to exposure to the east wind. He seems surprised that there was no false membrane present in the first case, but if he will reflect upon what I and others have written, none was to be expected. I have stated long ago that "the inflammatory disease of the larynx and wind-pipe, often popularly called croup, but not attended by the formation of a false membrane, is not the croup of Home and Cullen and Bretonneau."

I have further stated, and so has Dr. G. Johnson, that the word "croup," as popularly employed, comprehends two, perhaps three, very distinct diseases—namely (1) pseudo-membranous croup, or, more correctly, laryngo-tracheal

diphtheria; (2) inflammatory croup, or, more correctly, acute laryngo-tracheitis, in which there is no false membrane; and (3) spasmodic croup, or laryngismus stridulus.

Dr. Moxon's cases clearly belong to the second category. He was perfectly right, if he will accept my commendation, in opening the windpipe in both his cases, because tracheotomy is no doubt highly useful in severe cases of acute laryngitis, for that measure allows the entrance of air into the lungs, and gives time for the inflamed larynx to return to a healthy condition. It is indeed far more useful in this disease than in laryngo-tracheal diphtheria, for in the latter there is not only the difficulty of extracting the false membrane, but the further one of contending against the toxæmic condition of the system on which all the forms of diphtheria depend.

I have been fortunate enough, *pendente lite*, in this matter, to meet with a case of fatal laryngo-tracheal diphtheria only last week, and the larynx and trachea and the false membrane are now in my possession, and I shall be most happy to show them to Dr. Moxon. But the symptoms during life, of which I have the notes, were entirely different from those in Dr. Moxon's cases.

I am, Sir, your obedient servant,
Torrington-square, March 15th, 1875. R. H. SEMPLE.

To the Editor of THE LANCET.

SIR,—May I be permitted to say a few words, from a country doctor's point of view, as to the relation between croup and diphtheria. Speaking from my own experience, I should say, with all deference, that "membranous croup" and "diphtheritic tracheitis" are essentially different forms of disease. Diphtheria with us is a somewhat rare disease; croup, meaning the membranous form, comparatively common. The cases of croup I have met with have been isolated, and not traceable to contagion or sanitary defects, as diphtheria, I believe, always can be. Croup I have always found more or less of a sthenic character; diphtheritic tracheitis with marked depression. Again, I believe the latter disease to be much more amenable to treatment than the former, and to be the form in which tracheotomy is most successful.

It has struck me, as a possible explanation of the difference of opinion on this subject, that membranous croup is essentially a disease of the country, diphtheritic tracheitis of large towns, and hence the preponderance of *great authorities* in favour of the diphtheritic origin of all forms of membranous croup. At all events, croup is frequently found where diphtheria is quite or almost unknown, and it would be scarcely fair to ascribe all the cases of membranous croup to a diphtheritic source, unless the diphtheritic poison showed itself in some other way also.

I do hope that some other "country doctors" of larger experience than myself will give us their opinions on the matter in dispute, as I believe that these diseases can be more thoroughly studied in the country than in large towns. The doctrine as to the identity of the cause of membranous croup and diphtheritic tracheitis, so strongly supported by Sir W. Jenner and Dr. G. Johnson, is no doubt an easy way out of the difficulties which surround this subject; but, with all deference to such eminent authorities, I venture to assert that it is a dangerous error, and one likely to lead to grievous mistakes in practice.

I am, Sir, yours &c.,
Reigate, March 1st, 1875. J. WALTERS, M.B.

To the Editor of THE LANCET.

SIR,—I am glad to see that there are some who dissent from the opinion advanced by Sir W. Jenner and Dr. G. Johnson that membranous croup and diphtheritic croup are one and the same disease.

To the objections urged with so much force by Dr. Moxon in a late number of your journal, I would add another—that membranous croup was familiar to many of us before the disease now recognised as diphtheria was known to us either in its epidemic or sporadic form.

More than thirty years ago I met with cases of croup in which membranous casts of the trachea were found after

death or were rejected during life, but I never saw the fauces or nares affected in those cases, nor did I meet with any instance of membranous exudations on the latter parts until after the epidemic of 1855. If these were cases of diphtheritic croup, as Sir W. Jenner suggests, and as Dr. G. Johnson insists, is it not remarkable that the disease of that date should have attached itself exclusively to the larynx and trachea, whereas it now invades the fauces and nares more commonly than the former?

It would be an isolated fact in the history of pathology if it could be shown of any disease that it had its habitat for a long series of years in one short mucous tract, and then, by some change of type, invaded all the mucous membranes contiguous to it, as well as others more remote; and it would be a still more curious fact if this new type of disease should be followed by a train of nervous symptoms of a portentous kind and hitherto unknown.

With these considerations before me, I feel that the new views of the pathology of membranous croup require stronger evidence for their support than any that has been yet adduced.

I am, Sir, your obedient servant,
Guildford, March 9th, 1875. HENRY S. TAYLOR.

To the Editor of THE LANCET.

SIR,—A requisite for the satisfactory conduct of the discussion going on in your columns seems to be a definition of the two diseases, croup and diphtheria.

With regard to croup, we are pretty well agreed as to what is to be understood by the term, and one would hesitate to include the effects on the trachea of steam, acid fumes, or foreign bodies, with the zymotic disease, notwithstanding the existence of many close pathological affinities.

Not so with diphtheria. This so-called disease is characterised by a pathognomonic sign—the leather-like pseudo-membranous exudation; and this peculiar morbid product is observed to manifest itself epidemically, to be associated with an endless variety of general symptoms, and to appear on parts of the tegumentary and mucous surfaces under certain conditions. In some instances this sign is associated with symptoms indicative of malignant blood-poisoning; in others of but little or no derangement of the general health. The seasons, too, during which it appears are noted for the extensive prevalence of epidemic diseases generally; zymotic influences abound, producing not only the well-known specific, but also numerous undefined general diseases.

During such a diphtherial epidemic, were a primary croupal case to occur, or were croupal symptoms to supervene by extension of mischief, probably erysipelatos in character, from the region above, we might with propriety accord to either case the name of diphtheria or croup; but it by no means follows that because certain diphtherial cases may be croupal, all croupal cases are to be looked upon as diphtherial.

According to my theory, croup, in common with scarlatinal and other forms of tonsillitis, and, indeed, many other morbid conditions of system, may be complicated with diphtherial manifestations; but, if so, we have no more authority for identifying diphtheria with croup than with scarlatina or many other forms of general disease.

I am, Sir, your obedient servant,
J. WEST WALKER, M.B. Lond., &c.
Spilsby, Lincolnshire, March 16th, 1875.

Medical News.

APOTHECARIES' HALL.—The following gentleman passed his examination in the Science and Practice of Medicine and received a certificate to practise on March 11th:—
Sworder, Horace, Holly House, Luton, Beds.

The following gentleman passed the Primary Professional Examination on the same day:—
Coulbe, John Batten, St. Mary's Hospital.

MR. WILLIAM J. CLAPP, M.R.C.S. Eng., of Nantyglo, has been placed on the Commission of the Peace for the Brynmawr Division.