recognised that carbolic acid, except to rid the wound in the first instance of septic germs, is not a good application. So far as the raw surface is concerned, it is irritating; and to counteract this drawback a piece of prepared oiled silk as a protective is invariably placed underneath the carbolised pad. To a certain extent, air circulates through the covering of gauze; and air purified by the filtration which necessarily takes place is, therefore, in constant contact with the surface of the wound, and with the discharge which lubricates that surface. Have we not, I will ask, an exact parallel to this in the application of the same principle to the lungs? I believe we have, even to the preliminary cleansing of the foul surface alluded to.

Respiration ensures the circulation of air to perfection; while as it passes through the respirator it is not only purified, but it also becomes impregnated with a certain amount of the carbolic vapour given off by the gauze. The quantity inhaled of this vapour may, for any single inspiration, be quite insignificant; but when multiplied by the number of inspirations made in only a few hours, it does not seem difficult to believe that the amount would soon be sufficient to accomplish the disinfection of all the purulent cavities already in communication with bronchial tubes. That this end is actually gained, and even rapidly gained, my experience certainly tends to prove; and I find moreover that, on the disappearance of odour, it requires subsequently the presence of very little carbolic acid on the gauze to keep the expectoration permanently free from fœtor, as though the ulcerated surfaces having been rendered aseptic, all that remained to be done was to ensure against their reinfection by the inspiration of only pure air, and also to obviate the risk of creating irritation by breathing that which contains but a minimum quantity of suspended carbolic vapour.

So far as my observations go, they also tend to show that foetid pus from the lungs is not so rich in bacteria as putrid matter from some other regions; and this may be the explanation of the facility with which odour disappears under this mode of treatment: there being but few organisms to kill, the work is soon completed.

Three of the six slides which I show to-day have been prepared from patients before, and the remainder after, treatment. You will observe that while they all contain micrococci, only the former show rod-bacteria. I have only been able to get these few specimens ready in time: that they must not be allowed to lend any support to the clinical facts, must be evident. The matter in each case was taken from recent expectoration, which was immediately dried, stained with methyl-aniline-violet, and mounted in Canada balsam. Although the power employed—an eighth objective—is a comparatively low one for the purpose, yet with the aid of Abbe's condenser the micro-organisms are very fairly shown.

With regard to the mechanism adopted, the following is a description of the kind of respirator I find to answer best. Over a wire framework, shaped like a respirator, made to cover both the mouth and nose, two or more layers of ordinary antiseptic gauze are stretched; along the concavity inside, a narrow strip of sponge is placed, and, finally, the whole is fitted accurately to the face by a circumferential pad made of gutta-percha tissue, stuffed with cotton-wool, or folded lint, which is more manageable. Antiseptic gauze in the dry state gives off a vapour of carbolic acid. Bearing in mind, however, the large amount of air that would in ordinary breathing pass to and fro, it will be very evident that this comparatively small piece of gauze must soon become exhausted, and require recharging; this is secured by the whole being dipped every half hour or so at first, afterwards less frequently, into a watery solution of carbolic acid of the strength of 1 in 40; the gauze is, besides, renewed every two or three days. These respirators or dressings are worn as constantly as possible; in fact, the only occasions on which their temporary removal is permitted are during a meal, for the purpose of expectorating, and for that of dipping. Taking into account the apparent inconvenience, it is a little surprising with what readiness even hospital patients fall into the way of wearing these appliances with the greatest constancy both day and night. It is quite the exception to hear complaints of any kind.

The following cases present a fair example of the results I have met with.

CASE I.—April 3rd, 1879. J. O., sailor, aged 19, had three months' illness, originating in exposure. There was consolidation, and a cavity affecting the left apex. He had purulent bronchitis throughout both lungs, very great emaciation, rigors, sweating, and diarrhoea. The temperature was 104° at night, and 99° in the morning. Expectoration amounted to thirty ounces in the twenty-four hours—purulent, and very offensive. On the seventh day from the commencement of the treatment, the cough and symptoms were generally much improved; expectoration ten ounces, and free from smell. At the end of four months he left the hospital for his native country (Norway) in much improved health; expectoration two to three ounces, mucoid.

CASE II.—December 8th, 1879. J. P., joiner, aged 43, had had four months' illness, commencing with cough and repeated attacks of hæmoptysis; emaciation followed, with rigors and night-sweats. Percussion over the right apex showed dullness to exist as far down as the fourth rib; a large cavity was also present here; coarse crepitation, with increased vocal resonance at the right base. The left lung was fairly healthy. The expectoration was five ounces in the twenty-four hours, nummular. The bowels were mostly loose; temperature 100°. He had frequent attacks of pain in the right chest.

December 18th. Weight 9 st. 11½ lb. He had slight hæmoptysis during the night.

January 8th. Weight, 10 st. 2 lb.; January 16th, 10 st. 7 lb.; January 23rd, 10 st. 9 lb.

March 5th. Weight, 11 st. 6 lb.; so far as I could gather, his normal weight.

This patient was discharged cured on March 8th, 1880. I have seen him up to the last three weeks; he continues free from relapse, though the cavity still exists, and he follows his employment.

CASE III.—November 7th, 1880. W. C., a labourer, aged 19; height 6 ft. 2 in., weight 8 st. 11 lb., slight build; five months' illness. He first had a cough and pain in the chest; afterwards thick expectoration, occasional attacks of hæmoptysis, great wasting, sweating, etc. The thorax was flattened on the left side above; respiration here was cavernous, and accompanied by gurgling; pectoriloquy and cracked-pot percussion-note were marked; dullness extended all over the left front and upper third behind. The left lung contained several cavities. The heart was displaced upwards, and to the left. There was puerile breathing on the right side. Expectoration amounted to about six ounces, nummular, and occasionally very offensive. Temperature 104° at night, and sometimes a little higher. He was ordered a carbolised respirator.

He left the hospital, after four months' treatment, for the Convalescent Institution at Woolton. Expectoration was mucoid, a few drachms only; cavities dry. He had not had hæmoptysis for a month, and then only a slight tinge; weight, 9 st. 6 lb. He was able to go about as usual. One day, a month ago, this patient called upon me, when I learnt that he had remained pretty free from cough, and was still improving. The condition of his chest seemed to be precisely what it was on his first leaving us.

ANTISEPTIC TREATMENT OF LUNG-DISEASES.

By J. CARRICK MURRAY, M.D.,

Physician to the Northern Counties Hospital for Diseases of the Chest.

I WAS pleased to see, in the JOURNAL of July 16th, the memoranda of Mr. S. Wilson Hope and Dr. F. P. Atkinson. They will have the good effect of keeping the antiseptic treatment of chest-cases before the profession. This mode of treatment is probably making a greater stir in the profession than appears; for Dr. Coghill has no doubt had, like myself, many private letters of inquiry.

On May 31st, the medical officers of the Northern Counties Hospital for Diseases of the Chest received, per order, a number of Dr. Coghill's inhalers, made by Messrs. Maw, Son, and Thompson; also some of the inhaling mixture recommended by Dr. Coghill. The inhalers have been in diligent use since, with satisfactory results; the amount of sputa having in each case lessened. Patients who commenced to cough and spit at four o'clock in the morning can already lie until rising time without coughing. Some of them complain that they do not get the phlegm up so easily as before; but I am of opinion that the sufferers continue to cough more from long habit than from real necessity. I find that our inhaling patients observe the strong smell of the antiseptic in their sputa, and that half an hour twice a day appears sufficient to use the inhaler; also that twenty minims dropped on at once are enough for two days' use. More has been found too irritating to the glottis in the cases in which we have used it.

I prefer surgeons' lint, doubled, to cotton-wool or tow; and have had made for me an inhaler more elegant, a little, than Dr. Coghill's. It fastens by a broad India-rubber band at the back of the neck; this does not hurt the ears. The outer perforated plate is hinged, and therefore more easily manipulated. The makers are Messrs. Henry Aitken and Co., Bishophill, York; the price, five shillings each.

My conviction is, that medicated inhalation might be used with benefit in more diseases than Dr. Coghill enumerates: e.g., in hay-fever; influenza; incipient phthisis; or where a husband sleeps with a consumptive wife, or *vice versa*; hæmoptysis between attacks; chronic bronchitis, with profuse, inspissated, or difficult expectoration; asthma from loss of lung-tissue; so-called laryngeal phthisis; circumscribed

gangrene of the lung; diphtheria after seeing infectious cases, e.g., small-pox, fevers, etc.

The ozonised snuff of which I spoke in my letter of June 4th, page 908 of the JOURNAL, left something to be desired, as it could only be useful to such as were sufficiently strong-minded to take snuff. Dr. Coghill's plan supplies the desideratum essential for delicate girls, ladies, and youths, who may now receive a benefit hitherto denied them; and, by means of the inhaler, old people may upon occasion sweeten their breath for an evening or whole day by inhaling an ozonising and antiseptic aroma of agreeable flavour—e.g., essence of lemon, essence of orange, essence of bergamot, eau de Cologne, sassafras, or other ozonising perfume.

CLINICAL MEMORANDA.

ABDOMINAL ABSCESS AS A RESULT OF ENTERIC FEVER.

ABDOMINAL abscess after enteric fever is not often met with. Little information regarding it is given in the text-books. For this reason, I place on record two cases which I have met with in practice.

CASE I.—A girl, aged 5, had a severe attack of enteric fever. She was surrounded by extreme poverty, and was nursed and fed by the kindness of charitable neighbours. During the third week of her attack, symptoms of general peritonitis appeared; at one time, collapse came on in such an alarming manner that perforation of the intestine was suspected. She rallied, however, and the distension of the abdomen gradually subsided, leaving only a hard and painful swelling on the right side of the umbilicus. Poultices were applied for a few days. After this, the abscess burst spontaneously into the poultice, and discharged a quantity of horribly feculent pus, together with several orange-coloured masses, each about the size of an ordinary bean. The smell of the discharge was so nauseating, that it was hardly possible to remain in the sick-room. After the use of injections of carbolic lotion, the sinus gradually closed and healed ten days after it burst; the child made a quick and permanent recovery.

CASE II.—A girl, aged 7, had a typical attack of enteric fever. During the fourth week, the pulse and temperature sank to normal for a few days, but gradually rose again till the latter reached 102°. No complication or cause for the rise of temperature could at first be discovered. A small cervical gland was found suppurating; this was opened, and quickly healed. At last, pain was complained of in the umbilical region, and a hard lump gradually developed to the right of the navel. It could be seen projecting beneath the abdominal wall. It was as large as a cricket-ball. Poultices were applied. Four days after, I was informed, on making my morning visit, that the lump had burst. The child had asked for the bed-pan, into which she passed *per anum* about a cupful of pure pus. On examination, I could find no trace of the lump in the umbilical region. All the symptoms disappeared, and the girl made a rapid recovery.

The origin of the abscess in Case I seems to have been due to peritonitis, arising probably from a deeply ulcerated Peyer's patch, with matting of the intestines, and possibly subsequent perforation, with consequent encysting of the extravasated contents of the bowel, which ultimately were discharged through the abdominal wall in the form of an abscess. In Case II, the abscess was probably due to the suppuration of a swollen and inflamed mesenteric gland, which had excited adhesions to the bowel, through which it opened and discharged its contents without any bad results. Both children were scrofulous; the second girl had especially a bad family history.

Gluge (*Bull. de l'Acad. Méd. Belg.*) relates what he terms the "rare" case of a boy who, during convalescence from enteric fever, was attacked with peritonitis ending in the formation of an abscess, which made its way out by the umbilicus; the lad recovered in a month. Neither of my cases is exactly identical with this one just related, but they present certain points of interest in common; but to these I need not at present specially direct attention. The occurrence of abscess is of importance in connection with the possibility of pyæmia after enteric fever.

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ON THE FUNGOID ORIGIN OF DIPHTHERIA.

THE valuable and interesting paper of Dr. Taylor, in the JOURNAL of July 2nd, on the above subject, has induced me to report a case which came under my observation nine months ago, and which I intended reporting when I obtained confirmatory evidence, in the shape of more cases. Perhaps, however, my one example may now be useful, as supporting the suggestions advanced.

Mrs. S., residing in a healthy suburb of Leeds, was seized with diphtheria, which involved the tonsils, soft palate, and upper part of the pharynx; she was very ill for about a week, and then gradually recovered, being extremely weak for a month. The local treatment adopted was chlorate of potash gargle, antiseptic spray, and steam; the internal remedies were at first salicylate of soda, and afterwards tincture of perchloride of iron. In the case, there was nothing unusual; but, in searching for the cause, a remarkable phenomenon came to light. The drinking-water was beyond suspicion, being that supplied by the Leeds Corporation. The drains were apparently right, and there was no offensive odour in the house. As there had been no case of diphtheria in the district, I was quite at a loss to account for its origin, until I was taken into the breakfast-room, on the ground floor, and shown the inside of two closets, the walls and shelves of which I found to be covered with what appeared to be red dust, but which, on examination, turned out to be a species of fungus. The servant told me that this was quite a recent affair, it having only been noticed a few weeks previously, coincidently with a very marked dampness; that, although the closets were well scrubbed out every few days, the red dust invariably returned, both on the walls and on the shelves. As there was no drain under the house, inquiry was made next door, when it was found that the rain-water pipe had burst and saturated the earth contiguous to the wall of the closet. After the pipe was mended, the fungus soon ceased to grow.

I firmly believe that the vegetable growth was the cause of diphtheria in the above case; although why this reddish-looking fungus should have given rise to the white patches of "oidium albicans", I can only understand on the supposition that a different nidus, and consequently different food, had induced changes in the form and growth of the minute plant; moreover, this has been proved possible by fungologists, in several cases. Perhaps this alteration in character by transplantation may have something to do with the greater virulence of those cases arising by direct contagion from one individual to another.

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OBSTETRIC MEMORANDA.

THE MODE OF USING THE FORCEPS.

I READ, with much interest, in the JOURNAL of the 9th inst., "Suggestions as to the Mode of Using the Forceps", by Dr. H. Lowndes.

Dr. Lowndes deduces, as the result of his experience, four rules, which he submits to the consideration of the profession.

Rule 1 is that "Traction should be made in the intervals, instead of during the pains". Dr. Lowndes gives the following reasons for this novel practice, which I propose to consider *seriatim*.

1. Because, "if traction be made during a pain, the cervix being incompletely dilated, the blades are compressed between the head and the cervix, and we are tugging at both the child and the womb". Are we not doing precisely the same thing if the traction be employed during the interval?

2. Because "both the child's head itself, and the cervix itself, must during the pain be in a most favourable condition for receiving injury from the blades of the forceps".

a. *The child's head.* A certain force being required to bring the head through a contracted space, is it better for the head that the whole force should be communicated to it through the rigid blades of the forceps, than for the force to be shared between the *vis a tergo* of the contracting womb, and the *vis a fronte* of the forceps, as it is when traction accompanies a "pain"?

b. *The cervix.* In a natural case, the undilated cervix is only exposed to force during a pain. Why should we deem it better that the cervix should bear that force during an interval? And why should we deprive it in a great measure of the rest from pressure which nature has allowed it, and the contiguous textures, to receive between the expulsive efforts?

3. Because "when making traction during a pain, with the head high up, the perineum is apt to force the handles forward, and so prevent us from pulling in the axis of the pelvis". My experience has been that this only occurs when advance is being made; in which case "forward" is the direction which (to maintain the axis of the pelvis) the handles *should* take.

4. "When the pelvis is capacious, and we have only the opposition of yielding structures to overcome, the traction should always be gentle, and may generally be performed with one hand". I think many practitioners would be of opinion that in this case we might even dispense with the "one hand", and leave the case entirely with "Dame Nature". At all events, one would not be surprised if, at the end of