

On the use of the the hypophosphites of soda and lime in the treatment of consumption / by John C. Thorowgood.

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67 Dr Radcliffe with
the author's compliments
ON

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THE USE OF THE

HYPOPHOSPHITES OF SODA
AND LIME

IN THE

TREATMENT OF CONSUMPTION.

BY

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MDCCCLXV.

THE LAW OF THE

HYPOTHESIS OF HUMAN

AND LIFE

STATEMENT OF THE

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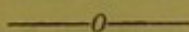
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ON THE HYPOPHOSPHITES IN PHTHISIS.



HYPOPHOSPHOROUS acid was first obtained as a concentrated acid solution, by Dulong, in 1816 : it is the lowest and most unstable of the acid combinations which phosphorus forms with oxygen, and (neglecting the water in its composition) it is represented by the chemical formula P O , the formulæ of the more highly oxygenated compounds known as phosphorous and phosphoric acid being P O_3 and P O_5 . As the salts formed by the combinations of these two last-named acids with bases are termed respectively phosphites and phosphates, so the combinations of the hypophosphorous acid are known as hypophosphites, salts which have a strong affinity to absorb more oxygen, and so pass into phosphates.

In consequence of this tendency on the part of the hypophosphites, they have to be prepared with great care by the chemist, and in evaporating their solutions, in order to obtain crystals, it is essential that the temperature be kept within certain limits, otherwise a mixed salt of phosphite and phosphate results, which is of no use therapeutically. Mr. John Taylor, of Liverpool, in his papers in the *Lancet* for 1861, gives ample details of the great precautions necessary to ensure the preparation of a pure and reliable hypophosphite. The salts whose therapeutic action we purpose here to study, are the Hypophosphites of Soda and Lime, and so low is the degree of oxidation of the phosphorus in these salts, that either of them will, when warmed on a spatula, take fire and burn like pure phosphorus ; a simple and ready test of the genuine nature of either salt.

The hypophosphite of soda is more deliquescent in air than the lime salt, but far less so than the hypophosphites of potash and ammonia : it crystallizes in rectangular plates, and is readily soluble in water or alcohol, the aqueous solution is neutral, and nearly tasteless.

The hypophosphite of lime is not deliquescent, crystallizes in rectangular, or six-sided columns, has a slightly bitter taste, and when pure is perfectly soluble in water.

In appearance the lime salt resembles the hypophosphite of

ammonia, but this last, on being heated, gives off free ammonia. The potash salt is a scarcely crystalline powder, and extremely deliquescent in the air.

The aqueous solutions of the hypophosphites of soda and lime are almost tasteless, and this gives them a great advantage over the phosphorized oil of the Prussian Pharmacopœia, or the ethereal tincture of phosphorus of the French codex, for either of these preparations of the drug, given even in a moderate dose of three or four drops, is most nauseous in flavour, and almost certain seriously to disturb a delicate stomach.

The chief medicinal use of phosphorus, in the form of the oily solution or ethereal tincture, has hitherto been in diseases of the nervous system, and both Dr. Radcliffe and Dr. Anstie commend it as a very useful medicine in restoring exhausted nerve force; the former of these observers suggesting, that being itself an important constituent of healthy nerve tissue, it may, when given internally, act as a nutrient to the worn-out nerve, much in the same way as the preparations of iron act as nutrients to weak and impoverished blood.

The late Dr. Glover wrote in favour of phosphorus as an excellent medicine in depressed states of the nervous system, and in constitutional struma too the oil seemed to this physician a good medicine.

Recently, a sound and excellent observer, Dr. Cotton, has tried the phosphorized oil in many cases of decided phthisis. In four out of twenty-five cases it did great good, but very many of the others who took it experienced gastric irritation and derangement, and derived no benefit in respect of the chest disease.*

In July, 1857, the attention of the French Academy of Medicine was drawn, by Dr. Francis Churchill, to the hypophosphites of soda and lime as specific remedies for pulmonary tuberculosis, on the hypothesis that the proximate cause, or at all events an essential condition, of the tubercular diathesis is the decrease in the system of the phosphorus which it contains in an oxygenizable state.

On this hypothesis the cure of the disease is to be found in presenting to the system some preparation of phosphorus, which shall be directly assimilated, and be at the same time at the lowest degree of oxidation.

The hypophosphites of soda and lime are considered best adapted to fulfil these ends, and Dr. Churchill having tried these medicines on thirty-five consumptive patients, found that nine recovered, eleven improved, and fourteen of them died.

Subsequently to these announcements of Dr. Churchill's,

* See *Medical Times and Gazette*, vol. ii., 1861, page 7.

the hypophosphites were tried by numerous observers in England, and the results of the trials, as published, are so singularly contradictory that I cannot think the same remedy can have been used by all the experimenters.

It is impossible in a short paper like this to quote all the observations that have been made, I would however refer to a most fair and impartial trial of genuine hypophosphites, made by Dr. Risdon Bennett,* in the Victoria Park Hospital, in twenty cases of true consumption, four only out of this number made marked and decided improvement, and these were in the earlier stages of the disease.

Having myself in practice employed the phosphoric and phosphorous acids with benefit in many cases of chest disease, I was anxious to try the other known compounds of phosphorus, and in consequence of inquiry on the subject, more than two years ago my attention was drawn to the hypophosphites of soda and lime as prepared by Warner and Barclay, of Fore street, and the amount of phosphorus contained in these salts was demonstrated to me by the simple process of heating the salt on a knife in the way already described.

Compounds so rich in phosphorus, and so convenient of administration, promised well as means of supplying phosphorus to the system; and in the belief—be it right or wrong—that the part of the animal economy most involved in the early development of phthisis is the nervous system, or that part of it which presides over cell growth and development on the one hand, and the destructive metamorphosis of tissue on the other, I was led to employ the hypophosphites in the same way as I had employed zinc, quinine, and other nerve tonics, in the early stages of phthisical disease, with a view to some special restorative action over imperfect or irregular innervation.

I have within the last two years amassed the notes of a large number of cases in which the hypophosphites were administered, often under every extraneous disadvantage; and in very many of these cases, decided and unmistakeable good came of their administration, and that too when other well devised means of cure had proved useless. In the present paper I have given the brief notes of a few cases selected from those in which the disease was not as yet in by any means an advanced stage.

Case 1.—Rosa G., married, æt. thirty-five, living in the City, came to me August 3rd, 1863, stating that she had been ailing for more than four months with general debility, some loss of flesh, and a troublesome cough every morning when she rises.

She has never coughed up any blood, but usually ex-

* *Medical Times and Gazette*, 1861, vol i., 438, where will be found an excellent critique on Dr. F. Churchill's theory as already stated.

pectorates a grey phlegm. Has much tightness and oppression at the chest, at times is feverish. Pulse 100, feeble.

Physical Signs.—Right subclavicular region is duller than the left, and the breath sound here harsh and tubular; elsewhere chest seems sound. Ordered nitric acid in infusum aurantii till August 11th, when she was again seen, and the cough was found to be better, but there was much dyspnœa on any exertion, with feeling of sinking and weakness at the chest. Cod-liver oil was strongly urged upon her, but she has often tried it in various ways, and is scarcely able to keep one dose on the stomach.

Under these circumstances she got :—

R Sodæ hypophosphitis, gr. iij. ;
Tinctr. camph. co., ℥ x. ;
Aq. camph., ʒj. M. ter die.

This mixture was taken up to August 18th, at first it caused slight nausea, but soon it was easily taken, and in one week more the patient came to say she was free from cough, could breathe well, and required no more medicine.

February 10th, 1864.—The same patient came again to me with much dragging pain in the chest, cough, quick pulse, and emaciation. Breath sounds very tubular at right infra-clavicular region and pain here as well as on left side.

R Sodæ hypophosphitis, gr. v. ;
Infus. columbæ, ʒj. M. ter die.

Feb. 18th.—States that the mixture soon relieved her chest; to continue it and to take ʒj. of cod-liver oil twice daily.

March 3rd.—Feels almost well and is going for change to Ryde. Since then I have not heard of any relapse.

Case 2.—Mary G., æt. thirty-nine, out-patient at Hospital for Diseases of the Chest.

Jan. 4th, 1864.—Complains chiefly of much tightness and oppression at the chest, with a troublesome cough and difficult expectoration, never raised any blood.

Physical Signs.—Nothing more noted than prolonged expiration under right clavicle, and very slight dulness here.

Till *Feb. 13th* the treatment consisted in expectorants, and then tinctr. ferri c. liq. morphinæ, but none of these medicines appear to have given any relief to the symptoms, and she got on *Feb. 13th* :—

R Sodæ hypophosphitis, gr. v. ;
Aq. menth. pip., ʒj. M. ter die.

Feb. 22nd.—Finds so much relief to the cough and chest oppression that she asks to be discharged now as she feels well.

The respiratory signs, however, are not altered, and the morning cough with expectoration continues, though in less degree.

Repeat mixture for fourteen days, and return if not cured. She was not seen by me again.

Case 3.—Jane C., æt. twenty-one, Dispensary patient, complains of much debility and exhaustion, and frequent dry hacking cough; tongue white, appetite bad, a good deal of pain about left shoulder. Pulse 120.

Physical Signs.—Harsh and coarse breathing at left infra-clavicular and supra-spinous regions; nothing else noted.

R Acid nitric dil., ℥x.;
Dec. cinchon., ʒj. M. ter die.

In a week she felt stronger, but the cough was worse, and the scanty sputa visibly streaked with blood.

R Sodæ hypophosphitis, gr.v.;
Aq. camph., ʒj. M. ter die.

After ten days of this, she came and said the medicine revived and strengthened her, cough and spit very much better. She continued taking same medicine a few weeks longer, and then left off attending. Pulse being then 80, and the cough a mere nothing.

Case 4.—Eliza D., æt. nineteen, weak young woman, suckling an infant. Since confinement has complained much of oppression and tightness of the chest with frequent cough.

The left apex is duller than right, and respiration very jerking and uneven, chest feels tight and stuffed.

For three or four weeks the treatment consisted in the application of tr. iodin. to the left chest, and in the administration of cod-liver oil and chalybeates. At the end of a month the notes before me record no improvement, and it appears that on October 22nd five grains of hypophosphite of soda were given in aq. camphor. thrice daily, and the oil continued.

Nov. 5th.—Great improvement, less pain in chest, breathing free.

Nov. 29th.—Has continued the hypophosphite, and considers herself well.

Case 5.—Elizabeth F., æt. twenty, living in Essex, came in July, 1863, to the Hospital for Diseases of the Chest at Victoria Park. Pale complexion, has been getting weak and losing flesh, with frequent cough and pains about the chest.

July 23rd.—She was examined by Dr. Andrew, and the note of the physical signs was:—Tubular respiration with increased vocal resonance at right apex. On her being passed over to me soon after, I treated the case with cod-liver oil, nitric acid, and

bark, then with syr. ferri iodid. for nearly two months, till towards the end of September the patient began to spit blood, and to show signs of the left apex being congested.

October 8th.—I gave her three grains of the hypophosphite of soda thrice daily, with twenty drops of ether in aq. camphor.

The amendment was marked and persistent, so that on November 2nd she was discharged, and I noted that in this case the physical signs underwent much improvement under the hypophosphite treatment.

Case 6.—A widow, æt. twenty-seven, resident in the country, was sent as an out-patient to Victoria Park Hospital, having been under treatment for presumed tubercular disease of the left lung.

When seen, face was flushed, and pulse 130. She complained of frequent cough with thin expectoration, pains about chest, and shortness of breath. No hæmoptysis.

Physical signs.—Some dulness at left infra-clavical region, with very harsh breathing. She has undergone much treatment, but has never been able to take cod-liver oil.

R—Sodæ hypophosphitis, gr. iij.
Infus. calumbæ, ℥j.—M. ter die sumend.

After three weeks, came and said she felt better; pulse 120; less spit, less pain; physical signs as before. Pt. med.

In another three weeks, further improvement, and she can take a tea-spoonful of oil twice in the day.

This report was given by her on December 17, 1863, and she was not again seen till April 25, 1864, when she presented herself much worse in every respect.

Note of April 25, 1864, runs thus:—She feels very weak and prostrate; at times is burnt up with fever, and at night is drowned in perspiration; severe pain on left side when she breathes, and coughs up much thick spit that sinks in water; once or twice coughed up blood. Pulse 120, weak and irritable; tongue much furred behind.

Physical signs.—Upper left chest very tender; moist crackling distinct; right supra spinous fossa dull, and the breathing bronchial.

Requests some of the same medicine she had before, which did her so much good. She gets accordingly—

Sodæ hypophosphitis, gr. v.
Infus. calumb., ℥j.—M. ter.
and ℥j. of pale oil twice daily.

May 3rd.—Much the same. Pulse 118; much pain in chest, and “very heavy night sweats.”

R—Calcis hypophosphitis, gr. v.
Infus. calumb., ℥j.—M. ter die sumend.
Pulv. ipecac. co., gr. v.—Omni nocte.

With the exception of a week of rest from physic, the patient took the above mixture till May 23rd, when, in her own words, she felt "a new being," with clean tongue, pulse 88, no pain, and respiration greatly improved; slight cough and scanty expectoration.

Some months after, when engaged in the election of a child into a charitable institution, she casually called upon me, and seemed well.

Case 7.—A little girl, æt. fourteen, coming from Kent, presented on October 19, 1863, all the signs of very incipient phthisis in the left lung. Pulse 130; much cough at night; no hæmoptysis.

Physical signs.—Slight dulness at left infra-clavicle region, and uneven tubular respiration. Nothing further.

Alkalies with bitters, cod-liver oil, and chalybeates were given till December 7, when as there seemed no improvement, she was ordered

Sodæ hypophosphitis, gr. iij.
Infus. calumbæ, ℥j.—M. ter.
Ol. morrh. ℥ij.—Ter die.

After intervals of this medicine, with applications of iodine over left infra-clavicle region, she improved gradually, and on

July 15, 1864—was finally discharged, apparently cured.

I heard of her in August, 1865, as keeping perfectly well in all respects.

The next case is one at present under observation, in consequence of the patient having had a return of consumptive symptoms after they had been completely arrested during fourteen months by means of the hypophosphite of soda alone.

Frederick A., æt. thirty-six, a labourer, living in Bethnal Green, came to Victoria Park Hospital, March 28, 1864, and gave the following account of himself and his ailments.

He has, till ten days ago, had as good health as any man living, his weight at one time was fourteen stone, and he could run up hill, or raise a heavy weight, without anything like dyspnœa.

Shortly before his coming as a patient, after a day of no special exertion or excitement, he awoke at two in the morning with a fit of coughing, and soon began freely to expectorate florid blood. This cough and bloody expectoration kept on at intervals for about a week, and then he sought advice.

The notes of March 28, 1864, are scanty, and run thus: Pale and anxious face, clean tongue, feeble pulse, much cough with sanguineous sputa.

Physical Signs.—Right infra-clavicular region decidedly dull, and moist sounds heard. Ordered, a mixture with dilute sulphuric acid and syrup of poppy.

April 11th.—Not much better. Chest feels very stuffed. Cough is troublesome, and the sputa mixed with blood.

R Sodæ hypophosphitis, gr. v. ;
Glycerin, ℥xx. ;
Aq. ʒj. M. ter die.

He took this up to May 16th, 1864, without any cough pill, or cod-liver oil, and by degrees the cough and spitting left him, and he returned to his work, having lost all cough, all spitting, and with a greatly improved appetite.

October 9th, 1865.—This same man came again to the hospital, and confirms the literal truth of the last note made of his case. Since then he has remained so well that he has not lost one day's work ; but during the last week the cough has returned, and the sputa is again very much mixed with blood. He feels much oppression at the chest, chiefly on the right side, and here there is dulness and numerous humid clicks. The respiration in the left lung is very feeble.

Tincture of iodine applied to right chest, and five grains of hypophosphite of soda given three times a day in camphor water.

October 16th.—Feels much better. After three days of the mixture the cough was better, and the sputa free from blood. Pulse 84, tongue clean, looks pale and thin about the face, and says he has emaciated a good deal lately.

Continue medicine and take ol. morrh., ʒij. ter die.*

Case 9.—William P., æt. fourteen, living at Plumstead, came to Victoria Park Hospital, December 14, 1863, in the following state. He is a pale, thin lad, complains of constant cough with much expectoration, loss of flesh and strength, and frequent attacks of diarrhœa.

Physical Signs.—Left chest is flattened, very dull on percussion, and its upper half is full of moist crepitation. Right lung expands fairly, respiration in it is harsh, and expiration notably prolonged at infra-clavicular region. He states that he has been ill for three years, and has taken much cod-liver oil.

R Ol. morrh. ʒij. ter die. ;
Calcis hypophosphitis, gr. v. ;
Decoct. cinchon., ʒj. M. ter die.

December 21st.—Much the same ; continue for fourteen days.

January 11th, 1864.—Feels much better. Pulse 96, spit is very much less. Diarrhœa ceased.

25th.—Progressing well. Pulse 96. Much less moist sound in left lung, but at one spot respiration is very bronchial as if a

* He could not take the oil, but has since returned to work quite well, and perceptibly gains flesh.

small cavity had formed. The boy looking very pale and anæmic, got in place of the hypophosphite and bark,

Tinctr. ferri. ℥x. ;
 Infus. calumbæ, ʒj. M. ter.
 Pt. ol.

February 8th.—Decidedly worse for the change in the medicine. Diarrhœa returned and pulse risen to 100. Cough and expectoration not increased. Resume hypophosphite and bark as before.

He soon improved again, lost his cough, gained flesh and strength, and on April 4th he was let go with a quinine mixture to take for a fortnight.

The moist sounds in the left lung were almost gone, but the bronchial breathing over a small space made me think a cavity must have formed.

Nothing more was seen of this patient till May 15, 1865, when he again presented himself. He says that after his discharge on April 4, 1864, he kept in good health up to six weeks back, when the cough returned, with profuse expectoration, and sickness and vomiting. The diarrhœa also has of late troubled him much.

The signs of a cavity in the left lung are most unmistakeable now, and some moist clicks are distinct in the right lung. Pulse 124. Ordered Ol. morrh. ʒij. ter die., and tinc. ferri c. liq. morphiæ for fourteen days.

May 29th.—No better in any respect ; vomits his food when he coughs.

Continue the oil and take, in place of the morphia and steel mixture,

Calcis hypophosphitis, gr. iij. ;
 Decoct. cinchon., ʒss. M. ter die.

June 12th.—Much better ; less cough, less expectoration, and no diarrhœa ; continue treatment for a fortnight.

He improved considerably, but left off attending before I was at all satisfied as to the disease being fairly arrested.

Case 10.—Early in January, 1864, a pale, emaciated man, not long out of the workhouse, came to me as an hospital patient, and told me that his illness commenced nine months back, with attacks of profuse hæmoptysis. From that time to this he has been losing strength and flesh, has much cough with often bloody expectoration, and is so short breathed that he can hardly walk across the room, and can speak but few consecutive words at a time. Pulse 124 ; tongue large and clean.

Physical Signs.—Breathing very bronchial at right infra-clavicle, with moist sounds, and also at right supra-spinous fossa ; bronchophony decided in both these places. The lower

part of the left lung seems the seat of some congestion, as evidenced by impaired resonance, and a good deal of fine crepitation at its base.

There was probably at this time some sub-acute pneumonia going on in the left lung. This would to some extent account for the great dyspnoea of the patient on moving. He received a liniment, cod-liver oil, and five grains of hypophosphite of lime, to be taken thrice daily in camphor water.

By January 23rd he had made great and unmistakeable improvement, and the left lung seemed much clearer. To continue mixture and oil.

This man, though living in great poverty, continued, with a few short intervals, the treatment by the hypophosphite of lime with cod-liver oil, and now and then a chalybeate mixture by way of a change, till September, 1865, when he felt so well and strong that he returned to his work as a weaver, the cough scarcely troubles him, and he has now no hæmoptysis, but his breath is short, and there seems a quiescent cavity in the top of the right lung.

Case 11.—The next case is one which exemplifies well the action of the hypophosphite of soda given with an alkali.

Mrs. A., æt. thirty-six, in comfortable circumstances and the mother of several children, came to me on December 29th, 1864, with the following history of the commencement of her illness:—

She has always been delicate, and had a cough with expectoration, often sanguineous, for several years; about two months ago she was confined, and soon after, her chest troubled her very much, and the two medical men who attended her agreed that the right lung was much congested in its upper part.

After her previous confinements she has been troubled from the glands in the neck swelling, and more than once suppuration has taken place, but after this confinement nothing of the kind took place, while an obstinate cough with bloody expectoration hung about her most persistently.

The appetite is fair, but there is a bitter taste in the mouth, and she is liable to bilious attacks, and quite unable to bear the smallest dose of cod-liver oil. The tongue is large with furred centre and red edges. Pulse 108, feeble.

Physical Signs.—Right lung seems improving, the percussion note is rather dull, in parts breathing is extremely feeble, at other parts it is tubular.

Left lung is noted as "suspicious," at the acromial angle clicking sounds can be heard.

R. Sodæ hypophosphitis, gr. v.;
Sodæ bicarb., gr. x.;
Infus. calumbæ, ʒj.—M. ter.

January 2nd, 1865.—Less tightness about the chest, less palpitation of the heart, cough and expectoration very troublesome. Pulse 104.

Continue the same mixture.

The medicine was continued till Feb. 6th, when she felt herself almost well, very little cough, and hardly any expectoration. She remarks that her spirits are much better. Respiration in the right lung is still feeble, but the left seems quite sound.

March 6th.—She was seen, and then had at times a little cough in the morning, otherwise she seemed in good health.

It is well known that consumptive females are apt to experience a fresh start of the disease soon after their confinement, this being probably due to an excess of plastic material being thrown into the circulation, and this not being properly eliminated, is deposited in the lungs as tubercle.* This patient, in addition to increase of chest symptoms after previous confinements, had suffered also from suppuration of the cervical glands, and thus probably an outlet was afforded to tubercular mischief in the constitution. At this last confinement there was none of this gland affection, while the chest symptoms were more threatening than on any previous occasion. In the treatment nothing was given except the hypophosphite of soda in an alkaline infusion of calumba, and the result was all that could be desired; what few suspicious signs there were in the left lung went quite away, the tubular breathing in the right lung got much better, though the general feeble breathing in this lung will probably always continue to exist.

Case 12.—John H., æt. eight years, of remarkably strumous aspect, came with his father to Victoria Park Hospital, September 22, 1864. Has been ill for several weeks with cough and expectoration, and has rapidly lost flesh and strength, he has never coughed up any blood, and his present ailment is *believed* to have commenced with a cold and a cough. Pulse is 120; tongue clean and moist; skin cool.

Physical signs.—Left lung good; right, dull on percussion, and abundance of crepitation heard all over its upper third.

R. Sodæ Hypophos. gr. iij.
Infus. Serpentariæ, ʒss. ter. die.

with lin. terebinth. to right chest.

Sept. 29.—Less moist sound in right lung, and general state improved. Tinct. iodine applied over right front, and a tea-

* See a work "On Phthisis," by Dr. Godwin Timms, page 182. A book full of original thought throughout, and well worthy the perusal of all interested in the nature and treatment of this disease.

spoonful of cod-liver oil given three times a day ; continue mixture.

In a month from this time he had gained flesh and strength, could breath freely, and the only physical sign noted was harsh respiration over the right chest.

I have not room to give the notes of two other cases remarkably similar to this one, in the one, a long and most judicious course of treatment had been for a long time followed to no purpose, while the hypophosphite of soda in six weeks' time had cleared off all the moist sounds from the lung, and made the patient feel quite well enough to resume his duties as landlord of a country inn.

The other was the case of a small boy, and the hypophosphite and sea air must divide the credit of a most satisfactory result between them in this case ; a few moist sounds can yet be heard at the top of either lung.

Not to occupy valuable space with details of more cases, I would just say that those already recorded are taken from 115 cases of phthisis, treated partly or entirely with hypophosphites, of which I have kept notes, and out of this number I have been able to set down twenty as most decidedly and permanently benefited by the use of the hypophosphites of soda and lime. In five of these, cavities seemed to have formed, and in the other fifteen the disease had in every instance gone to the extent of producing moist sounds in the respiration varying in extent and degree. In thirty-four other cases, where the evidence of the disease was very decided, great relief was gained from the hypophosphite treatment, more, perhaps, than by any other medicine employed.

Of the remaining sixty-one I can only say that nothing very noteworthy is to be said, many of these were not regular in attendance, about twelve were very doubtful cases as to the real establishment of phthisis, and in some five or six that were certainly phthisical, the hypophosphite of soda seems actually injurious, one man with the disease in its second stage in both lungs nearly always found this hypophosphite to cause hæmoptysis, others said it seemed "very trying to the chest," but this is the worst I have to tell of my experience of the hypophosphites.

Of the 115 cases of which I have kept notes, 100 certainly were true cases of phthisis in various stages of the disease, and, as has been already stated, twenty of the patients derived so much benefit as to be able to go about their usual occupations and desist from medicine. One of them, a case with extensive disease in the left lung, has lately shown a tendency to relapse, but the very unhealthy locality in which this patient dwells,

and other unfavourable circumstances, must to some extent answer for this relapse.

Comparing my own figures with those of others, I find that in Dr. Risdon Bennett's twenty cases, already referred to, four were dismissed as greatly improved, giving a per-centage of twenty per cent. as successful cases.*

Dr. Francis Churchill, out of thirty-five cases, gives nine cures, being 25·7 per cent. Dr. Cotton, in his cases treated by phosphorus itself, gives four out of twenty-five, or sixteen per cent. as much ameliorated.†

In cases of advanced phthisis with cavities in the lungs, I have seen wonderful relief obtained in dyspnoea by the hypophosphite of soda given with ether and camphor water, and by alternating this remedy with various chalybeate medicines, I have been able to effect an amount of benefit that has surprised me. One young man who when first seen could not walk one mile, after two months treatment, walked one day twelve miles, as he himself told me; his lungs were both extensively diseased; he lived in a very close locality, and eventually sank under his disease, but the benefit that ensued for a time under the medicine was great. In conclusion, I would urge a further trial of the hypophosphites of lime and soda in pulmonary consumption, not as specifics for the cure of every case of this complaint, but as useful adjuvants in the treatment of the disease in some of its various stages.

Note.—With respect to the genuineness and purity of a hypophosphite, I would just add, that Dr. F. Churchill's preparations, as made by Swann, of Paris, and sold now by many of the London chemists, have always seemed to me reliable and efficient medicines.

* *Medical Times*, 1861. Vol. i., p. 439.

† *Medical Times*, 1861. Vol. ii., p. 7.

By the same Author.

ON
CHANGE OF AIR
IN
THE PREVENTION AND CURE
OF
PULMONARY PHTHISIS.

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