months' treatment he was compelled to resume work, and has continued so uninterruptedly for nine months. With a history of pleurisy on both sides, a cavity at the right apex, and a bilobed bilateral infiltration it is rather remarkable that he can work at all. Despite the continuance of the treatment, as in Cases v and vi, his lung condition has not improved, although up to the present I do not think he has gone back. His weight increased 6 lb. before resuming work, but is back now to what it was. During the months of September and October he left home at 8.10 a.m., returning at 11.45 p.m., so the conditions under which he had to be treated could not possibly have been worse. He averages from 60 to 70 hours a week, and travels daily ten miles to work.

CASE VIII.

M., aged 20, social condition good, no tuberculous history, delicate as a child, said to have had atelectasis pulmonum; evidence of rickets in thorax; about six years ago had what seems to have been an abscess in the chest, and I suspect it is in the post-mediastinum, has involved the greater part of both lobes of the left lung, and empties through a big bronchus. He cannot lean back in a chair, and only sleeps semi-prone on his right side. The right lung is perfectly healthy; the left apex and base, both anterior and posterior, are also healthy, but elsewhere is absolutely dull, all round back and front and under axilla. This dullness extends across to the right side, and the heart-beat is felt near the right axillary border in the fourth and fifth interspaces. He used to expectorate a pint of sanious fetid pus in twenty-four hours, and had occasional rigors and haemorrhage; enormous numbers of tubercle bacilli and cocci. He has been under treatment three winters. He now expectorates 9 oz. It is no longer fetid, and few organisms besides the tubercle are found, but these still exist in considerable numbers. The area of absolute dullness is not so extensive, and faint respiratory sounds are returning at its periphery. The apex beat is coming nearer the right mammary line. Had the condition not been established for three years before I saw him he might have been assisted by surgery, but the permanent displacement of his heart, embarrassment of breathing, and the danger of administering an anaesthetic, contraindicated this. He would probably have died on the table or soon after. He takes the ethereal solution in liquid paraffin easily, but five minims of the pure ethereal solution occasions breathlessness for hours. His utmost possible is a quiet uneventful life; he can walk several miles, his appetite is good, and he has no temperature. (Professor Arthur Gamgee.)

CASE IX (Dr. Livingston-London).

M., aged 28. Height 6 ft. 2 in., weight 9 st.; social condition good; very pronounced tuberculous history; duration of illness before treatment six years. So soon as it was detected sanatorium treatment in Switzerland and at home was carried out with guaiacol, cod-liver oil, etc. Steady advance occurred in spite of every effort. There were cavities in both upper lobes—larger in the right—involvement in both lower lobes, bilateral pleurisy, very restricted action, and great flattening of chest. Patient could only sleep on his back. He had slight fever, considerable cough and expectoration, large numbers of tubercle bacilli. Sixteen months ago he had an exacerbation; temperature rose to 103.6; pulse 132; respirations 32; heavy night sweats; great increase of expectoration; clay stools; bilious vomiting, nausea, and loathing of food; in fact his whole appearance suggested the acute symptoms which so often precede the final dissolution. With many misgivings and very little hope for any response the treatment was begun. The temperature began to fall by fractions of a degree, and after several months regained what appeared to be his normal; that is, it rises to 99 or 99.2 either in the afternoon or evening. He is now the subject of hypertrophic pulmonary osteoarthritis, and every now and again expectorates calcareous particles. The expectoration has markedly decreased. He can now sleep on his right side, his appetite is good, and, while he can never hope to work, he gets about wonderfully. Great cold or a little wind at once embarrasses his breathing. The crack-pot sound can still be elicited over the right cavity, but not over the left; both have shrunk very much. He has had a very large number of injections, which, even with the addition of liquid paraffin, occasion breathlessness for some hours, and consequently cannot be given oftener than two or three times a week.

It is almost unnecessary to add that Cases vi, vii, viii, and ix all exhibit the clubbing of finger tips and cyanosed extremities so common in chronic phthisis.

CONCLUSION.

To criticize ones own results with something of impartiality is not easy. It is particularly difficult to be exact and not mislead in a disease so protean as phthisis, or to deduce much from such a small number of cases, yet some attempt is necessary at this stage. Cases i to v I would bracket together as "arrested." Their condition has been changed from what (in the opinion of others as well as my own) was a state of danger to one of comparative safety. They have practically lost their coughs, and in the occasional sputa only a very few tubercle bacilli can be found. In Cases i and ii they have quite disappeared. However, I attach no special importance to this. It might only mean that at the time no tuberculous focus was breaking down, and probably an animal inoculation would have disclosed tubercle. In Case iii I once failed to find any, but the R.C.P. Lab. found a very few afterwards. These cases have been under no restraint. The diet and general

hygiene has been that most suited to each particular one. It is hardly credible that five consecutive patients should attain this measure of recovery by chance in the course of one general practice. If so, it is a remarkable coincidence. So far as I know, the climate of Dunblane has no special reputation in phthisis. I have known several cases leaving it in search of a better. The one factor common to all has been the infusion of iodoform, and to this I attribute their immediate recoveries. In Cases vi and vii I would say it has "retarded" the advance. They are examples of what are euphuistically described as "economic cures." Case viii is very exceptional and rare—at least in general practice, and Case ix has been so shattered that passive existence is his highest possible. While the continued efforts of a physician to save a patient generally have a beneficial effect on the patient's mental condition, they unfortunately do not always influence for good the actual disease, and while admitting that patients' statements as to their feelings of betterness are not very reliable clinically, especially in phthisis, we cannot exclude such evidence altogether. Both viii and ix believe that they have received benefit. The improvements observed are noted in their respective reports, and I must leave the open minded to decide. As time goes on there will probably be some readjusting in these classes, but however they develop, if I can keep in touch with them the issues will be admitted. If Cases vi to ix have not responded so well as i to v, their duration must be remembered; also obliterated capillaries, much interstitial change and thick-walled cavities offer physical obstructions to the free circulation of the fluid. Besides, it is a clinical experience that iodoform is not so potent in caseous as in recent tubercle. This is to be regretted, for patients who have struggled hard unaided for five or six years, by that very opposition, declare that they would have done well could we at the beginning have brought them efficient assistance. As there is always a relationship between the duration of an illness and the period required for its recovery, such cases may do so yet if the physician neither admits defeat nor recognizes trouble. The contention in my first paper was that "the continuous successful injection of an ethereal solution of iodoform was followed by improvement, that it was innocuous in moderate doses and powerful to arrest pulmonary tuberculosis." I trust from the rather hopeless series of cases enumerated it will be conceded that I have gone some way to establish this.

THE TREATMENT OF HAEMOPTYSIS.*

By C. H. CATTLE, M.D. LOND., M.R.C.P.,

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As in the case of other symptoms, so in haemoptysis, the golden rule is if possible to remove the cause. Tuberculosis of the lungs is the most common cause of haemoptysis, and this we know we are often unable to remove; but unless we constantly bear in mind the various other causes of this symptom, we may treat the patient wrongly and overlook something obvious. The following case illustrates some of these difficulties. A man came to me at the hospital about a year ago with a history of occasional spitting of blood in considerable quantity for the last ten years. He was 48 years of age, temperate. He had had no other illness except operation for nasal polypi as a young man. At one time for his present trouble he had been dosed *ad nauseam* with creosote capsules, and had been told by a doctor he was consumptive. I could not find any morbid physical signs in the lungs, and it would be most unusual for consumption to exist for so long without producing signs. He had a slight cough, and expectorated small muco-purulent masses, slightly tinged with blood. The sputum did not contain tubercle bacilli. The left nostril contained polypi, and the mucous membrane over the middle and inferior turbinated bodies was much thickened. There had been no epistaxis, but I concluded the source of the bleeding was a vascular point in the nasopharynx. The blood probably trickled down the posterior pharyngeal wall, and was then expectorated with a slight coughing effort. The attacks were always sharp and short, ceasing as soon as the patient rested from exertion.

In all cases of haemoptysis of doubtful origin the accessible cavities should be examined—the nose, pharynx, larynx, and mouth; even the neglect to notice bleeding gums has led to

* Read before the Nottingham Medico-Chirurgical Society.

misaken diagnosis. It is necessary to bear the following facts in mind:

1. A good many patients with bronchitis or bronchiectasis occasionally bring up a little blood-stained sputum.

2. A special form of haemoptysis, which may be fairly profuse, was described by the late Sir Andrew Clark as arthritic haemoptysis. It occurs in gouty, rheumatic, and often emphysematous patients of middle and advanced age, and depends on degeneration of arterioles and capillaries.

3. The haemoptysis of heart disease can generally be distinguished by appropriate physical signs.

4. Haemoptysis, either profuse or oozing, may be due to thoracic aneurysm communicating with a bronchus. This disease may be almost entirely latent, but should always be suspected where there is a brassy cough and persistent pain in the chest.

The treatment of the above forms of haemoptysis is the same as for haemoptysis in general, modified according to the disease in the course of which they occur.

The form of haemoptysis which we are most frequently called on to treat is that connected with pulmonary phthisis. Where no local cause of bleeding can be found we should act on the suspicion that tubercle is the cause. It has been estimated that 84 per cent. of cases of haemoptysis subsequently develop tubercle. It might be expected that physical signs in the lungs would settle the source of the blood but this is not by any means always the case. A small tuberculous focus may not be evident to the stethoscope, and blood in the air passages will not necessarily give rise to a *râle*. The patient with haemoptysis breathes as shallowly as possible and we cannot tell him to cough in order to elicit physical signs. An examination of the chest may be necessary to assure the patient and his friends that he is not being neglected, but let us make it as short and perfunctory as possible, knowing how little it can benefit the patient, and how little we can learn from it.

In the mildest case of haemoptysis place the patient at rest in bed. He may come to our houses saying he has spat a little blood from his throat and make light of it. We need not overlook the possibility of the haemoptysis being non-tuberculous, but we know that in something like nine cases out of ten it is tuberculous if we can find no obvious cause. Therefore if the bleeding is only small we shall be acting in the patient's interest to make him rest in bed, for exertion will increase the blood pressure and add to the risk of increased haemorrhage. Haemorrhage in the early stage of phthisis depends either on capillary oozing, or on the ulceration of one of the smaller vessels. Even when profuse it will generally cease spontaneously when the patient is kept at rest. In the later stages, after cavities have formed, the arteries sometimes resist the destructive process going on in the lung. Their walls are weakened, often dilated to form fusiform aneurysms, and they have lost the support of neighbouring tissues. Under these circumstances haemorrhages are apt to recur frequently and may be fatal. One of my cases, an alcoholic subject, had a large number of these attacks, and finally died in a few moments from rupture of a pulmonary aneurysm. Some authorities go so far as to describe a haemorrhagic type of the disease. Where this liability exists we must do what we can to correct such influences as alcoholic excess, to keep down the blood pressure, and alter the quality of the blood if that appears to be at fault.

For an ordinary haemoptysis of moderate amount it is a good plan to give a quarter of a grain of morphine hypodermically. This has the effect of quieting cough and calming the action of the heart. If we come on the scene, as is often the case, when the first gush of blood is over, the morphine should still be given to quiet the patient's alarm, which tends to keep up the circulatory excitement which we are anxious to allay. There is one exception to the rule of giving morphine—namely, when the bleeding is so profuse as to flood the air passages and suffocate the patient. In this case he should be encouraged to cough up the blood, and we can only hope that a condition of syncope setting in will bring about arrest of the bleeding.

The next most useful measure for the arrest of haemorrhage is free purgation. The watery evacuation produced by salines is an effectual means of lowering the blood pressure and so favouring the formation of a clot in the ruptured vessel. For this purpose a teaspoonful of sulphate of magnesium or sulphate of sodium should be administered, and repeated every hour or two until a good action has been obtained. But where the haemorrhage has already been so severe as to

threaten life the purgative had better be omitted, as we must rely on maintaining the most absolute condition of rest. In these desperate cases the subcutaneous transfusion of saline fluid should be practised, as it can be done without disturbing the patient.

Calcium chloride has acquired a reputation for increasing the coagulability of the blood. It may be given in 20 gr. doses every four hours, and probably does good. In a markedly haemorrhagic case it is better to give the chloride for three or four days, and then leave it off for a week, and so on, giving it intermittently for some time. Turpentine sometimes checks internal bleeding, but I think it is more effectual in melaena than in haemoptysis, probably because some of the unabsorbed drug may come in contact with the bleeding point. The numerous class of so-called astringents—for example, alum, dilute sulphuric acid, gallic acid, etc.—probably have very little effect on account of their great dilution before they reach the seat of haemorrhage.

An icebag to the chest may do good by quieting the action of the heart, but I think it is rarely required. Cold to the surface is said to cause reflex contraction of the internal vessels, but this is doubtful. The injection of half a pint of gelatine solution into the rectum two or three times a day is said to do good. For my own part I should be disposed to try the effect of purgation first.

For many years, following the advice of an old teacher, I used to prescribe a mixture containing ergot and gallic and sulphuric acids. Ergot is still recommended by several well-known authorities. The rationale of its action is that it acts on the muscular coat of the small arteries and causes their contraction. If it really has this action in medicinal doses, which I doubt, it can only do harm, for the general rise in the blood pressure will more than undo any good arising from the local action of the drug. Probably its action on the arterioles in ordinary circumstances is inappreciable, hence the harmful effects are not so frequently seen as we might expect.

For the same reason I consider adrenalin should not be given with a view to arresting haemoptysis. Applied locally, it has the power of restraining haemorrhage and blanching a congested surface. Taken by the mouth, it has a more certain constricting action on the blood vessels than ergot, but this action brings about a greatly increased blood pressure, which defeats the main object we have in view—namely, to maintain a low tension in the vessels so as to favour the formation of clot at the seat of the haemorrhage and prevent its being washed away by a new gush of blood. A much more rational plan of treatment is the inhalation of nitrite of amyl, as recommended by Hare, of Brisbane. The systemic vessels being of much greater extent than the pulmonary, a general dilatation of arterioles will be accompanied by diversion of blood from the pulmonary circulation and consequent reduction of pressure. I should certainly be inclined to try nitrite of amyl.

An Address

ON

OPERATIVE METHODS—NEW AND OLD— IN TUBERCULOSIS OF THE KNEE- JOINT.

Delivered before the Midland Medical Society, Birmingham.

By SIR WILLIAM THOMSON, C.B., F.R.C.S.,

Surgeon to the Richmond Hospital, Dublin; Honorary Surgeon to the King in Ireland.

[AFTER some preliminary remarks Sir William Thomson said:]

I think you will admit that the treatment of tuberculosis of the knee-joint is not in a quite satisfactory position, and the variety of methods points to the fact that there is great difference in the views of surgeons as to what is best to be done. The disease is common enough, but if it is common it is not commonplace. It influences severely the life-history of the poor, among whom almost every individual must be a breadwinner; it mars many a career, which otherwise might be so successful, among those with the best social surroundings. It is, then, of great importance among the things that form the activities of a surgeon's life, and in dealing with it he may worthily exercise his best qualities, for not only does it demand high powers of brain and hand, but it will test his skill and patience to the utmost. And to my younger *confrères*