the miners, the result only was to increase the cases of nystagmus notified. I have no wish to overstress this point, but I think that I have said enough to show that in this neighbourhood all the evidence is against deficiency of light being the principal cause of exciting the disease.

My own view is that there is a predisposition to the disease, that perhaps 5 per cent. of all children born have this idiosyncrasy, and that coal hewing is a very important factor in exciting an active nystagmus. Anyone who has once acquired miners' nystagmus will, after loss of all the symptoms, assuredly acquire it again if he returns to his old employment underground; at least, that is what my experience has taught me. I have seen two cases in accountants who said they always worked in a good light; these are analogous to Snell's ceiling paperer. If this contention be confirmed by others, the patient should never be allowed to go down a pit again, but must be given compensation for a limited period—say twelve months or so—while recovering from his symptoms, to give him time to obtain other employment.

POSTERIOR GRAVITY DRAINAGE IN EMPYEMA:

THE STRATEGIC SEAT OF ELECTION.

BY

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THE plan herein described has been employed, during the past two years, in a series of cases in the British Hospital, Buenos Aires, by my colleague Dr. Fehilly and by myself, with such uniformly satisfactory results that I think it merits the attention of those who have to intervene in this condition. The reason for its adoption was prolonged failure with other methods to prevent post-operative stagnation of pus within the pleural cavity, as evinced by general symptoms and by the quantity of discharge that always followed changing of tube, which only required a cough or alteration in the position of the patient to prove that the operation had failed to establish immediate automatic evacuation of purulent secretion.

Without wishing to detract from the general value of conclusions formulated on clinical deductions I am satisfied that in this instance surgical reasoning has, for generations, been unwittingly deflected by academic illusions. In the recent edition of Da Costa's *Surgery*, for instance, we find:

"I agree with Hutton that a portion of the sixth rib in the mid-axillary line should be removed. . . . The reasons given by Hutton for the selection of this rib are . . . it is over the portion of lung which expands last. . . . An empyema is drained only partly by gravity, and most of the fluid is really forced out and the cavity is obliterated by lung expansion. . . . If an incision is made anterior or posterior to this point the expanding lung will block the drainage opening, and a pus cavity without drainage will remain in the mid-axillary line. . . . Such an incision permits a patient to lie on his back without making any pressure on the drainage tube."

A few days after the receipt of this new edition, Dr. Fehilly called my attention to the above statements, and after studying them, we went purposely to the wards and examined, in detail, the wounds of five post-operative cases that happened to be under treatment. The result was that, so far as our method was concerned, every line of Da Costa's quotations of Hutton's theories contained a travesty of fact. In four of the cases there was free dependent drainage of a sinus tracking upwards and inwards towards the spine, and in each of these the lung had expanded and air was freely entering the base in the axillary line. In the fifth, the most recently operated on, there was a well defined cavity directly in front of the opening completely shut off from the axillary border of the chest by adherent lung tissue. In each instance there had been prompt defervescence and marked daily decrease in the general symptoms. There was not the slightest reason for suspicion of any secondary pus cavity. The expanding lung did not cause an hour-glass contraction of the sinus, nor had it interfered with drainage in a single instance, and gravity drainage was perfect and in no way affected by dorsal decubitus, which position, by the way, the patients had voluntarily adopted during the first week after operation.

The result of these examinations confirmed previous experience of a method founded on anatomical facts—for example, Cunningham's *Anatomy*, p. 930, Fig. 630—and on x-ray study of the normal living thorax which demonstrated the existence of a distinct potential sulcus in the pleural cavity, between the scapular line and vertebra, beneath the

ninth and tenth ribs, formed at the junction of the parietal and diaphragmatic pleura. This, combined with the fact that these patients do not pose in bed in the prone position but invariably assume a supine slope, and that those who have a resection of rib performed for empyema on textbook lines have a tendency to tilt the affected side upwards in order to avoid pressure pain, rendered it obvious that this posterior angle was the strategic site for gravity drainage in general suppurative pleuritis. And personal experience convinces me that the lung expands more rapidly if unhampered by having to force liquid uphill.

It is hardly necessary to add that this seat of election is the ideal one for an encysted empyema between lung and diaphragm, not to mention the ready ingress it affords in cases of suppurating hydatid cysts, abscess of the liver, or subdiaphragmatic abscess, which have perforated the diaphragm on their tracking to a bronchus.

In parenthesis I wish to remark that whenever an abscess or cyst is situated near the posterior surface of the liver posterior drainage should always be adopted; otherwise, as in ill placed thoracotomy for empyema, the "external" sinus or internal flask pocket is certain to remain. When practicable other subdiaphragmatic "collections" should be similarly dealt with. Whenever an exploring needle proves the existence of pus in the chest word is sent to the theatre to prepare at once for operation.

Before commencing local disinfection with the patient's elbow hanging at the side the inferior angle of the scapula is determined by the index finger, and from its tip a line two and a half inches long is traced vertically downwards with a stick of silver nitrate. The lower point of this line indicates the topographical position of the inferior border of the ninth rib, and affords a fixed central point for any form of subsequent incision for the evacuation of "free pus" from the pleural cavity.

Ether by the open method is administered, and the patient, with the elbow maintained at the side by an assistant, is carefully rolled over on the table sufficiently to facilitate the insertion of an exploring needle, and (if the result is positive) a four-inch curved incision is made, with its centre at the point above noted. With a few strokes of the knife the skin and subcutaneous tissue are divided, the fibres of the latissimus dorsi (which run upwards and outwards) are separated by a blunt dissector, strong retractors then make a free space for denuding and resecting two inches of the ninth rib, and a touch of a scalpel to the pleura completes an operation which depends on the behaviour of the divided intercostal artery as to whether it will be a one or three minutes' procedure. (N.B.—There must be no hesitation in removing two inches of the tenth rib in the same line if there should be any suspicion of defective dependent drainage.) Two short "gas-pipe" drainage tubes are then inserted into the cavity; these are transfixed with safety pins, under which a thin piece of gauze is packed lightly into the parietal wound, and dry gauze, wool, and a bandage applied. The outside dressing is changed as often as it becomes saturated until the second day, when it is superseded by a four-hourly warm mercury perchloride (1 in 3,000) fomentation, wrung dry. I never apply any form of impermeable tissue with a "perchloride" fomentation, which, by the way, I consider excellent in septic surgical cases. The drainage tubes are also removed on the second day, and two large wisps of silkworm gut substituted. These wisps are made by doubling twenty strands of silkworm gut and ligating them with a piece of fine silk about half an inch from each end. They afford excellent drainage, do not become foul, and never produce the pyogenic track which invariably accompanies the prolonged use of rubber tubes in wounds.

As soon as the patient can be safely raised into the sitting posture, and subject to no cough supervening, low level trickling irrigation with warm hydrogen peroxide solution (4 tablespoonfuls to a litre of water), followed instantly with warm carbolic lotion (1 tablespoonful to a litre) is carried out three times daily. The "peroxide carbolic" lotion rapidly diminishes smell and, in its own incomparable manner, promptly induces vigorous and healthy pale vermilion granulations. The wisps are removed prior to each irrigation, cleansed, and afterwards reinserted. (It may be well to mention that, to obviate the possibility of these wisps disappearing, the sister in charge ties each one, about the centre, with a piece of silk, and passes a safety pin internal to it.) All such cases are treated in the "continuous outdoor" manner, and are given generous diet with wine, beer, or stout with meals, with an occasional port wine and egg cocktail in

addition, *plus* mist. ferri et quinae, thrice a day. They are encouraged to get out of bed as soon as they feel fit to do so, as drainage is assured while standing, sitting, walking, or lying. Considering the rapidity with which these patients convalesce it is reasonable to hope that, in future, the opportunities for practising an "Estlander" or a decortication of pleura will be few and far between.

APPENDIX.

Since the above was sent for publication I have had various opportunities of confirming the statements therein contained. I wish now to add my most recent experience.

J. H. Q., aged 45, clerk, suffering from right "encysted" empyema—a diagnosis established by exploring needle striking pus in the tenth right intercostal space in the posterior scapular line.

On August 15th, 1922, a light dose of "open" ether was administered to the patient, who had been placed on an operating table (heated by electricity as previously mentioned by me in the *BRITISH MEDICAL JOURNAL*, February 4th, 1922). With needle puncture as centre a 3-inch incision was made, and over a pint of pus evacuated from a cavity bounded in the axillary border by the eighth, ninth, and tenth ribs, which were distinctly visible through the wound, roofed over by the inferior border of the non-collapsing right lung, which was seen adherent, in the axillary area, to the parietal pleura about the level of the lower border of the seventh rib, the diaphragm, with its dome in obvious perspective, forming the floor, and what was described above as a potential sulcus—namely, the posterior angle formed by the parieto-diaphragmatic pleural reflection—was palpably converted into an actual dependent pus fossa.

As the opening by incision seemed to provide ample room for drainage, resection of rib was omitted—a welcome coincidence as the patient was in a weak toxic condition. Temperature 102°, pulse 110.

Two large wisps of silkworm gut were inserted, transfixed by safety-pins, and dry dressing applied. The operation was completed in one minute.

Third Morning.—Free discharge had taken place since operation. One wisp removed; no pent-up pus followed its extraction. Temperature remaining at normal. Full diet given.

Seventh Day.—The vista, per wound, of "axillary" ribs had completely disappeared—the lung having visibly and audibly (auscultation) expanded downwards along the axillary border, completely obliterating the outer segment of the cavity.

Fourteenth Day.—Marked contraction had taken place—the track of wisp solely remained, the probe passing *inwards* and slightly upwards and forwards, between the dome of diaphragm and expanding lung, *towards the spine*. Air heard entering right base in a normal manner and through a normal extent in the axillary line.

Twenty-first Day.—Wisp had to be reduced to a few doubled strands. Sinus daily closing in without any internal flask pocket. Slight discharge. The patient was allowed out of bed.

Twenty-sixth Day.—Wisp omitted; discharge practically nil. Had gained 12 lb. since date of operation. Discharged cured four days later.

In order to avoid ambiguity I wish, finally, to stress a few obvious practical facts, which I can personally vouch for, as observed in this and all the other cases operated on by me through this posterior route.

1. Drainage at the posterior inferior pleural angle is aided by gravity—no rush, indeed not a drop of pent-up pus, has ever followed removal of wisp for the purpose of changing or cleansing same, even when the forcible cough test has been applied in the sitting or other posture. The dressings were continuously impregnated with discharge until the sinus closed. These two factors—as far as empyema is concerned—in my opinion constitute the term "free dependent drainage."

2. The lung in all cases first expanded downwards along the "axillary" wall, and invariably commenced its beneficent work by obliterating the outer segment of the cavity; from thence gradually continued its downward and inward expansion until the remaining sinus, which *always* passed inwards towards the spine, was occluded.

3. A wisp of silkworm gut, while maintaining perfect drainage, does not cause any necrosis or pyogenic lining along its track irrespective of the one retained *in situ*. (After the third day wisps are daily removed for cleansing.)

4. The result in the last case (45 years of age) suggests that excision of rib may be an unnecessary adjunct when posterior gravity drainage is provided.

The third Italian congress of war tuberculosis will be held at Trieste from May 13th to 17th.

DURING the present year the following well known Italian professors will have reached the age limit of 75 years: Leonardo Bianchi of Naples, Edoardo Maragliano of Genoa, Vittorio Grazi of Pisa, Domenico Majocchi, Alfonso Poggi and Pietro Albertoni of Bologna, Pio Foa and Luigi Pagliani of Turin, Francesco Falchi of Pavia, and Luca de Rocco of Catania.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TWO CASES OF "KNUCKLE PADS."

KNUCKLE pads are not very commonly met with and are very liable to be confused with other nodular excrescences found in the neighbourhood of the finger-joints. They are quite distinct from the osteophytes of rheumatoid arthritis, for which they are often mistaken, and though believed to be gouty in origin by Garrod¹ they are distinct from the deposits of sodium urate which are characteristic of that disease.

The nodules, which are about the size of a split pea, are situated on the dorsal surface of the fingers, most frequently at the first interphalangeal joint, though they may be present in other situations. The skin over them is normal in colour, and when the joints are extended they are slightly movable, but become fixed and often very painful on flexion. Pain in the nodules is not a constant factor; Case 1 had almost continuous pain, while Case 2 had no pain of any kind in the hands.

The nodules, once they have appeared, are permanent, but may enlarge and become painful, especially in wet weather. Dupuytren's contracture of the palm of the hand is often present and was well marked in one of the cases. Hale-White² considers the nodules to be a pure new growth of fibrous tissue, with some thickening of the stratum corneum with no evidence of inflammatory change.

Case 1.—Male, aged 39, a motor driver. He commenced with rheumatic pains in the hands seven years ago, and first noticed the nodules a year later. The nodules, which appeared in successive intervals of about two months, are situated on the middle, ring, and little fingers of both hands. They are very painful and tender to touch, especially in wet weather, and each one took about three months to reach full size. Dupuytren's contracture is well marked in the right hand. No other members of the family are similarly affected. The only evidence of rheumatism is slight creaking in both knee-joints.

Case 2.—Male, aged 42, schoolmaster. He has had slight rheumatic pains in the right shoulder for a number of years, but no pain in the hands. There is slight creaking in both knees with tipping of the iliac crests, but no other evidence of rheumatism. The nodules commenced to appear about three years ago; they are situated at the first interphalangeal joints of both hands, but are specially marked on the middle and ring fingers of both hands.

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POSTURAL TREATMENT IN LUNG DISEASE.

THE note in the *Epitome* of February 17th (139) on postural treatment for congestion of the lungs leads me to state that some twenty years ago, when acting as a locumtenent, I was given charge of a middle-aged woman who, I was told, was dying. She certainly looked very ill. Lung trouble had followed the extraction of a tooth, and she was bringing up purulent material, the smell of which permeated the whole house. Having read that bronchiectatic cavities could be emptied by posturing, I suggested that the foot of the bed should be raised and the patient made to lie without pillows. The patient objected, but the nurse persuaded her. The next day on entering the house I was struck by the fact that the smell was absent. I was shown half a chamber of putrid pus which the nurse told me ran out of the patient's mouth when the bed was tilted. The temperature, which had been raised for three weeks, fell to normal, and the patient was up and out three weeks later. At my first visit the patient was sitting up in bed propped up with pillows. The posturing was carried out in three-hour stages for a week.

During the war I had charge of the tuberculous ward in a native hospital. Having read of cavities being emptied by posturing, I tilted up the foot of the bed in one case. The ward master noted that not only was the patient better, but that he coughed much less, and asked if we might try posturing in all cases with cough. This was done; the bottles of sedative cough mixture lay untouched, and the ward was quiet in place of being disturbed by a cough here and a cough there as before.

In another hospital a European, who had lain for weeks in bed with a running temperature and signs in the lung of phthisis, was tilted up, and immediately his temperature fell and kept normal. He was going to be discharged, when the

¹ Garrod, A. E.: *St. Bartholomew's Hosp. Reports*, Vol. 29, p. 157; and *BRITISH MEDICAL JOURNAL*, 1904, ii, p. 8.

² Hale-White, W.: *Quart. Journ. Med.*, Vol. 1, p. 479.