thing which will show you that I perfectly understand your illness, and will enable you to believe what I say. Those dark circles under your eyes were painted by yourself.' A start and an instant denial. 'Do not repeat that denial, please; I *know* it. You got some black stuff and rubbed it on.' More denials, but with flushed face and conscious look. 'I *know* it as well as if I had seen you. I will prove to you that I know it. Your paleness on the day you came here was only tooth-powder which you had rubbed on your face.' No denials now, but a startled look, tearful eyes, and helpless silence. 'I do not tell you this to hurt your feelings, nor to give you pain, neither do I need to tell your friends about it; but I wish to show you that there is no mystery in your case.' The conviction was complete, and her confession was unreserved. She told me that she had darkened her eyes with the lead from her pencil, and that she had done it because her friends thought it denoted biliousness, and so did not insist on her taking food, to which she had extreme repugnance, on account of the sickness and vomiting which eating produced. She declared her intention to tell her kind friends all about it as soon as she was well, and was anxious to know if you *knew* all.

"This was the right mood, so, of course, I went on with as much quiet emphasis as possible. 'You know from this that I understand your case, and now I tell you that you can perfectly control your other ailments; that the fits, the shaking of the head, and the vomiting must cease. They are not needful; they prevent you from getting well. You have the power to stop them, and I wish you to do so.' She promised to try, and, of course, she succeeded in all but the cough, which unhappily was more than nervous. Within a fortnight, I was able to report to Dr. — in these words: 'No preternatural sleep, no choreic movements, no shaking of the head, no vomiting, no fits; up and out every day.' The persistence of the cough was unfortunately due to lung-disease. When made aware of this, her friends took her home again, and she died a few months afterwards.

"I trouble you with no comments; but it is due to the memory of our most interesting patient to express my full belief that her attempts at deception did not result from moral obliquity, but were as purely the product of disease as the abnormal sleep and the eccentric movements.—Yours very faithfully,
D. YELLOWLEES.

"To Professor Gairdner."

It seems only necessary to add to this impressive narrative a very few lines. I never saw M. T. again. Her anxiety to be informed if I were a party to Dr. Yellowlees's profound insight into her case remains, so far as I am concerned, unsatisfied. No word of reproach was ever uttered to her or about her by any of her medical advisers; and to this hour, I believe, her relatives remain in ignorance of the strange revelations that took place when she was in the hands of strangers, and the marvellous effect of a few words, faithfully and firmly spoken, in rousing the latent healthy instincts of a "mind diseased". Had this poor girl lived in an age when demoniacal possession, or witchcraft, or the "evil eye" remained a part of the popular creed, her disease and her cure, if published abroad, could scarcely have escaped one or another of these interpretations. As it was, she died an ordinary death from phthisical exhaustion, and her death-bed was undisturbed either by superstitious fears or by any unusual manifestations of moral emotion. The only remark she made to her faithful and attentive ordinary medical adviser which could, however remotely, bear the construction of a kind of half-guilty self-consciousness, was that she had been "very foolish". And I think, on the whole, that no humane judge familiar with the secrets of what has been recently called "spiritual pathology", certainly no skilled medical judge, looking at the facts of her sad case from the medico-psychological point of view, would be inclined to condemn her in any harsher terms than these. This simple narrative, impersonal and without lengthened commentary, will prepare for us all that is needful of an experience fraught with inexpressible human interest, though the subject of it, seeking neither praise nor blame, remains for us but the shade of a shade.

CRICKHOWELL.—The death-rate in this district was 22.4 per 1,000 in the year 1877, and of children under one year 3.96 per 1,000 inhabitants. This death-rate is considered very favourable by Mr. Hill, who also especially notices the small mortality from zymotic diseases, although measles prevailed during the summer to a considerable extent. Only one case of small-pox occurred; and, as the patient exposed himself in a public place, he was summoned and convicted. The rest of the community escaped, as Mr. Hill believes, from the revaccination of a large number of inhabitants. The want of proper sleeping accommodation is especially mentioned, as well as the imperfect water-supply and overcrowded state of the churchyard.

CLINICAL LECTURES

ON

THE VARIETIES OF PHTHISIS.

Delivered at the Hospital for Consumption and Diseases of the Chest, Brompton.

By C. THEODORE WILLIAMS, M.A., M.D., F.R.C.P.,
Physician to the Hospital.

LECTURE IV.—FIBROID PHTHISIS.

GENTLEMEN,—In our last lecture, we considered the form of phthisis arising from catarrhal pneumonia, of which the principal features were alveolar epithelial proliferation, leading to caseation, irritation of the alveolar wall, and consequent tuberculosis, progressive consolidation, and excavation. We now turn to a very different group of patients, in most of whom the phthisical disease may be traced to inflammation attacking the pleura and interlobular tissue, and thence reaching the parenchyma. Here we have interstitial pneumonia, as it is called, as the basis of the disease, instead of catarrhal pneumonia; and its development and after-changes give rise to the very important features which mark the fibroid variety of consumption. The principal pathological element is fibrosis, which, while it is present to a greater or less extent in most cases of chronic phthisis, is the most important feature in fibroid phthisis, and its preponderance and effect on the lungs and circulation largely influence the history of the patients of this group.

By the term fibroid phthisis I would signify cases of phthisis in which fibrosis is the main feature; and therefore I do not enter on the question of its being primary or secondary, though it is for the most part secondary in instances I have seen. Fibroid phthisis, then, would include all that Dr. Andrew Clark intended when he communicated his admirable paper to the Clinical Society, and, in addition, cases where tuberculosis has supervened. There are two principal modes of origin: firstly, from attacks of pleurisy and pleuropneumonia; secondly, from chronic pneumonia resulting from long-continued irritation of the lungs through the inhalation of various kinds of dust or grit, such as prevails among fork-and-knife-grinders, colliers, and buttonmakers. The history of symptoms in the first group may be sketched as follows. A patient has an attack of pleurisy with effusion, from which he recovers with absorption of fluid; but percussion shows dullness over the whole side and somewhat feeble respiration. The patient recovers, but experiences dragging pains in the side; a dry hacking cough, somewhat paroxysmal in character, with little expectoration; and the breathing, always short, becomes still more so on exertion. There is emaciation, and often night-sweats. These symptoms increase; and a few months later we find marked immobility of the affected side, still dullness throughout, and now considerable shrinking; the circumference of this side, whether taken at the level of the second rib, or of the nipple, or of the ensiform cartilage, measuring one or two inches less than the healthy side. On auscultation, we notice the breathing to be very deficient in some parts, and in others bronchial and sometimes cavernous in character; but generally there is everywhere absence of true vesicular breathing. Careful percussion of the opposite side of the chest shows the line of resonance to extend beyond the usual limit, passing to the edge of the sternum, and often an inch or two farther, demonstrating that the contraction of the affected lung has caused the healthy one to be drawn across in order to fill up the void. Other organs are likewise displaced. If the left lung be affected, the heart is tilted, not necessarily upwards, as where a cavity is contracting, but outwards. The stomach rises, its note being audible as high as the fourth rib. The heart is not only displaced, but is uncovered by the retreating lung; and the right auricle and ventricle are clearly distinguished by their pulsations, while the right lung is drawn across to the left side to the extent of one or two inches. If the right lung be affected, the left may be drawn over; and the area of resonance may extend as far as the inner half of the right clavicle, and the line drawn thence sloping towards the middle of the sternum. The heart is transposed, and its impulse may be traced in the fourth interspace on the right side. The liver rises up to the fifth rib, and shrinking of the chest-wall takes place as on the other side. In these patients, the pulse is generally slow, and the temperature seldom rises above the normal, and is often subnormal. When the temperature rises over 100 deg. Fahr., it signifies that something besides fibrosis is going on. The cough is troublesome, and often induces vomiting; and the expectoration becomes more and more difficult, and in time, on account of retention, foetid. Meanwhile the dyspnoea increases, the other lung

becoming involved; signs of obstructed circulation appear; dropsy of the extremities takes place, and rapidly increases; the urine becomes albuminous and of low specific gravity; and the patient dies either of dyspnoea or of blood-poisoning, his death contrasting strongly with the ordinary termination of consumptive disease. After death, we find a lung contracted to the size of a man's fist, with enormously thickened and adherent pleura and widely dilated bronchi, with interlobular septa much increased in size and encroaching on the lung-structure, which seems to be replaced by a hard fibrous tissue, mottled with grey in parts, deeply pigmented, and resembling cartilage in its resistance to the knife. Embedded in this structure are found caseous and cretaceous masses, or, again, excavations of various sizes; the walls of these and of the dilated bronchi being rigid and inelastic from the presence of the fibroid material, and thus affording some explanation of the difficult expectoration and consequently troublesome cough. Besides these changes, we may find the other lung the seat of tuberculosis, though this is not necessary; but commonly the bronchial glands are hardened and deeply pigmented. There is often amyloid disease of the liver and spleen, and frequently a granular condition of the kidneys.

Such is fibroid phthisis; but we must bear in mind that its principal element—*fibrosis*—is brought about by interstitial pneumonia arising from (1) unresolved croupous pneumonia, or (2) from the irritation of the alveoli by hard particles, as in colliers' phthisis, or (3) from pleurisy. We find a large development of fibroid tissue, causing a thickening of the alveolar walls, and afterwards filling up and obliterating the alveolar spaces themselves; and besides this, there is an enormous increase of the interlobular connective tissue in all its various ramifications, and especially in the parts surrounding the large vessels and bronchi as they pass to the lobules.

The microscope tells us that the growth is either fibro-nucleated or densely fibrous, and presents the characters of cicatricial or scar-tissue. But, though this fibrosis is apparently the same in whatever part of the lung it may occur, it is not so in reality; for Dr. Green has shown that, while the fibrosis of the interlobular septa does not caseate and break down into cavities, that of the alveolar growth does, because the former is amply supplied with blood-vessels, and the latter is destitute of them; and this gives us an important means of distinguishing between the two.

It is needless to say that cases of fibroid phthisis differ widely, according to the amount of lung involved, the presence of cavities, the state of the bronchial tubes, and the amount of elastic lung available, which materially influence the symptoms. We will now consider a typical case.

Isabella C., a married woman aged 29, a dressmaker, was admitted under my care April 18th, 1871, and gave the following history. She had lost a cousin on her mother's side from consumption. For three years she had had cough and expectoration, and about two years ago noticed that she was emaciating. Hæmoptysis to the extent of four ounces came on soon after the beginning of the illness, and to the same amount three months later; and again, after two months, in February 1869, two ounces were coughed up, but none since then. She had had night-sweats, which ceased before admission; and she once for two weeks suffered from diarrhoea. Latterly she had complained of increasing shortness of breath, which had become very troublesome. In September 1869, she became an out-patient under Dr. Douglas Powell, who found flattening, dulness, and cavernous breathing in the upper right chest anteriorly, and tubular respiration and moist crepitation over the posterior base. He observed that the left lung was enlarged, and extended to the right of the sternum; and he detected crepitation at the apex and along the posterior surface. Dr. Powell's diagnosis was a cavity in and contractile disease of the right lung, and granulations in the left. In October 1869, she was admitted into the hospital under Dr. Cotton, when the right lung was found to be in the same condition; but in the left harsh blowing respiration had taken the place of the humid crepitus. She remained in the hospital for three months, taking phosphorated oil alternately with quinine and other bitters, and gained seven pounds and a half in weight, the physical signs remaining the same. After this, she continued better for some time; but the symptoms returned, and her increasing shortness of breath caused her to apply to the hospital, where she was admitted under my care in April 1871. Her cough was very troublesome; expectoration frothy; tongue clean; bowels regular; catamenia absent for two years; great emaciation, especially of the thorax. The right side of the chest was considerably smaller than the left, the shoulders greatly depressed, and the upper portion of the chest fixed. Marked depression was visible in the upper right front as low as the third rib, this space being decidedly resonant. Cavernous breathing was heard under the clavicle, though chiefly below the sternal end. From the

fifth rib downward, there was absence of breathing and marked dulness, not removable by change of position. Posteriorly, cavernous breathing was audible in the right inter- and supra-scapular regions. The heart's sounds were more audible over the lower portion of the sternum than in the cardiac region, and the apex could not be felt. It was, therefore, concluded that the heart was displaced towards the contracted side. The diagnosis was contractile or fibroid disease of the right lung, with some excavation of the upper portion, and displacement of the left lung, liver, and heart towards the affected side. The patient was ordered cod-liver oil and quinine, but she did not improve; and on April 27th the evening temperature, which had been normal, rose to 100 deg. Fahr.; and three days later the morning temperature rose to 101 deg. Fahr., and then remained between 100 and 101.6 deg. Fahr., with the exception of one day, till May 4th. The patient became weaker, and the breath shorter. Sonorous rhonchus and harsh breathing were audible in the left lung. On May 15th, the morning temperature fell to 98.4 deg. Fahr., and the evening to 99 deg. Fahr.; the pulse being 100, respirations 40. After this, the morning and evening temperatures varied between 98 and 98.5 deg. Fahr.; and on May 20th the breath became very difficult, crepitation being audible at the base of the left lung. Dyspnoea increased, and the patient died on the 25th.

The *post mortem* examination was made by my then clinical assistant, Mr. William Rose, in the presence of Dr. Powell and myself; and the following account is taken from our notes.

The body was greatly emaciated. There was marked concavity from the right clavicle to the second rib, and general shrinking of the whole right side of the chest. On removing the cartilages, the right lung could not be distinguished at first, but was afterwards found contracted to a third of its normal size, occupying the axillary and lateral regions, and not extending lower than the fifth rib. The heart was drawn over to the right side of the sternum, the apex being slightly to the left of the ensiform cartilage. The liver, which was much enlarged, was drawn up, and, owing to the retraction of the right lung, had become superficial below the fifth rib; it did not extend far below the margin of the ribs. The left lung stretched across the median line as far as the costo-sternal articulations on the right side, this being the case as low as the third rib. The right lung, weighing 20½ ounces, was universally adherent to the chest-wall; the pleura, with intervening adhesions, being on an average half an inch thick, and thickest over the diaphragm, where it contained in its interior a great deal of fibro-gelatinous material. The texture of the lung itself was dark grey, traversed by whitish fibrous bands proceeding from the pleura, interlobular septa, bronchi, and vascular sheaths. In the upper lobe were the remains of an old cavity into which some bronchial tubes opened, their mucous membrane seeming to terminate at its entrance. The cavity appeared to have undergone contraction, and was divided by numerous fibroid septa stretching across it, separating it into smooth-walled loculi which communicated with each other. The left lung was much enlarged and congested, the edges being highly emphysematous. It contained some cheesy nodules, around which were milary tubercles of recent date. In the portion drawn over to the right side was a small cavity of the size of a walnut, which corresponded to the area of the cavernous respiration heard under the right clavicle. The heart was large; the right ventricle slightly dilated; valves healthy. The liver and spleen were both lardaceous; kidneys healthy.

In this case, the shrinking of the right lung had caused a void, which atmospheric pressure had filled in various ways. The chest-wall was contracted; the liver pressed upwards the heart to the right of the sternum, and the upper part of the lung into the right chest. Owing to the portion of the left lung containing a cavity, it gave rise to cavernous sounds under the right clavicle, from which it was naturally concluded that the cavity existed in the *right lung*, whereas—strange anomaly—it really was in the *left lung*, though in the right chest. The portion of the lung would doubtless during respiration have reached further to the right side, and thus given rise to cavernous sounds over a larger area of the right chest than appeared in the *post mortem* examination. The fact of the remains of an old cavity in the right lung might explain the cavernous sounds heard by Drs. Cotton and Powell at an earlier period; and it might be suggested that these physicians listened to the sounds in a different cavity from the one I directed my attention to; but this is improbable, from the fact that Dr. Powell even then detected the presence of the left lung to the right of the sternum; and this displacement would hardly have occurred without a retraction of the right lung, including its excavated upper lobe, to the axillary and lateral regions of the chest, where, if anywhere, the cavernous sounds from this source would have been audible. The condition of the pleura indicated that the disease originated in an attack of pleurisy, and that the contractile tissue had slowly extended

since, gradually obliterating the lung and giving rise to increasing dyspnoea. Death was probably caused by the congestion of, and eruption of miliary tubercle in, the left lung, by which the remaining breathing surface was further reduced in extent. The rise of temperature between April 27th and May 4th was undoubtedly due to the tuberculosis. The case may be considered a typical one of fibroid phthisis; the dyspnoea and the changes in the shape of the thorax being very well marked, and the life-history and *post mortem* record filling up almost every link in the evidence.

I have notes of a somewhat similar case, where the left lung was the seat of fibroid phthisis, and caused a remarkable amount of displacement of the neighbouring structures. In this patient, the left side measured two inches in circumference less than the right; the spine was curved, the convexity being towards the right; the left shoulder was depressed; and the physical signs denoted an old cavity at the apex of the left lung, and nearly entire absence of breathing over the rest of the side. The right lung was drawn halfway across the left chest, the heart's apex tilted to the left, and the stomach raised as high as the fifth rib. The right lung was healthy. The patient died from abscess of the brain, and *post mortem* examination exactly confirmed the diagnosis of the state of the lungs indicated by the physical signs. The left lung contained a small cavity at the apex, and consisted of a hard fibroid mass, impermeable to air, and occupying hardly a third of its proper area, the rest of the space being filled up by the encroachments of the adjoining organs, as had been described during life. This patient lived four or five years from the date of the first symptoms, and might have lived much longer but for the cerebral disease, which seemed quite unconnected with the pulmonary lesions.

The *prognosis* depends on the amount of lung involved in the fibrosis, and on the rate of its contraction. Where half a lung, or at the most one whole lung, is permeated by alveolar fibrosis, and where this process is limited by the white bands of interlobular tissue—where, in fact, matters remain at a standstill—there the patient may live for years, provided he limits his exertions in proportion to his breathing powers, and does not place himself under circumstances to induce a fresh inflammatory attack or necrobiosis in the old fibrotic lesion. The patients who trace their disease to pleurisy seem to have the best chance of life, for their cases last longer than those arising from pure interstitial pneumonia. I have records of two cases, one lasting ten years and the other fifteen, each of which commenced in pleurisy. In both of these, excavation took place; but their health remained tolerably good until the opposite lung was attacked. In other instances, fibrosis has proceeded rapidly, permeating the whole lung, and, by obstructing the vessels, inducing dilatation of the right side of the heart and dropsy of the abdomen and lower extremities, the kidneys usually becoming affected towards the close of life. It is remarkable how general the rule appears to be that, when fibrosis predominates over the other morbid processes, the life-history of the case becomes at once changed; the typical consumptive character is lost; obstruction to the respiration and circulation, with accompanying dyspnoea and dropsy, close the scene, contrasting sharply with the termination of catarrhal phthisis or scrofulous pneumonia. It will be seen that the prognosis, therefore, depends on the amount of lung involved. Fibrosis strangles one patient; it saves another by limiting the area of consumptive disease, and thus preventing fresh absorption and tuberculosis.

Treatment.—Our objects in the treatment of fibroid phthisis are—first, to limit the area of disease, and to prevent any fresh portion of the lungs becoming involved either by fibrosis or by inflammation; secondly, to maintain, or possibly to raise, the standard of nutrition in the patient, and thus obviate any tendency to necrobiosis in the fibroid material. The patient must avoid all great exertions, which lead to lung congestion, and should live in an equable atmosphere, to guard against fresh catarrh or pneumonia. The dry warm climate of the Riviera, or, again, the still drier one of Upper Egypt, have been found most useful for this purpose; and many of these cases have lived on for years by wintering in these localities. The improvement of the nutrition must be attempted by the usual antiphthisical treatment, such as cod-liver oil, strychnia, the mineral acids and bitters, and plenty of easily assimilated food. The preparations of iodine have been recommended as likely to promote absorption of the fibroid material and counteract the advance of fibrosis; but in my hands neither these nor any other drugs have sufficed for this purpose, though I have seen great improvement take place in the general condition from steady perseverance in the use of the hypophosphites of soda, lime, or iron, and even of the less powerful phosphates and dilute phosphoric acid. The local inflammations of the pleura and lung are best combated by counterirritation with blisters or strong iodine liniments, and by promoting free expectoration. Where cavities or dilated bronchi exist, it is not uncommon to find foetid sputum, adding still more to the irritation, and

only evacuated by fits of coughing which close with vomiting. Here the stimulant expectorants, such as compound tincture of benzoin, tolu, and turpentine, are the most likely to relieve; while much may be done by antiseptic and stimulant inhalations of tar, creasote, carbolic acid, and thymol. The increasing dyspnoea and cardiac asthenia can be temporarily relieved by spirit of ether, by carbonate of ammonia; and the dropsy by purgatives and diuretics; but, if the obstruction in the lung have reached this point, we cannot hope for more than a temporary improvement by any medical aid.

PATHOLOGICAL ILLUSTRATIONS OF THE LOCALISATION OF THE MOTOR FUNCTIONS OF THE BRAIN.*

By RINGROSE ATKINS, M.A., M.D.,

Resident Medical Superintendent District Lunatic Asylum, Waterford; late Assistant Medical Officer District Lunatic Asylum, Cork; etc.

THE object of the following communication is to record several cases which have come under my observation illustrating the localisation of cerebral disease, and tending, I believe, to show that the facts elicited by experimental research have a direct applicability to human pathology.

The experiments of Hitzig, Ferrier, Nothnagel, Schiff, Carville, Duret, and many others, are now universally known; and, although many varying explanations have been advanced by different schools of physiologists to account for the phenomena, yet, in the main, the broad fact that stimulation of certain regions of the cerebral cortex is followed by definite movements has been established on a firm basis. The results of these experiments have shown that, in the convolutions bounding the fissure of Rolando in man and those surrounding the crucial sulcus in the dog, cat, etc., there is a zone, the excitation of which causes movements on the opposite side of the body, and the destruction of which causes disorders of voluntary motion, or even persistent paralysis, while in regions closely related to these no such effects are produced. Since these facts became known, their application to human pathology has been a matter of the deepest interest and importance. Dr. Hughlings Jackson, from whom, if I may so speak, the "doctrine of localisation" took its inception, has recorded many cases illustrating the effects of localised lesions of the cortex in the production of definite symptoms varying in extent according to the position of these lesions; the recent annals of the various French scientific societies abound with similar records, and the almost daily observations of M. Charcot and his pupils at the Salpêtrière tend universally in the same direction. In addition, the histological researches of Betz, verified by those of Mierzejewski, give a kind of anatomical confirmation to these results by showing that, in the vicinity of the fissure of Rolando, and particularly in the paracentral lobule (the internal free surface of the ascending frontal and ascending parietal convolutions in the great longitudinal fissure), there exist large pyramidal cells similar to those of the anterior cornua of the spinal cord. As the result of his extended pathological observations, M. Charcot has now mapped out on the cortex of the human brain regions, destructive lesions of which cause paralysis more or less extensive, according to the extent of surface affected. These regions closely correspond to those mapped experimentally by Ferrier on the monkey's brain; and, in order to illustrate this clearly, I here exhibit a prepared hemisphere of the human brain in which the so-called *motor zone* is coloured black, while the non-motor region is white, the individual convolutions being indicated by different coloured discs lettered to correspond to this index. From this preparation, it can be seen that the motor zone includes the ascending frontal and ascending parietal convolutions (anterior and posterior central of Ecker), the posterior terminations of the three frontal, the anterior edge of the postero-parietal (superior parietal lobule, Ecker), and that of the inferior parietal lobule. The non-motor zone comprises the anterior portions of the three frontal convolutions, the posterior parts of the postero-parietal and inferior parietal lobules, the three occipital and three temporo-sphenoidal convolutions, together with those at the base of the brain and the island of Reil. Of course, between these two regions, there can be no hard and fast pathological line of demarcation drawn, the motor region insensibly blending into the non-motor and extending probably in one brain farther than in another, according, it may be, to the size and configuration of the individual convolutions.

The cases I am now about to relate are illustrations of lesions occurring in the non-motor and motor regions, and they tend, I believe, to

* Read in the Section of Psychology at the Annual Meeting of the British Medical Association in Manchester, August 1877.