I have sought for evidence on this point, but have not yet found it. The ordinary geological maps scarcely refer to the surface-soil, and the agricultural statistics deal with the acreage devoted to the cultivation of different crops. I do not yet know whether there are any statistics which refer to the character of the surface-soil of the whole country, or to the proportion of the inhabitants to the various surface-soils.

Our returns may be said to have supplemented Mr. Haviland's more general observations in certain directions. In the first place, we have more definite information regarding the actual character of the soil on which the residence of the patient is situated than he was able to furnish; and, although we cannot place an absolute value on the knowledge, yet it is of such a kind that it may lay the foundation for very valuable knowledge in the course of the next few years. Further, we learn that residence at an elevation of more than 1,300 feet, on a light sandy soil, with a subsoil foundation of limestone, on a hill in the country, at a distance from river or stream, apparently under very favourable circumstances for the maintenance of health, is not sufficient to protect the individual from cancer.

Before taking leave of this subject, I would venture to point out certain difficulties in the complete acceptance of Mr. Haviland's *Geographical Distribution of Cancer*, for which I can at the same time express my admiration. Comparing the map with the text, I cannot but be struck with the infrequency of cancer in certain well-watered districts, such as Ulverton, watered by the river Leven; and the Ipswich portions of Suffolk, watered by the Orwell and the Deven.

The great frequency of cancer in certain towns in non-cancerous districts, such as Cambridge and Sheffield. The explanation offered by the author that these towns attract many cases of cancer from the surrounding areas is not sufficient, and does not apply to these towns more than to Bradford and Manchester.

The circumstance that the facts of distribution are not made to apply to males, of which again the explanation that the males go out and the females stay at home does not appear sufficient.

The occurrence of areas of a low mortality from cancer along the course of rivers which appear to predispose to cancer. This is particularly noticeable in parts of Worcester and Devonshire.

The immense difference which appears to exist in the mortality from cancer on the two banks of certain rivers or streams; for example, the Norfolk Bure and the Yorkshire Ouse.

Perhaps a further inquiry on the localities in which cancer flourishes or which are not favourable to its occurrence may throw light on these exceptions to the general rules laid down by Haviland.

COLLECTIVE INVESTIGATION OF DISEASE.

INQUIRIES are being pursued on the following subjects

DIPHTHERIA, THE ETIOLOGY OF PHTHISIS,

THE VALUE OF HAMAMELIS, THE VALUE OF PURE TEREBENE.

Memoranda on the above subjects, and forms for communicating observations on them, may be had on application.

The Inquiries on OLD AGE, CANCER OF THE BREAST, and the CONNECTION OF DISEASE WITH HABITS OF INTEMPERANCE, are now closed.

A Report on the CHOREA Inquiry has been prepared by Dr. Stephen Mackenzie; and will be published in the BRITISH MEDICAL JOURNAL as soon as the printing can be completed.

A Report on CENTENARIANS, prepared by Professor Humphry, was published with the JOURNAL of December 11th; a full Report on OLD AGE will follow.

Reports are in preparation upon the Inquiries made into ACUTE RHEUMATISM, DIPHTHERIA, CANCER OF THE BREAST, and HABITS OF INTEMPERANCE, and a Supplementary Report on PUERPERAL PYREXIA. All the above will be published in the JOURNAL as soon as completed. Tables of the Chorea and Acute Rheumatism cases will be published in separate form.

The Returns made to the GEOGRAPHICAL INQUIRY are being tabulated for report.

Application for forms, memoranda, or further information, may be made to any of the Honorary Local Secretaries, or to the Secretary of the Collective Investigation Committee, 161a, Strand, W.C.

MURDER OF A MEDICAL MAN.—A medical man named Schapira was recently attacked in a public place in Roumania by a military officer, who fancied that he was to blame for the death of his wife. He cut off his nose, and inflicted such serious injuries that his victim died. The murderer, on being tried by court-martial, excused himself on the ground that he had not meant to kill the doctor.

CLINICAL LECTURE ON CERTAIN CONDITIONS OF THE HAND AND ARM WHICH INTERFERE WITH THE PERFORMANCE OF PROFESSIONAL ACTS, ESPECIALLY PIANO-PLAYING.

By G. VIVIAN POORE, M.D., F.R.C.P.,
Physician to University College Hospital.

GENTLEMEN,—I wish to direct your attention to a class of case which must be familiar to most of those who are in the habit of attending my out-patient practice. These are cases in which the patient is suffering from a disability of the upper limb, which interferes with the performance of some accustomed—often professional—act. These conditions form a very important group among the minor troubles which we see, alike in hospital and private practice. When I use the word “minor,” please remember that they are minor only to our eyes and in a pathological sense; they are often of maximum importance to the sufferer, who possibly sees his livelihood in jeopardy, because his hand has forgotten its cunning. On this account these cases demand our sympathy and most careful attention.

There is never any coarse objective change in the limb, and the loss of function is often all that the patient complains of. From time to time I have brought such cases specially to your notice. Of so-called “writers’ cramp,” I have brought many examples to your notice, and I have also directed your attention, comparatively recently, to the cases of a sawyer and a hammerman who, in respect of their professional acts, had become disabled.

I wish to-day to direct your attention to a group of patients who have sought advice because of some difficulty which they have experienced in playing the piano, a condition which has in many instances been apparently brought about by the over-exercise of their professional functions as pianists. We might speak of this condition (as indeed it has been spoken of) as “pianists’ cramp,” but I hesitate to do so because I think such a word would be misleading and might tend to encourage the belief that a failure in piano-playing is something more than a symptom, and might tend to make you believe that you had made a diagnosis when, in fact, you had only used a word. You will find that a failure in playing the piano may depend upon a variety of causes, a fact which I believe to be true in the great majority of professional ailments. Your reason, backed by your knowledge of anatomy and physiology, will tell you that this must be so. The machinery involved in the delicate manipulations necessary for a pianist is, indeed, so complicated that the wonder is break-down does not oftener occur.

In playing the piano, all forms of sensation (cutaneous, articular, muscular) must be perfect; from peripheral nerve-endings to brain the sensory path must be free from all defects. The motor path must be equally free from defect from the cerebral cortex to the motor end plates on the muscles, and it must be borne in mind that a trouble affecting a fine nerve-twig supplying some little muscle of the fingers is as capable of upsetting the harmony of a delicate act like piano-playing as is a damage to one of the chief cords of the brachial plexus. The muscles involved in the act must one and all be healthy. We do not know much of the minor pathological changes which affect the muscles. Fatty and fibroid change may occur, and we know that a muscle may be painful, or tender, or stiff, as the result of cold, gout, rheumatism, or fatigue, and we speak of such conditions as “muscular rheumatism,” or myalgia, without having anything very solid behind the expression. Not only must the fibres of the muscle be healthy, but the tendons and their sheaths also; too much or too little of the fluid which lubricates the tendon in its sheath, or the deposit of a small amount of urate of soda in the sheath must necessarily interfere greatly with the performance of a delicate act.

I would direct your attention to the great number and very wide extent of the muscles used in piano-playing, and also to the fact that for the performance of delicate acts we need steadiness quite as much as agility. For piano-playing the scapula must be steady, the shoulder must be steady, the elbow must be steady, and the wrist

must be steady in order that the fingers may act with certainty and precision on the keys. When I use the word "steady," I mean, of course, steady in movement, and not necessarily fixed. In examining such cases, you must therefore bear in mind that the shoulder may demand examination equally with the hand and fingers.

It is needless to say that a sound condition of all the articulations of the upper limb is necessary for piano-playing.

The frequency of piano-failure is not very great. I find I have seen only twenty-one cases in a period extending over many years. In the same time, I have seen about eight times as many cases of writing-failure. The comparative infrequency of piano-failure is due to the fact that the number of persons who are obliged to play the piano excessively is infinitely smaller than of those who write excessively. The class of clerks is decidedly larger than the class of pianists. The pianists belong mainly to the female sex, and hence it is not surprising that out of my twenty-one patients, all but two were females. There is another and more important reason for the comparative rarity of piano-failure as compared with writing-failure—namely, that in piano-playing there is no prolonged strain upon the muscles, at least, to the same degree, as there is in writing. I have again and again pointed out that in writing it is in the muscles of pen-prehension rather than in muscles of pen-movement, that failure is liable to occur, and that in all of these "professional" ailments break-down most often takes place, or, at least, is most apparent in muscles which are maintained in a state of contraction for long periods.

In examining the cases of professional failure, we must always try to discover which muscles, if any, are likely to be most subject to fatigue in performing the professional act, and we must be very careful to investigate the condition of these muscles.

Now, in piano-playing, it is, at first sight, very difficult to say which muscles, if any, are subjected to prolonged strain. The very essence of piano-playing, as of all musical performances, is rhythm, and rhythm in movement means that in the muscles producing the movement, periods of contraction alternate with periods of relaxation with regular intervals, and therefore break-down from fatigue is scarcely more liable to occur than in the heart itself, the untiring prototype of rhythmical movement. Piano-playing does not, however, consist entirely of rhythmical movement, as might appear to be the case. Professors are very exacting with their pupils as to the position of the hand. There is a way of holding the hand in piano-playing which, I am told, is called the "Stuttgart method," in which the extension of the wrist is most rigidly maintained during the whole performance, and, except during the instant when the finger is depressed on the key, the extension of the near phalanges of the fingers is also maintained. In this method of holding the hand there is considerable strain thrown upon the extensors of the wrist and the extensors of the near phalanges (*extensor communis digitorum*, *extensor indicis*, *extensor minimi digiti*). In order to be sure that this orthodox manner of holding the hand is maintained, I have known young ladies practise their scales with a coin balanced on the back of the hand, the falling off of the coin showing at once that the absolute level of the carpus and metacarpus has not been maintained. It is obvious that this position of the hand has the effect of keeping the finger-tips constantly as near their work as possible, and that it must conduce to great rapidity of fingering. If the "Stuttgart method" were not of practical value, one may conclude that it would not be insisted on. Certain it is, however, that a large proportion of my patients have had symptoms referable to the extensor muscles of the wrist and fingers and the musculo-spiral nerve. I will briefly give you the facts of a case which will serve as an illustration.

CASE I.—Miss R., aged 24, consulted me in November, 1875. She had been working at the School of Music in Berlin, and had practised as much as eight hours a day, besides using a digitarium for the exercise of the fingers. She had found the Stuttgart position very trying. Her trouble was in the left hand, and was mainly experienced in playing staccato passages, necessitating a sudden extension of the wrist and fingers; and further, there was a tendency, during the exercise of runs and scales, for all the fingers of the left hand to "run together," as she said, owing apparently to a failure of the *extensor communis digitorum* steadily to maintain the extension of them. There was some tenderness of the left ulnar nerve at the elbow, and excessive irritability (to faradism) of the *interossei* muscles. There was, further, this peculiarity that, when the first left dorsal *interosseous* muscle was faradised, all the left *interossei* muscles responded to the current. This phenomenon was not observed in the right hand, and disappeared in the left hand when she recovered, as she eventually did. This peculiarity was due, probably, partly to the irritable condition of the left ulnar nerve and *interossei*, and partly to the weakness of the *extensor communis digitorum*, which in part antagonises

the *interossei* muscle. It was very interesting to see that faradisation of one *interosseous* produced, as it were, the very trouble of the "running together of the fingers," which was one of her chief difficulties when playing. Although the disability of the left hand was most marked in piano-playing, it was not limited to this act. The limb was generally inefficient in the performance of all acts, and readily got fatigued. It often "died away," and was sometimes burning hot, and at other times was blue, cold, and mottled. She was worse in cold weather, and her trouble was intensified by emotional excitement, such as was caused by playing before an audience or her music-master. There was well marked tremor of the left hand. This patient was in depressed health, due to overwork; and also, as she said, to the fact that the diet and mode of life in Berlin had not agreed with her. She was treated by rest, tonics, a blister over the tender ulnar nerve, and friction for the arm. In February, 1877, she called upon me to say she had recovered.

CASE II was similar in many respects. Miss L., aged 33, a teacher of music, had been practising the "Stuttgart method." Piano-playing had become painful and impossible. All the nerve-trunks of the left arm were very tender. She suffered from great discomfort in the arms at night, an uneasy feeling, and a difficulty in getting them into a comfortable position in bed. Her hands were crippled for all acts, and she was worse in cold weather. She was worried and sleepless. With rest, tonics, and blisters to the painful nerve-trunks, she recovered.

CASE III.—Miss F., a music teacher, aged 33. Had been practising the "Stuttgart method." Marked tenderness of the right musculo-spiral nerve and over the extensors of wrist and fingers. She was anæmic, and attributed her trouble to catching cold.

CASE IV.—Miss O., aged 20, in delicate health, had "strained her arm playing the piano." There was pain, tremor, tenderness of the right musculo-spiral nerve, and excess of irritability to faradism of the extensor muscles. There was discomfort in the arms at night, as in Case II. After rest, tonics, and blisters to the tender nerves, she completely recovered.

CASE V.—Miss W., aged 20. Marked tenderness of the median and musculo-spiral nerves and tremor of the hand. She was in ill-health and dyspeptic.

CASE VI.—Miss G., aged 19, a pupil at the Royal College of Music; and CASE VII.—Miss M., aged 35, were in a condition almost exactly similar to the preceding, so that I need not trouble you with further details.

CASE VIII.—Miss Y., a governess, aged 22. Her difficulty was mainly with the left hand. Extension of the wrist and fingers caused her pain, and she had marked tenderness of the median and ulnar nerves. Tremors of both hands, highly nervous, and a history of family trouble and loss of rest.

CASE IX.—Miss F. complained that "the left forefinger would not keep off the keys." There was marked deficiency of irritability of the left extensor indicis and *extensor primi internodii pollicis*. No nerve tenderness. The patient attributed her trouble to a whitlow which she had had on the left forefinger two years previously. She was nervous and sleepless.

These nine cases are of interest as showing a distinct involvement of the extensor muscles or the musculo-spiral nerve in each case. They also serve to illustrate other points which many of these cases of piano-difficulty have in common.

First, there is the nerve-tenderness which accompanies almost all of these cases. This may definitely be brought about by over-use of the muscles; it may also occur in connection with a wrench or strain of the arm, or may follow a bruise (as we shall see in connection with a case to be presently recited), and it seems very liable to occur in persons of delicate organisation who are in depressed health or who have been exposed to cold. We have no right to assume that it, in all cases, indicates neuritis, but it may do so; or it may point to hyperæmia or congestion of the nerve. There are four conditions which may accompany nerve-tenderness; these are (a) muscular disability which, although it may be specially manifest in one particular act, will generally be found to affect other acts as well; (b) more or less tremor; (c) pain or early fatigue during muscular exertion; (d) a sense of discomfort in the limb (not exactly pain), which is always worse at night and makes it difficult to put the limb in a comfortable position in bed and often keeps the patient awake. This latter symptom is both interesting and curious, and one which is often complained of. This sense of discomfort is an effect, probably, of the tenderness of the nerves, whereby they become sensitive to the slight degrees of pressure which are inseparable from almost every position. Not only, however, are the nerves sensitive to pressure, but also to slight degrees of stretching. This fact was well illustrated by a case

of so-called multiple neuritis due to alcohol which was in Ward 3 last summer. This patient's nerve-trunks were all tender (median, ulnar, and musculo-spiral), and I had frequent opportunities of showing you that when either of these nerve-trunks were put upon the stretch, the patient (who was habitually drowsy and in a state of partial mental incapacity) invariably manifested pain, and when asked where the pain was, invariably pointed to the position of the trunk of the nerve which was being stretched. Thus, with the elbow bent and the wrist forcibly extended, if the ring and little fingers were pulled back so as to stretch the ulnar nerve to the utmost, the patient pointed to the back of the olecranon as the seat of pain. If, with the elbow straight and the wrist extended, the thumb and forefinger were pulled back so as to stretch the median nerve, the patient pointed to a point internal to the biceps tendon at the bend of the elbow as the seat of pain. If, with the elbow straight and the wrist forcibly flexed, the thumb and forefinger were bent strongly into the palm so as to stretch the musculo-spiral nerve, the patient complained of pain in the position of the trunk of the nerve above the outer condyle of the humerus. We tried these experiments again and again, and always with the same result. If, then, the nerves are sensitive both to pressure and tension, it is not surprising that trouble should be experienced in finding a comfortable position for the affected limb.

Another fact worthy of notice is the common implication of the left hand, either alone or to a greater extent than the right. The left hand is less expert and more difficult to train than the right, and it is not to be wondered at that it should be the most prone to suffer from overwork in acts which call upon both hands equally or nearly so. Because of the difficulties experienced with the left hand, it is often inordinately worked while practising exercises.

The next four cases are similar to those already given, except in the fact that the extensors and the musculo-spiral nerve were not specially involved.

CASE X.—Miss G., aged 20, experienced pain and difficulty in playing, and to a less extent in all acts with both hands. All the nerve-trunks were tender. She was dyspeptic, and there was a strong family history of gout. Cured by rest, diet, and change of air.

CASE XI.—Mrs. A., aged 34, complained of pain and "creepy feelings" after playing the piano. There was distinct tenderness of the right median nerve, and the cervico-dorsal spine was also tender.

CASE XII.—Miss A. B. experienced difficulty in lateral (interosseal) finger movements, and to a less extent in all acts, both coarse and fine. It was found that the median and ulnar nerves on both sides were distinctly tender.

CASE XIII.—Miss B., aged 21, had been working hard at the Leipzig Conservatorium. The right median nerve was exquisitely tender. The patient was anæmic and dyspeptic. Completely cured by rest, iron, blistering the tender nerve, and massage.

The next two cases are of interest as examples of difficulty caused by trouble apparently limited to the region of the shoulders.

CASE XIV.—Miss E. B., aged 27, a teacher of music, suffered from pain in the shoulder after playing—or, indeed, after any work with the right hand. There were no tender nerve trunks, but a very tender spot was found close to the insertion of the levator anguli scapulae, at the superior angle of the right scapula. She improved after blistering the tender spot and the administration of arsenic.

CASE XV.—Miss R., aged 29, a governess, came complaining of an ill-defined awkwardness of the right arm, which interfered not only with piano-playing, but with other acts, such as cutting her dinner. The elbow, she said, had a tendency to stick out. There was no nerve-tenderness, and no well-marked change in electric irritability. On removing the clothing and faradising the right deltoid, it was noticed that the vertebral border of the right scapula was tilted away from the thorax, whereas nothing of the kind occurred when the left deltoid was faradised. This was due, apparently, to a relatively weak condition of the right serratus magnus. There was a disturbance of the normal balance of power between the right deltoid and right serratus, which became manifest to the eye, not during forced voluntary acts so much as during the forcible faradisation of the deltoid. When the right scapula was tightly bound or held against the ribs, the clumsiness of the right hand was much lessened. This weakness of the serratus was of long standing; its cause was not evident, and, when last seen, the condition had not materially improved.

The next two cases were, in a mild sense, traumatic.

CASE XVI.—Miss E. E., aged 23, complained of a trouble with her left hand when playing. The meta-carpo-phalangeal joint of the left thumb was found to be weak and tender, and, on being questioned, she remembered that she had strained the joint a few weeks previously, while struggling with her brother.

CASE XVII.—Miss F. B., aged 31, bruised the right arm eighteen months ago, and since then she has had pain and disability of the limb. All the nerve trunks were tender, and she was ordered to counter-irritate the skin over the tender nerves, and rest the limb.

The next case I have to quote is one of considerable interest, in which the primary trouble seems to have been in a tendon.

CASE XVIII.—Miss Ada H., aged 21, pianist, complained of weakness in the right hand while playing, and in all acts. There was special difficulty with lateral (interosseal) finger movements, and in turning the hand and little finger towards the ulnar side, and she complained of a quivering in the first right dorsal interosseous muscle after playing. There was found a considerable thickening on the tendon of the flexor carpi ulnaris muscle, which not only interfered with the use of that muscle, but also, by pressing on the ulnar nerve, seriously hampered the use of the muscles in the palm supplied by that nerve. The thickened tendon was blistered, and the patient was ordered to take a tonic and go for a holiday. She made a good recovery.

CASE XIX.—Miss L. H., a pianist, whose performances were hindered by a troublesome cramp of the flexor minimi digiti. The cause of this cramp was not very evident; but she was dyspeptic, and this fact, combined with excessive use of the muscle, may be regarded, perhaps, as sufficient to account for the cramp.

I have only seen two males who have come to me complaining of difficulty in piano-playing.

CASE XX.—Mr. P., aged 60, a professional pianist of intemperate habits. He had all the symptoms of disseminated cerebro-spinal sclerosis. His eyesight was failing, and there was grey atrophy of the optic discs. He went gradually from bad to worse. Tremor was most marked in the left arm, which was very tender, so that he could hardly bear to have it touched. The musculo-spiral and ulnar nerves of this arm were especially tender. He said that he could not strike the keys with any certainty, and he complained that the left ring-finger always gave him the most trouble. The left ring-finger is the finger which pianists always find the most difficult to educate. This case is of interest as showing how a well-recognised pathological condition may first show itself in parts which are especially overworked.

CASE XXI was that of a professional pianist, aged 23, who for the last few months had experienced an ill-defined difficulty in playing in both hands. The right little finger and the back of the left hand were particularly painful. There was slight rheumatic thickening of some of the small joints of the fingers. Each nail of both hands had a white mark above the middle. These must have been formed at about the same time. The patient stated that, about three months previously, he had kept the house for a feverish cold. This may have entailed some failure of nutrition, and it was subsequent to this that he experienced his difficulty in performing. I could make out nothing definitely wrong with nerves or muscles, and I have no knowledge of the subsequent course of this case.

The short summary of these twenty-one cases shows us that in no two cases was the cause of break-down precisely the same. These cases afford no justification for using such a term as "pianists' cramp," to imply a morbid entity having a special cause, and a pathology of its own. Confronted with a pianist who has broken down, our first duty is to make a diagnosis, and answer the questions, Where? and Why? The most common symptom in these cases was nerve-tenderness (indicative possibly of congestion or mild inflammation), which affected different nerves, and seemed to depend, not only on overwork, but on such accidental causes as strain or cold, and to be predisposed to by various bodily conditions, such as anæmia, rheumatism, gout, and dyspepsia.

You will have noticed that, although the act of piano-playing was most seriously affected, there was usually some general disability of the limb as well, which accompanied the "professional" trouble in almost every case. You are aware that, with regard to "writers' cramp," it is often asserted that, with the exception of the act of writing, there is nothing wrong. Although I cannot quite endorse the statement with regard to "writers' cramp," still I must admit that these cases of pianists' trouble offer a contrast to "writers' cramp" in the large amount of disability which generally existed for acts other than piano-playing. This is due, I believe, to the fact that the muscles, the derangement of which causes break-down in piano-playing are larger, more numerous, and in more common requisition for general purposes than are the muscles (most commonly the interossei) whose break-down causes writers' cramp.

The prognosis necessarily depends upon the diagnosis. In cases where nerve-tenderness and local muscular weakness are the only troubles, I believe the prognosis to be good. Cases of this kind oc-

curing, as very often is the case, in young girls, nearly always recover, although I am bound to say that recovery is sometimes very tedious.

Treatment.—The most important point in treatment is rest. The excessive use of the hand must be discontinued, and it is often necessary to insist upon this rather forcibly. Piano-playing, if not prohibited altogether, must only be practised to a degree short of that which causes pain or annoyance. It is often difficult to restrain the ardour of these patients in the matter of playing. Directly they feel in a small degree better, they fly to the piano; and I have known the progress of more than one case very seriously retarded by the undoing, as it were, of the good effect of rest by an hour's injudicious and prohibited "practising."

I need hardly say that constitutional treatment is all-important. The body must be healthy in order that the arm may recover. Anæmia and dyspepsia must be attended to and counteracted by diet, medicines, and change; and no change is better than to a mountainous climate, where the advantages of a chalybeate water may be enjoyed. St. Moritz in the Engadine, Rippoldsau in the Black Forest, Schwalbach, and Spa have a well-deserved reputation for benefiting these cases. Any indications caused by gout and rheumatism must be met, and if there be evidence of gastric irritation, you may be sure that the arm will not be well until this trouble has been cured.

In many cases the administration of arsenic has seemed to be of decided benefit. The most important local measure is the employment of counter-irritation over the tender nerve-trunks. This may be accomplished by means of blisters or by the application of strips of capsicum plaster. Douching, friction to the arm, and systematic massage are often of great use, but the last-named mode of treatment is not to be adopted as long as the nerve-trunks are tender, for under these circumstances it seems decidedly to do harm rather than good. You must remember that the professional *masseur* is not infrequently over-zealous, and that the mere passive act of being rubbed is very exhausting to the patient. You must take care that the massage is neither too long nor too vigorous. If massage be well timed, and be reasonably and sensibly carried out, it is undoubtedly of great value. It seems necessary, in view of the sort of fashion which has set in towards this mode of treatment, to warn you not to recommend a patient to place himself in the hands of a "professional rubber," unless you know something of his character and capabilities. While on the subject of treatment, I may allude again to the fact that pianists have special difficulty in educating the ring-fingers, which have less power of independent movement than the other fingers. This is partly due to the absence of special extensor muscles, such as are provided for the index and little fingers, and partly to the fact that the extensor tendon of the ring-finger is joined to its fellows on either side by a fibrous band, near the far end of the metacarpal bone. With the hand in the pianists' position, it will be found that the power of raising the ring-finger while the middle and little fingers are resting on the keys is not great, less than that possessed by either of the other fingers when similarly circumstanced. It cannot be raised more than about three-quarters of an inch, and hence the power of striking the key is small. To remedy this, it has been proposed to divide, by means of a tenotome, the bands connecting the extensor tendon of the ring-finger with the extensor tendons on either side of it. This operation has been performed in America and in this country, and it is said with good results. How the reunion of the divided band is prevented I do not know. I confess that the operation seems to me to be one likely to produce weakness at first, and to be followed by greater fixity in the end, when the cicatricial tissue of the divided bands contracts and draws them tighter than before. It must not be forgotten that the ring-finger has its special use, which appears to me to be to grasp firmly in the palm, while the other fingers of the hand are otherwise employed. The great characteristic of the ring-finger is its power of firm grasp, and we should not rashly do anything which is likely to lessen this firmness.

MR. THOMAS PLATT, M.R.C.S. Eng., Consulting Surgeon to the Oldham Infirmary, has been placed on the Commission of the Peace for the Borough.

PRESENTATION.—Dr. Wild, who is leaving Pittington for Towlaw, has been presented with a handsome mantelpiece and bronze figures by a large circle of friends. Mrs. Wild received a silver kettle.

FIRES IN THEATRES.—The necessity for the most rigorous control over the structural arrangements of theatres is shown by the fact, reported by the *Neue Freie Presse* of Vienna, that even last year, when fewer accidents than usual occurred, nine theatres were burnt down in various parts of the world.

ABSTRACTS OF LECTURES

ON

THE DEVELOPMENT AND TRANSITION OF THE TESTICLES, NORMAL AND ABNORMAL.

Delivered at the Royal College of Surgeons of England, February 23rd, 1887.

By C. B. LOCKWOOD, F.R.C.S.,

Demonstrator of Anatomy and Operative Surgery in St. Bartholomew's Hospital; Surgeon to the Great Northern Central Hospital; Hunterian Professor of Anatomy, Royal College of Surgeons.

LECTURE I.—THE DEVELOPMENT OF THE WOLFFIAN BODY AND PRONEPHROS.

AFTER some preliminary remarks, the lecturer observed that the fact that the body of the testis and the epididymis had different origins was well known; the latter arising from a part of the Wolffian body, the former from a separate group of cells; and continued as follows: The smallest human embryo in which I have examined the Wolffian body was $\frac{3}{8}$ in. long. To give an idea of the smallness of this creature, it may be compared to a small house-fly. It is hard to estimate

Fig. 1.—Longitudinal Section, $\times 30$. Human embryo, twenty-three days (?). To show size and position of the Wolffian body (W.B.) T. Tongue and lower jaw; Ht. Heart; L. Liver; P. Lungs; St. Stomach (divided twice); C. Tail.

the age of such embryos as this, but it looks exactly like one which is considered to have been twenty-three days old. The most palpable of its external characteristics were a considerable curvature of the body and neck, an absence of limbs, and the presence of a very