case, and influenced most decidedly the future treatment. In order to explain fully my ideas on this subject, I will transcribe Dr. Marshall Hall's own words, taken from the *Lancet* of April 23, 1842, and which is an extract from a paper read by this gentleman before the Westminster Medical Society. He is speaking on the subject of plethora or fullness as one of the causes of apoplexy :—

“The most satisfactory mode of treatment was to open a vein, and allow the blood to flow from an ample orifice, the patient being placed in the perfectly erect posture, until incipient syncope was induced. The quantity of blood which then flowed was the diagnosis and measure of the disease in every respect. If the patient were young and robust, if the plethora were decided, and especially if there were real congestion and no laceration of the brain, a large and proportionate quantity would flow, before the slightest degree of syncope was manifested. No other measure afforded at once such security to the patient, and such information to the physician. In reference to blood-letting, there was this important question : Was the case one of congestion or pressure? or was there actual hæmorrhage with laceration of the substance of the brain? In the former case, much blood would flow before incipient syncope occurred, and much *might* be, *must* be, taken; but in the latter the injury had inflicted a shock upon the system, and little blood flowed before incipient syncope appeared, and even the loss of that little was with difficulty borne: to take more would be death.”

In conformity with these opinions of Dr. Marshall Hall, it would appear that the foregoing case was one of congestion or inflammation, and not of organic lesion or laceration of vessels, since the loss of blood was borne so exceedingly well, thirty ounces, at least, having been removed before incipient syncope took place. The tartarized antimony, of which there was complete tolerance during the first week, was given in the form of the liquor antimonii potassio-tartratis, half a drachm to the dose. The croton-oil proved highly beneficial in promoting the alvine evacuations; its use has been long recommended, and we have reason to consider it as a most valuable adjunct in the treatment of head affections.

The loss of speech, it was evident, did not arise from any paralysis of the vocal organs, for, after a few days, certain words were uttered most distinctly, as yes and no, and the names of persons. It was the memory which had suffered, not the lingual nerve; and as the brain resumed gradually its healthy condition, this faculty was restored to its former tone and activity. In paralysis of the organ of speech, the power of articulation having been completely lost, the progress to accurate pronunciation will be gradual; the words, at first indistinct, will, by degrees, be more intelligible, and at last the utterance will become perfect. Not so in loss of memory of language. In this case a few words

will at first be distinctly pronounced, subsequently half sentences or detached phrases, until at length the memory of every word has been re-acquired. If the knowledge of a foreign language can be lost suddenly for a time, and then return, (of which there are instances on record,) why not the memory of one's native tongue? Our continental authors, Bouillaud, Lallemand, and Rostan, have reported several cases, with paralysis of the tongue, in which, upon *post-mortem* examination, the anterior lobes of the brain shewed evidences of inflammation or softening. M. Bouillaud, however, states more particularly as his opinion, that the anterior lobes preside over the memory of words as well as over the organs of speech. The case above related seems to corroborate most decidedly this view of the subject, the forehead having been pointed to throughout the case, as the seat of pain.

PRACTICAL OBSERVATIONS ON SOME OF THE MORE IMPORTANT POINTS OF PHYSICAL DIAGNOSIS.

By C. M. DURRANT, M.D.,

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In these advanced days of stethoscopic research, any further observations on the physical signs of disease, may, by some, be considered a labour of supererogation; so important, however, in my opinion, is the attainment of a correct estimate of the value of these signs, as they obtain in different diseases, that I trust, that a brief practical investigation of their more prominent characters, will not prove altogether a profitless undertaking. The practised auscultator will pardon me for commencing with the consideration of a few general, yet necessary, preliminary rules, trivial perhaps at first sight, but highly important in practice, and to which, in order to facilitate the examination, a methodical attention, even by the “well-versed,” becomes imperative.

After selecting a stethoscope, the ear-piece of which accurately fits his ear, the auscultator will obtain a more perfect tact by strictly confining himself to it, than by using indifferently any instrument that may be presented to him. The value of this fact I have had reason constantly to observe.

In conducting a first examination, a difficulty is sometimes experienced from the alarm which is often excited, especially in the female sex, rendering the respiratory movements irregular, abrupt, and wholly inefficient for the purpose of a correct diagnosis. This may be generally combated by the avoidance of all unnecessary preliminary parade, and for the most part, will subside speedily under the tact and guidance of the refined and well-educated practitioner. “Avoid,” says M. Fournet, “a stern air, an abrupt address, and solemnity; these throw the patient into a state of nervousness. There is a calm, simple, benevolent mode of accosting the patient, a certain gentleness and earnestness of manner, that at once wins his confidence, and renders him composed, so that he answers correctly, does what he is desired well, and then his features, influenced only by the morbid state, express accurately all he feels.”

In judging of the comparative merits of mediate and immediate auscultation, my own experience gives the preference to the former, in every region of the chest, with the exception of the back, from the spines of the scapulæ downwards, and the postero-inferior lateral regions. In these alone, I prefer the unaided ear, as, in an emaciated subject, there is often great difficulty, during a full inspiration, in maintaining the close proximity of the stethoscope to the parietes of the chest. The sitting posture is, on the whole, the most desirable both for the patient and the examiner.

While conducting an examination of the front of the chest, the upper part of the body should be thrown slightly backwards, permitting the arms to hang unrestrainedly at the sides. In investigating the back, the patient should be directed to incline the head forwards, crossing the arms in front. The same posture may be maintained when submitting the lateral regions to an examination, the patient being now instructed to clasp his hands above his head.

The stethoscope should be applied firmly, lightly, and in close proximity to the chest, bringing the ear to the instrument after its application, and not the tube, as is sometimes done, to the ear. All unnecessary rustling of the clothes must be sedulously avoided; if possible, it is desirable to have the chest uncovered, or if this be unadvisable, a single layer of the thinnest material should alone intervene between the surface and the instrument.

The examination should be always conducted slowly, not trusting too much to medical tact; while, in difficult cases, the impropriety of deciding upon a single examination cannot be too strongly urged. I have repeatedly seen an auscultator placed in an unpleasant position, by not attending to this simple, but necessary, rule. The auscultator must carefully avoid the easily acquired habit of listening for signs, which a previous general diagnosis may have led him to suspect as present; neither ought he to allow any preconceived judgment that he may have formed, to influence him in his investigation of the true state of the lung.

The entire attention should be given to one sound at a time, avoiding with equal care any liability to distraction by surrounding noises. This faculty of concentration, is capable of being greatly strengthened by habit, and then, like many other qualifications, it becomes more and more amenable to the will.

Both sides of the chest must be examined *precisely similar* points, and in a *precisely similar* manner. This ought never to be omitted, however clearly and indisputably the disease may be indicated. In the majority of instances, the entire chest should at a first examination be strictly explored; while, in acute and doubtful cases, auscultation should be repeated at least once, and often twice, in the course of the day.

In performing percussion, the great practical rule for the student to bear in mind, is to *immediately* compare the resulting sound with that elicited from a *precisely* corresponding situation on the opposite side, striking with the same firmness, and *perpendicularly* on the index finger of the left hand, which I have invariably found to be the best pleximeter. Another rule of importance is, to place the pleximeter horizontally upon, and in close proximity to, the surface of the chest; the intercostal spaces offer a better medium than the rib itself. On striking the clavicles, a clearer

and more correct tone is elicited by immediate than mediate percussion.

A little patient and well-regulated practice, both of auscultation and percussion, on the chest of an individual in health, will, however, avail the tyro far more than a volume of directions and cautions; and here I cannot too strongly inculcate the necessity for the student making himself thoroughly acquainted with the healthy phenomena of the chest, before he attempts to master in any degree the abnormal signs resulting from disease.

The consideration of the remaining physical auxiliaries to diagnosis,—inspection, mensuration, &c., may be advantageously deferred until we analyse in detail the especial signs indicative of particular disease. The necessity, however, of placing the patient during examination in a direct light, maintaining an even posture, and avoiding all undue muscular exertion, must, in no case be lost sight of.

SIGNS INDICATIVE OF DISEASE.

Presuming that the physical characters of normal respiration be fully understood, it will at once lead to the consideration of the phenomena which obtain in disease. The natural respiratory murmur is liable to alteration both in reference to its intensity, its rhythm, and its character; and also by the presence of abnormal sounds, either co-existing with it, or altogether supplanting it. The intensity of the murmur may be altered by being unnaturally loud, constituting the puerile, exaggerated, or supplementary respiration. The presence of this sign is chiefly valuable in directing attention to the existence of disease in another part of the chest; it does not in itself determine either its seat or nature. The locality of this sign must of course be extremely variable; it not unfrequently occupies the entire of one side of the chest. The physical cause of exaggerated respiration depends almost solely upon the admission into, and more rapid circulation, of an increased quantity of air, in the vesicles, compensating for the inaction of some part of the same or opposite lung. A pleuritic effusion, consolidation from pneumonia or tubercle, or any pathological cause, obstructing the proper function of one lung, the other to a certain extent will take on this supplementary action.

A far more decided index, and of greater import, is the existence of feeble or diminished respiration. It may obtain over a limited point only of one lung, or may extend over a considerable portion of one or both sides of the chest. Unlike the former sign, this is characteristic of the existence of disease in its own locality. It is sometimes of temporary duration only, as in pleurodynia, spasmodic asthma, &c., but more frequently its character is that of permanency. The physical cause of diminished respiration depends upon an obstruction to the admission of air into that part of the lung in which it obtains. The affections in which this condition of the respiration is perceived, are so numerous, the value of its seat, its extent, and its duration, so important, that a careful attention to differential analysis, will alone enable us to substantiate a correct diagnosis.

The last condition by which the intensity of the murmur is affected, is in the suppressed or absent respiration. The seat of this sign, like the former, is variable; its physical cause depends clearly upon a

greater degree of that state by which feeble respiration has been shown to be produced, viz., a complete obstruction to the entry of air in a part or the whole of one lung.

The alterations to which the respiratory movements are subject in their rhythm, have been variously considered, and divided, by different writers on auscultation. The simple division into frequency, regularity, and duration, appears to me to be the one best adapted for practical purposes.

A very few words will suffice in reference to the frequency of respiration, which, as is well known, is constantly liable to become accelerated under the influence of many affections, incident both to the chest and abdomen; while its abnormal retardation may, for the most part, be traced to the existence of some pathological changes taking place in the cerebro-spinal system. The natural regularity of ordinary breathing is further liable to interruption by disease, when it constitutes the abrupt or jerking respiration. This sign is chiefly observed during inspiration. It is by no means necessarily a permanent phenomenon, and may obtain either partially or generally throughout the lung. The physical cause of this sign is generally attributable either to pain, as in pleurodynia, arresting the continuous expansion of the thorax, or to the unequal dilatation of the lung, from the presence of pleuritic adhesions.

The relative duration between the acts of inspiration and expiration is liable to considerable variation. Under this head belongs prolonged expiration, viz., an increase in the duration of this latter sound, while that of inspiration continues normal, or even sometimes becomes shortened. The physical cause of this phenomenon depends upon an obstruction of the terminal bronchi and air cells; its semeiological value is considerable, and will be noticed in its proper place.

Under the influence of different physical lesions, the sounds of respiration are further subjected to a departure, more or less distant, from their normal characters. Under this head are included the varieties of respiration termed harsh, bronchial, tubular, cavernous, and amphoric.

The respiration is said to be harsh or grating when it has lost its naturally soft, breezy character of health; becoming often dry and rough. It is in the first instance more marked in the sound of expiration, but both murmurs become, sooner or later, similarly affected. The physical cause of harsh respiration is an induration or condensation of the pulmonary parenchyma. Dryness of the mucous membrane of the bronchi is occasionally also productive of this sound. Its position in the chest is dependent upon the lesion of the lung on which it obtains.

A higher grade of the above form, in which the intensity and duration of both sounds is considerably increased, constitutes the respiration termed bronchial. In this, the impression of roughness, hardness, and dryness, is more fully pronounced than in the harsh type. The physical cause of bronchial respiration is, like the former, a condensation of the pulmonary substance, becoming, in consequence, a better conductor of sound. Its seat is variable, and may extend over the greater part of the chest. In studying bronchial respiration, the student must bear in mind that in the parts corresponding to the upper portion of the ster-

num, and in the interscapular region, a bronchial character of the sound is, in many individuals, perfectly normal.

With many writers on auscultation, the terms bronchial, tubular, and blowing, in reference to the character of the breathing, are synonymous. The sounds pertaining, however, to the tubular, are clearly distinct, and give the impression of originating in a space, bearing a tubular form, and to which a distinctly metallic character is often attached. This phenomenon can be readily imitated by blowing somewhat forcibly through a brass tube. The transmission of the sound of the air directly from the larger bronchi, through the medium of condensed pulmonary tissue, is the physical cause on which this sign depends, and arising, as it usually does, from pneumonia or pulmonary abscess, the middle regions of the chest are its most frequent seat.

Cavernous respiration is well expressed by its name, and imparts the impression of air rushing into a circumscribed cavity of moderate dimensions. Its character is hollow and frequently metallic. The student will have too frequently melancholy opportunities of perfecting his knowledge of the cavernous respiration. The physical cause of this sound is owing to the entrance of air into an abnormal cavity in the substance of the lung. Influenced by the disease, the nature of which it demonstrates, it may occur in any part of the chest; its favourite seat, however, is the infra-clavicular regions corresponding to the apices of the lungs.

Allied to the cavernous, is the amphoric variety of respiration; indeed, in some cases, if the characters be not well defined, the two signs are not easily distinguishable. The latter (the amphoric) imparts to the ear the sensation of air entering a large empty cavity, having firm walls. It may be imitated by blowing into a glass bottle with a narrow neck. This sound accompanies both acts of respiration, is highly metallic, and is not unfrequently associated with metallic tinkling. The physical cause of amphoric respiration is the existence of a large cavity within the chest, communicating with the bronchi, by an aperture of moderate size, the air traversing which gives origin to the sound in question. Unlike the cavernous variety, the amphoric phenomena are rarely detected at the summit or base of the lung, but most commonly at the lateral or central parts of the chest.

ABNORMAL SOUNDS MORE OR LESS SUPPLANTING THE NATURAL RESPIRATORY MURMURS.

In addition to the foregoing physical signs, other phenomena frequently obtain within the chest, modifying or completely masking the natural sounds of healthy respiration. These, as is well known, constitute the various rhonchi or râles, and become important auxiliaries to physical diagnosis. They have their origin either in the bronchial tubes, or in the substance of the lung itself. These rhonchi have been variously classified by different authors; the most convenient in practice will be a simple division into dry and moist, avoiding the almost endless subdivisions into which some writers have extended them.

DRY RHONCHI.

Under the heads of the two sounds, the sonorous and sibilant, may be included all the varieties of intonation to which these are occasionally prone, viz., the whistling,

snoring, cooing, &c., all being merely modifications of the original rhonchus.

The sonorous rhonchus may be present either with inspiration or expiration, or simultaneously with both. If unmixed with the moist râles, it is a sound both dry and grave. It is of variable intensity, and not necessarily permanent. When very pronounced it often communicates to the hand the sensation of a vibratory thrill, and may be heard, without the stethoscope, at a distance from the chest. Sonorous rhonchus originates in a vibration of air in the bronchi, owing to some irregularity in their calibre, depending either on the presence of viscid mucus, or on some change of greater permanency in the tubes themselves.

The sibilant variety of sound differs from the sonorous, in possessing a sharper, more shrill, and often a musical tone. This sign, like the former, may accompany both acts of respiration; it is generally, however, more pronounced during expiration. The physical cause of the sibilant, is similar to that producing the sonorous rhonchus, and like it, its habitat in the chest, as well as its permanency, is extremely variable.

The rhonchus, termed pulmonary crackling, is a sound of less frequent occurrence than either of the preceding; nevertheless, when present, its pathological import is great. This sound imparts the impression of a succession of short dry cracklings, pertaining principally to inspiration, and most audible if that act be prolonged and deep. The lesion on which this rhonchus depends, is the deposition of unsoftened tubercles in the lung; hence its almost invariable locality, the summit of the chest. On the tubercles becoming soft, this sound gradually merges into that variety of crepitation, distinguished by authors as the moist crackling.

MOIST RHONCHI.

The consideration of the abnormal sounds characterised by humidity, embraces the different degrees of the crepitating, the mucous, and the cavernous rhonchi.

The crepitating râle, as its name implies, conveys the idea of crepitation. There are several modifications of this rhonchus, based upon the character of the crepitation and size of the bubbles, constituting the different degrees of the sounds described by authors, as the crepitating and subcrepitating. For practical purposes, I must confess that the very minute subdivisions of this rhonchus, appear to me to offer too great refinement, and tend rather to perplex than assist the auscultator. Careful and repeated investigation will enable the student to distinguish the leading modifications of the crepitating rhonchus, the diagnostic import of which will be fully considered hereafter, when studying their pathological signification. The sound of crepitation may be best imitated by the friction of a lock of hair, between the fingers close to the ear. It almost exclusively accompanies the act of inspiration, and is frequently uninfluenced by expectoration. The physical cause of this rhonchus has proved a subject of difference among writers on auscultation. Without analyzing the theories of each, its origin is probably two-fold, partly arising from the bubbling of air, circulating through liquids of variable tenacity, in the minute bronchi and pulmonary cells, and partly depending on the sudden expansion and separation of the tissue of the lung, from the viscid fluid by which it is infiltrated. The seat of the crepitating râle varies with the lesion on which it depends.

The mucous rhonchus frequently coincides with the sonorous, and may be distinguished from the crepitating by the sensation of greater liquidity, the bubbles of which (the mucus) are much larger, influenced however by the size of the bronchi. It accompanies both acts of respiration, and is usually much modified by cough and expectoration. The physical cause of the mucous rhonchus is the bubbling of air through mucus, blood, or pus, contained in large or moderate sized bronchi. Its usual locality is the middle or posterior portions of one or both lungs.

The impression afforded by the cavernous rhonchus is well expressed by its synonyms 'gargouillement' or 'gurgling.' In this, the bubbles are larger, less numerous, and of more irregular recurrence, than in the mucous variety. It is often more or less metallic in character, and when for a time removed by the emptying of the cavity by expectoration, its place is supplanted by cavernous respiration. This rhonchus commonly co-exists with both respiratory movements, and like the sonorous, is often audible at a distance, without the aid of the stethoscope; and may even occasionally be recognised by the patient himself. The physical cause of this sound is the passage of air through fluid contained in a cavity in the substance of the lung. The lesion on which it most frequently depends being tuberculous excavation, its favourite seat is, of course, the summit of one, or both lungs. When depending, as is more rarely the case, on other diseases besides tubercle, it may be heard indifferently in any part of the chest.

(To be continued.)

NEWCASTLE-ON-TYNE INFIRMARY.

Practice of SIR JOHN FIFE.

Reported by MR. FREDERIC ROBINSON.

CASE OF SEVERE INJURY OF THE SHOULDER, WITH FRACTURE OF THE HUMERUS, AND RUPTURE OF THE BRACHIAL ARTERY.

John Sawyer, aged 18, enginewright, a rather delicate looking lad, of nervous bilious temperament, was admitted on December 16th, 1844, under the care of Sir John Fife, at eight p.m., in consequence of having met with an accident, his right arm being entangled in a wheel connected with machinery, though in what direction the violence was applied, he cannot state; he had on a strong fustian jacket at the time. On his admission here, the injury was ascertained to be as follows:—The head of the humerus was fractured obliquely, downwards and inwards, and the whole of the articular surface, to the depth of a third of an inch in the centre, retained in situ, along with the lacerated capsular ligament. The long and short tendons of the biceps were uninjured, and the other fractured extremity of the bone, along with a third of its shaft, was forced through the integument of the axilla, beneath the belly of the biceps, and rested on the skin covering the pectoral muscles, in a position obliquely inwards and upwards, so that the arm being approximated closely to the ribs, and the forearm bent at right angles across the abdomen, the dislocated bones rested immediately beneath the humeral third of the clavicle. The wound was barely large enough to admit of the