

passed through exactly opposite and corresponding points of the fissure with more certainty.

The above-described instrument, or one very similar, may be used for controlling hæmorrhage in many operations on the lip or cheek, such as the removal of cancers or small tumours; it is also available in operations on nævus of these parts, to arrest the circulation in the growth while the disease is either excised or ligatured. Especially I would venture to recommend its use when practicable for nævus of the face, treated by the injection of solution of perchloride of iron or other coagulating fluid, as I believe that thereby all risk of that rare though most fatal accident would be obviated—namely, the admixture of the injected fluid with the general stream of venous blood.

With the view of meeting the requirements of other operations on the face than hare-lip, Mr. Ferguson has been good enough to make an instrument similar to the one figured, but having movable arms, which expand so as to admit of adjustment to the extent of tissue requiring to be included within their grasp.

Montague-street, Russell-square, Oct. 1864.

## CONTRIBUTIONS

TO THE

## **PATHOLOGY & TREATMENT OF CERTAIN DISEASES OF THE HEART AND LUNGS.**

By A. T. H. WATERS, M.D.,

PHYSICIAN TO THE LIVERPOOL NORTHERN HOSPITAL.

### **I.—THE CONDITION OF THE HEART IN EMPHYSEMA OF THE LUNGS.**

AMONGST the more prominent symptoms of general or lobar emphysema of the lungs is an altered condition of the heart. The expansion of the lungs pushes the cardiac organ downwards, backwards, and towards the mesial line; so that in advanced states of the disease the heart is felt and seen to beat in the epigastrium beneath the ensiform cartilage; the cardiac region becomes resonant from the overlapping lung, and the lower site at which the sounds of the heart are best heard is altered. These are facts familiar to all who have given attention to pulmonary diseases, and it is not to them, but to certain changes which take place in the walls of the heart, that I wish to direct attention.

It has been the opinion of many pathologists that the right cavities of the heart alone become affected in emphysema; but the researches of Gairdner, Lebert, and others have satisfactorily proved that, in the majority of cases, where emphysema is extensive and of long standing, the cardiac disease is not confined to one side. My own observations tend to confirm this opinion, and to show that the form of heart-disease most frequently associated with emphysema is a general hypertrophy and dilatation of the ventricles; for I have never seen a post-mortem examination of a case of extensive and long-standing lobar emphysema in which the left ventricle, as well as the right, was not affected.

That this diseased condition of the heart is a consequence of emphysema we can have no difficulty in believing when we consider the nature of the lung-affection, and especially that the palpitation, and other cardiac symptoms, are always preceded by dyspnoea and other signs of the pulmonary malady.

But hypertrophy of the ventricles is not the only change which takes place in the heart, for valvular disease is frequently found. The deposits which occur about the valves are no doubt secondary to the changes which take place in the muscular walls, and must be attributed to the general mal-nutrition produced by the pulmonary disease.

Can we give any satisfactory explanation of the causes which lead to hypertrophy and dilatation of the cavities of the heart in emphysema?

When we consider the anatomical arrangement of the pulmonary tissue, and especially of the pulmonary bloodvessels in the disease, we can have no doubt as to the manner in which the right side of the heart becomes influenced. The impediment which exists to the circulation through the lungs, in consequence of the physical condition of the lung-tissue, and the imperfect aëration of the blood, together with the diminution in the number of the pulmonary bloodvessels, must necessarily

give rise to an overloaded state of the right cardiac cavities, and to increased action on their part.

No such explanation as that just given will, however, apply to the hypertrophy, so commonly found, of the left ventricle; for there is a diminution in the quantity of blood which finds its way into that cavity, and consequently, on this account, rather less call for muscular action than in a state of health. We might therefore infer that we have in these circumstances an element of atrophy, rather than of hypertrophy. But morbid anatomy teaches us that the latter usually exists. Whence, then, does it arise?

It appears to me that we must look, in great measure, for an explanation of the fact to the effect produced on the heart by the displacement it undergoes in the disease. This displacement is always the greatest where the emphysema is most extensive, and it is in such cases that the left ventricle becomes most hypertrophied. As the lungs expand, the heart is pushed away from its normal position; and, consequently, the direction of the axis of its cavities is altered with reference to that of the vessels connected with them. The ventricles of the heart are so placed, in a state of health, with regard to the arteries which issue from them, that no impediment exists to the onward passage of the blood, and the circulation is effected with the smallest possible expenditure of muscular force; but displacement of the heart necessarily alters the relations between these several parts, and produces an embarrassment of the heart's action—an embarrassment that can only be overcome by more powerful contraction. We consequently find that hypertrophy follows.

This appears to me to be the chief reason that must be assigned for the occurrence of hypertrophy of the left ventricle in emphysema. It is true that, in consequence of the condition of the venous system, some increased force may be required on the part of the left ventricle, and thus another element for the production of hypertrophy may exist. The altered situation of the heart is, however, I believe, the main cause; and this must have an influence in producing the changes which take place in the right ventricle, but here another cause is also at work.

Amongst the symptoms of emphysema, resulting from the changes which I have just referred to, must be enumerated the powerful impulse of the heart, often felt in the epigastric region, together with the smallness and feeble character of the pulse, as felt, for instance, at the wrist. A knowledge of the condition of the heart and of the state of the pulmonary circulation serves to explain these phenomena. The powerful impulse of the heart is the result of its hypertrophy, and embarrassment from position; whilst the smallness of the pulse is due to the small quantity of blood which the left ventricle expels at each beat, and its feebleness to the fact that the force of the left ventricle is expended, in part, in overcoming the resistance which exists to the passage of the blood from the ventricle, in consequence of the altered position of the latter, and in part merely in distending the arterial tubes. The diminished circulation through the pulmonary tissue, and the accumulation of the blood in the venous portion of the circulating system, sufficiently account for the small quantity of that fluid which the left ventricle has to react on at each beat.

Liverpool, Oct. 1864.

## **ON THE MECHANISM OF SPEECH.**

By ISAAC PIDDUCK, M.D.

To compare the mechanism of speech to that of a musical instrument, the organ, for instance: the chest is the bellows; the abdomen is the blower; the throat is the windpipe; the larynx is the reed; and, besides these, the cartilages and vocal cords are the strings; showing that the sounds of the voice are produced by the combination of a wind and a stringed instrument.

The sound formed by the larynx (consisting of the rima or chink), the cartilages, and the vocal cords, is divided by the tongue, the palate, the cheek, the teeth, and the lips, into letters, syllables, words, and sentences. Upon the perfect formation and healthy condition of these several parts the strength, the rhythm, and the distinctness of the voice depend.

But to play skilfully on a musical instrument long and careful practice is required. All persons learn to speak, as some persons learn to sing, by the ear; but very few either speak or

sing correctly unless the organs of voice have been properly taught, and brought into perfect subjection by regular instruction and strict discipline. It was related of three young ladies, sisters, that they could sing, but not read aloud for any length of time, without becoming hoarse and losing their voice. They had been taught to sing, but not to speak.

By way of illustration, let us consider—

1st. The chest, or bellows. In order to speak with a loud and clear voice, so as to be heard distinctly at a distance, the capacity of the chest should be ample. This may be increased by exercise, by taking deep inspirations, and by holding the breath for a short time when the chest is full, suffering the air to escape gradually by counting aloud 1, 2, 3, &c., up to 50 or 70. By this means the chest may be expanded in every direction, and its capacity greatly enlarged.

2nd. The abdomen, or blower. Fulness of the abdomen is caused by eating and drinking largely, and this, again, causes flatulence, distension, or the deposition of fat, especially by the neglect of exercise; and this impedes the muscular actions of the abdomen in expelling the air from the chest with sufficient force to produce a full volume of voice.

3rd. The trachea, or windpipe. And 4th. The larynx. These most important parts are liable to catarrhal and nervous affections by which the voice is lost, or is rendered hoarse and discordant—*vox faucibus hæsit*. The causes which produce this injurious effect are—breathing a close, heated atmosphere; by wearing warm wraps round the throat; by drinking freely of hot liquids, particularly hot tea; by spirit-drinking; by snuff-taking and tobacco-smoking; by the use of voice-lozenges; by straining the voice beyond its compass; and by frequently clearing the throat. The articulate sounds, the rhythm and *timbre* of the voice, being formed by the larynx, compounded of the cartilages, the rima or chink, and the vocal cords, and being divided by the tongue applied to the palate, the teeth, and the lips, into letters, syllables, words, and sentences, it is most important that all these several parts should be in a normal and healthy condition. If the tongue be too large or too small; if the palate be cleft, too arched, or too flat; if the cheeks or the lips be too largely or not fully developed, and the teeth be defective, the voice will be deficient in power, and the words will be indistinctly pronounced.

In order to attain an effective elocution, the following rules should be observed:—

1st. The speaker should stand erect, and the head not bent upon the chest, that the muscular movements of the abdomen, chest, and throat may be free and unconstrained.

2nd. The chest should be fully expanded by each inspiration at the commencement of every sentence. The disregard of this rule is a frequent cause of stammering. To fill the chest and to hold out the breath to complete each sentence, the inspiration should be made through the nose. By this mode of inspiring through the nostrils, the mouth and throat are prevented from becoming dry, and the voice from becoming hoarse.

3rd. The pauses should be long enough for each sentence to reach its destination before it is followed by another; and, *cæteris paribus*, the slowness of the utterance should be in the ratio of the size of the room and the number of the audience.

"Learn to speak slow; all other graces  
Will follow in their proper places."

4th. Every word, if not every syllable, and almost every letter, should be distinctly enunciated, that the attention of the auditory may not be diverted from the sense to catch the sound. By this twofold effort the attention soon grows weary, and the hearer listless, and then instruction or amusement ceases.

Among the faults of extemporary speakers, lecturers, and preachers, rapidity of utterance is one of the most common. Deliberation gives time for the choice of words; and, in consequence, the speech, the lecture, or the sermon is more effective, is less tedious to the hearers, and commands greater and longer attention. This rule requires self-possession, a perfect knowledge of the subject, and an earnest desire on the part of the speaker to enlighten and instruct his auditory. Rapidity of reference and of quotation may excite astonishment, but it does not impart information, which should descend upon the mind as the dew from heaven.

Montague-street, Oct. 1864.

**THE ULSTER MEDICAL SOCIETY.**—The anniversary dinner of this Society was held on Tuesday last in Belfast; Dr. Stewart, vice-president, in the chair. During the evening several eloquent speeches were made, and the company separated highly gratified with the arrangements of the day.

## A Mirror

### OF THE PRACTICE OF MEDICINE AND SURGERY IN THE HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

#### GUY'S HOSPITAL.

STRANGULATION OF INTESTINE BY A DIVERTICULUM ILEI  
(MECKEL'S DIVERTICULUM VERUM), THE REMAINS OF  
THE VITELLINE DUCT, IN A GIRL OF TEN YEARS.

(Under the care of Dr. WILKS.)

Of the various abnormalities of the intestinal canal, perhaps that known as Meckel's diverticulum verum is one of the most important from the peculiarities of its formation. The deformity is not an excess of development, but an arrest of formation, and is thought of such importance by Rokitsky that he devotes special consideration to it in his *Pathological Anatomy*. It is a dilatation of the small intestine, representing a hollow appendix, which consists of all the intestinal membranes, and is placed at from eighteen to twenty-four inches from the caecal valve. Rokitsky does not assent to Meckel's view that it is a remnant of the umbilical canal; it evidently has its origin, he asserts, in the development of the intestine in the umbilical vesicle. The condition of the diverticulum in the following very interesting case favours this opinion, inasmuch as, in place of terminating in a free appendix, as is sometimes found, it was attached to the abdominal walls at the umbilicus, ending there in a blind tube. The diverticulum was pervious throughout, and would have admitted a lead-pencil. The risk of strangulation of the bowel is always greater under such circumstances than when the abnormal appendix is floating and free, in which case it seldom exceeds five or six inches in length.

E. M. W.—, aged ten, was admitted into Esther ward Aug. 13th, 1864. She never had any symptom (according to the mother) of obstruction of the bowels until Aug. 4th, when, after eating some gooseberries, she began to vomit. At this time there was some slight evacuation from the bowels. Since then there had been all the symptoms of obstructed bowel: no passage, and frequent vomiting, which finally became fecal. Collapse at last set in, with great heat of abdomen and peritoneal symptoms. She died two days after admission.

At an examination twenty-four hours after death, the body was found to be spare, and the abdomen tympanitic. Acute peritonitis was present. The membrane was vascular and covered with lymph. On lifting up the parietes, a band was seen passing from the umbilicus to the lower portion of the ileum; and on separating the intestines the point of constriction was seen at this spot, about a foot or a foot and a half above the termination of the ileum; the portion of intestine above being much distended, and that below contracted. The latter portion was coiled up, and lay hanging down towards the pelvis, so that the band produced a greater drag upon it. This band, on more careful examination, was found to be a diverticulum of ileum, which at its commencement was as large as the contracted portion of bowel, with which it was in connexion; and on examining it further, it was found pervious in its whole length—in fact up to the umbilicus, where it terminated in a blind end, and was attached to the walls. It would admit an ordinary lead-pencil along it. It was, then, evidently the remains of the vitelline duct or umbilical vesicle, which had continued open from an early period of fetal life. The contraction seemed to be caused more by simple dragging on the part, although no doubt the portion below had fallen in such a manner as to cause the sudden complete constriction. It appeared, however, as though some constriction had long existed. The dragging of the diverticulum was so great that