

clusion that the operations of the mind are associated with the convolutions. Perception, memory, the power of abstraction, imagination, all possess, as instruments of corporeal action, these folds of vesicular and fibrous matter. These parts, in the language of Cuvier, are the sole receptacle in which the various sensations may be, as it were, consummated, and become perceptible to the animal. It is in these that all sensations take a distinct form, and leave lasting traces of their impressions; they serve as the seat to memory, a property, by means of which the animal is furnished with the materials for his judgments.*

Taste was the first sense recovered. From the anatomical and physiological connexions and relations of its nerves, the glossopharyngeal and lingual branches of the fifth pair, and from the marked sensibility of the sense of touch, this was to be expected. It was roused into action by emotional excitement.

Speech was the faculty next recovered, and, as I have mentioned, under a state of highly excited feelings; but the power of using verbal language and appropriate and proper names for the things signified, was not then recovered. It was not until months had elapsed, that the first instance of calling the wild flower by its proper name occurred. "Perfect power of speech," it has been justly observed,—“that is, the power of expressing our thoughts in suitable language, depends upon the due relation between the centre of volition and of intellectual action,” and so long as the intellectual centre was in an abnormal condition, the perfect power of speech was suspended.

Smell.—The sense of smell was found intact about six months after the accident, and appears to have been imperceptibly regained, as might be expected from the situation and connexions of the olfactory lobes or ganglia.

Hearing was the sense last recovered. “If it be easy to understand how nervous power, excited by the impulse of sound upon the ear, may be propagated along the auditory nerves, to the olivary columns in the fourth ventricle, and thence to the optic thalami, in which are found many fibres, which are continuous with those of the hemispheres, and capable of propagating the nervous force to the convolutions, as the common centre of sensitive impressions,”†—it is not difficult to comprehend why, in the present instance, the sense of hearing should have been the last regained.

In conclusion, the case presents some other points of curious interest; but as these partake more of a psychological than of a physiological character, I shall not enter upon their consideration. Still, however, the mental advances, the exercise of the imitative faculty, and the perception of the harmony of colours, co-existent with such a state of abnormal innervation, are interesting phenomena as connected with the philosophy of the human mind.

London, May 20th, 1845.

THE HARMLESSNESS OF ADHERENT PERICARDIUM.

By T. WILKINSON KING, Esq. F.R.C.S.E.

Adhesions of the heart cause but slight increased effort and growth of muscle.—The quiescent heart wastes.—One-twenty-third† of adults die with adhesions, which cause no proper local change.—Rationale of the variable and gradual course of cardiac obstructions, with general visceral disease.

ALTHOUGH confirmation on the present subject has long seemed to me to be wanting, I should hardly have thought it worth the labour, if the facts had not been quite ready to my hand. No doubt, adhesions of the heart may cause some impediment to its free contraction, but I think the entire of the compensation must be ordinarily an inappreciable degree of hypertrophy, which, in the absence of any additional obstructions, cannot but be devoid of all signs or symptoms of mischief. I think I have again and again found the heart adherent and small, and even encircled by a sheet of bone, with solid knobs and cysts of chalk, (from old pericarditis,) without any symptom or anatomical trait of obstruction. The truth is, I conceive, that easy habits of exertion, digestion, and depuration, may alone compensate for much greater cardiac obstruction, and, as in the aged, admit even of some wasting of the ventricles without any kind of manifest difficulty.

In a tabular view of 665 autopsies, one-third being of females, twenty-nine, or one-twenty-third, presented the pericardium firmly adherent; in rude fractions, one-twentieth of males, and one-fortieth of females: only four were under twenty-eight years of age.

* Physiological Anatomy, by Dr. Todd and Mr. Bowman, p. 291.

† Ibid.

* The foundation for the above figures is in part the work of Dr. Hodgkin in the museum of Guy's Hospital. The tabulation was by my late friend, Alexander Tweedie, and Mr. Jonas King. I might easily have extended my numbers. These notes may, I think, be best considered in connexion with former series of papers on the heart, which are all sketched in the *Medical Gazette*, May 23rd, 1845.

Now of these twenty-nine cases, fourteen appear to have been unattended with material disease of the heart. In three of the fourteen, the heart was small; in five, healthy; in six, some simple enlargement existed.

Of the remaining fifteen cases, one occurred in a male, aged thirty-two, killed by a fall, the heart thick and contracted; another in a male, aged twenty-five, who died with spinal flexure and abscess, the heart dilated, thin, and soft.

Thirteen cases were complicated, with decided, or great obstruction in the aorta, its crescents, or the valves generally. In most of these, also, there were grave visceral disorganizations. The liver, the kidneys, the spleen, &c., were much affected. The records almost entirely omit accounts of the visceral and other arteries, which are by far the commonest seats of disease with hypertrophy of the left ventricle.

It may not be unavailing to add, that in the same series of 665 autopsies, are just twenty cases of decided acute, recent, and fatal, or rather final pericarditis, and that of these, ten presented morbidly enlarged hearts, with valvular and visceral diseases. Of the rest, four were on the conclusion of phthisis, one of small-pox, one of acute hepatic abscess, one of fractured ribs, and three of general or diffused inflammations. It may be only curious to note, that the mean year of death is, here, the thirty-sixth for adherent pericardium, and the thirty-second for the inflammation, which is mainly incapable of adhesion or repair.

Louis refers to 1263 autopsies of authors, in which the heart is mentioned. In 106* (one-twelfth) of these were some traits of pericarditis. 443 autopsies of his own give seven of pericarditis, and eleven of old adhesion. Of another mixed series from journals, 263 yield thirteen examples, (one-twentieth.) The 706 cases together have one-twenty-third with proofs of pericarditis.

The 1263 had 167 instances of more or less serious disease of the heart itself, and amongst these last were four cases of acute pericarditis, and nine of adhesion,—i. e., one-thirteenth evinced inflammation; one-fourth of the adherent pericardiums were in females.

An able and ingenious author, Dr. Chevers, (Guy's Hospital Reports, 1842,) has employed my inspection records, to prove that atrophy of the heart may result from compression by the adherent pericardium; I have never seen any cause to coincide with this idea.

Between the 1st of June, 1835, and the 1st of June, 1842, 944 cases were recorded in the Guy's Inspection-Books, including accounts of forty-seven cases, in which adhesions of long standing were found uniting the pericardial surfaces. “In thirty of these, the adhesions were universal. Of these thirty, there was marked disease of both the aortic and mitral valves in nine. In six, there was old disease, either of the aortic valves or of the aorta itself. In five, there was disease of the mitral valve, the aorta remaining comparatively healthy. In one, there had long been severe lung obstruction; and here the enlargement of the heart was principally on the right side. In four, the heart was not enlarged, and the valvular apparatus generally healthy. In three, the heart was found diminished in size, the valves being free from marked lesion. The state of the heart was not noticed in two other cases; but from this it is probable that there was no striking enlargement in either. Seventeen were cases of partial adhesion in various degrees. Both the mitral and aortic valves were diseased in two of these. The aortic valves, or aorta, chiefly were in fault in six. The heart was of normal size in seven; but yet, in two or three of these, acute pericarditis had been superadded to the chronic, and there were also some marks of recent endocarditis; and, in two cases, the state of the heart was not specified. In nearly one-third of these cases, then, (excluding the four in which the state of the heart was not mentioned,) the heart had not suffered either from hypertrophy or dilatation, and in some of these had actually become diminished in size. From the large number of cases in which valvular disease occurred, it might be thought that this had been, in some measure, induced by the state of the pericardium; but it was remarked, that in the greater proportion of these cases the adhesion was traced to rheumatic inflammation, under which state it is pathologically correct to suppose that the lining and covering of the heart became diseased at the same time. In several of the cases where the adhesion evidently arose from idiopathic inflammation, the valves were healthy, although the adhesion was complete, and of very long standing. Again, in many of the cases of valvular disease, the hypertrophy or dilatation was still almost entirely confined to the cavity immediately behind the diseased opening; and in the whole of the other cases there appeared to have been no more enlargement of the heart than the valvular or arterial obstruction might have caused *per se*, quite independently of the adhesion. The fact, that in nearly one-half of the cases of partial

* In our 667 cases, forty-nine, besides omissions and minor cases.

adhesion the heart retained its ordinary dimensions, while in the remainder there was sufficient valvular disease to account for any enlargement that was present, would tend to prove that partial adhesion of the pericardial surfaces is not more liable to produce hypertrophy with dilatation than is the more complete form of the disease."

I do not hesitate to conclude that the records here referred to, do not mention the adhesion of the pericardium as frequently as it really occurred. At times, attention was confined to a part, as the head, and at others, no more material heart disease existing, the fact has been left unnamed. Dr. Hodgkin, in the series of 665 cases, attached more consequence to this particular. No doubt, with recent pericarditis, autopsies must often present old enlargements of the heart, and I find by counting, that of 200 cases of males taken indiscriminately, between the ages of twenty-four and fifty-five years, one quarter* died with material disease of the heart itself, and, consequently, about one quarter of the cases of pericardiac adhesion ought to present independent heart disease.

It will hardly be questioned, also, that obstructions in the aorta, and its branches generally, and all the series of defective eliminations and depurations from fixed diseases in the various glands, &c., (belonging to most fatal heart diseases,) require to be weighed in every case of hypertrophy or dilatation.

But when it is advanced, as matter of experience, that adhesion of the heart causes its atrophy, it is necessary also to show that the different known causes of general wasting do not interfere. I think it must be admitted, that the instances hitherto produced have been deficient in this respect.

Dr. Barlow, in a very philosophic application of physics to medicine, (*Medical Gazette*, March 8th, 1844,) relates a case of atrophy of the heart in connexion with obliteration of the pericardial cell, in a young woman who was a good deal emaciated, and had sloughing of the tip of the nose, and of some fingers and toes, and gradually declined. Now it is surely possible that some general causes of wasting prevailed here.

Dr. Chevers also, I think, departs from his usual acuteness. No. 1449⁴⁸, in Guy's Museum, is a small adherent heart, sprinkled with cancer, and No. 1449²⁸, was taken from a woman, aged thirty-six, who, after lactation, had globus, dyspnoea and hydrothorax. The heart was found enveloped in cancer, which had likewise invaded the kidneys. Dr. Chevers elsewhere justly marks the small heart as a peculiar feature of cancer. He gives three other cases, which seem, too, open to like objections. These are pointed out among the following,† which I conceive, if viewed as a whole, to be sufficiently conclusive. They include all our examples of the kind, without selection.

Abstract from Mr. Hales' digest of 500 cases of heart disease, in my possession.

Pericardiums adherent.—The heart wasted from constitutional causes in eleven instances, as follows:

iii., 152.‡—A male, in the sequel of fever, had catarrh and phthisis, purulent peritonitis, pneumonia, and some chronic disease of spleen, liver, and kidney.

vii., 67.—A male, aged fifty, (adhesion partial,) chronic bronchitis and phthisis, &c.

viii., 92.—A male, middle-aged; some old tubercles, recent feeble chest inflammations, older peritoneal disease, and some ulceration of bowels.

xi., 145.—A female, aged fifty-five, died of petechial fever, with chest obstruction, and unhealthy viscera.

iii., 75.§—A female, aged twenty-five, addicted to excesses, who had phthisis and a large fat liver.

xi., 48.—A male, aged twenty-seven, who had rheumatitis at sixteen, and finally carious vertebrae, a large fat liver, pleuritis, &c.

xii., 136 (a).—A female, aged thirty-seven, after delivery profuse flooding, anasarca thirteen weeks, hemiplegia six weeks, liver contracted.

xiv., 31 (b).—A male, aged thirty-eight, with wide suppuration in the pelvis seven months, phthisis, and fat liver.

xvi., 12.—A male, aged forty-two, phthisis, ascites, liver soft, kidneys mottled.

xviii., 140 (c).—A female, aged eighteen, who was two years ascitic, and thrice tapped; she had cancer of the right heart, and the liver and kidneys enlarged.

xviii., 199.—A man, of sixty, who had ascites and orthopnoea five months, the liver and kidneys were contracted, the heart ossific, the right side too close, and the pulmonary artery atheromatous from impulse.

* Of females of all ages, one-eighth.

† See xii. 136a; xiv. 31b; xviii. 140c.

‡ These numbers will serve to authenticate the cases, and refer to volume and page of "Green Inspection Books" in Guy's Museum.

§ This and the following numbers refer to "Miscellaneous Volumes" in Guy's Museum.

We understand that if nutrition fail not, hypertrophy of muscle advances with the efforts made, the obstructions encountered, or it declines in like manner with disuse. The nourishment of the heart failing, the cavities dilate with only the ordinary calls of the circulation. This is palpitation, and it may well be transitory. The obstructions and the compensations may rise, subside, oscillate, and commingle very variously—hypertrophy, dilatation, palpitation, convalescence.

A veteran friend in the profession, Dr. I. E. Warren, of Boston, writing on the organic affections of the heart, in 1809, has forcibly characterized the variable course of the symptoms. "There is no circumstance more remarkable than the alternations of ease and distress. At one time the patient suffers the severest agonies, assumes the most ghastly appearance, and is apparently on the verge of death: in a day or a week after, his pain leaves him, his happiness and cheerfulness return, a degree of vigour is restored, and his friends forget that he has been ill. . . Although the digestive functions are occasionally deranged, the appetite is at some periods remarkably keen. . . The paroxysms occasionally recur and become more frequent as the disease progresses."*

The cardiac obstructions may be old, stationary, and uniform, but we have gouty accumulations, (as it were,) excesses, and exposures, to account for relapses. Time, moderation, and care, bring general depurations and gradual restoration. When these fail, the heart is overcome.

At first, any treatment may be wonderfully successful; subsequently the most judicious is essential, and at length it is in vain. Possibly less than adhesion may suffice to turn the final balance. It is no negative advantage to circumscribe in our minds the influence of our defect, for it is needful to appreciate all, or the most boasted treatment is little better than shaking a watch to renew its action.

There are, again, morbid kinds or forms of hypertrophy—diseased muscles, and these, with their complications, must be rightly distinguished. I am well aware that much is said of nervous irritations, but, considering their Protean character, and the universal discrepancies concerning them, I would simply add, let us not be unmindful, at the same time, of varying nutriments, as affecting the heart. Finally, and, I would say, above all, if a narrow mitral may exist for years, with only occasional serious difficulties—if grave aortic impediments take many months to accumulate, and only evince transitory winter alarms—and if neither of these cases, nor even their combination,† is commonly fatal until the kidneys are hard, the liver shrunk, the spleen solid, the lungs half obliterated, and the surface of the body perseveringly neglected as to warmth, what can we think of the simple mischief of an adherent pericardium? If, again, these are facts, have they not been too much neglected by the more professed practical writers on the chest.

Bedford-square, Nov. 1845.

* See Edinburgh Medical and Surgical Journal, vol. vii. p. 111.

† The views which I have advanced in different forms since the year 1834, tend, I think, to establish the rationale of all this. The subjoined notes already referred to may help to show how the physical relations of the circulation are to be studied as to incipient disorders.

1. The corded valves of the heart require that the blood should throw back the curtains and make the cords tense, and even elongate their conic muscles, before the latter can duly contract, and this action compensates systolic approximation of the ventricular walls.

2. Where the valves of the heart are more than equal to the opening, they close up, the curtains overlap, and present surfaces of contact whose extent varies with the energy of the circulation, and whose diseases, atrophic or inflammatory, are specific.

3. The lymphatic system is constructed for rapid circulation.

4. The veins pulsate: a bristle applied with gum, as a lever, is visibly raised by a full vein.

5. The tricuspid is a safety valve. The thin wall of the right ventricle yields to temporary distentions, and the valve is retracted out of place. This effect increases from birth, and varies throughout the series of warm-blooded animals, being greatest in the divers, which also have most reservoir veins and arteries.

6. White patches on the heart indicate points &c. of projection, attrition, and inflammation.

7. The ductus arteriosus, at birth, may owe its closure to sudden compression over the left bronchus—analogy in reptilia.

8. After ligature, as after cold, &c., arteries being empty, are weak, and so dilate.

9. The open states of the ductus arteriosus, after birth, are caused by obstructed pulmonary artery or lungs, and narrowings of the aortic orifice or arch.

10. Similar causes of communications between the two sides of the heart.

11. Cases of apoplexy from brain aneurisms.

12. The left bronchus flattened by dilatation of the left auricle.

13. The nature and treatment of angina pectoris illustrated by considering the physiology of violent circulation; the influences of repletion, senile changes of the heart, and of its valves; their surfaces of contact perforated or shrunken, &c.; different states of different parts explain varieties of the disease; the pains of various kinds and the distresses.

14. Palpitation of either ventricle alone, or of both; over full, and labouring with or without hypertrophy; the causes, fulness, debility, passing disorders of health, &c.