was not indicated by symptoms, and did not sensibly interfere with health; and, if I were to add to this number the instances which I have not recorded, the instances which I have failed to discover, and the instances which I have met with in consultation with other medical men, the number would be raised to a thousand. As an outcome of the experience of one person, this is a very considerable result; but if we were to add to it the experience of other practitioners, and, more especially, if we were to take into account the probable numbers of persons who, with chronic valvular heart-disease, are too well to come within the scrutiny of the physician, it will conclusively appear that there exist multitudes of persons, with chronic valvular disease of the heart, who not only suffer no inconvenience therefrom, but are also capable of discharging the duties and enjoying the pleasures of life.

Before proceeding further, I will call your attention to the diseases or the disorders for which those 684 persons, having valvular heart-disease, sought medical assistance. Arranged in the order of frequency, they are as follow:

Dyspepsia	275	Gastro-hepatic catarrh ..	4	Exophthalmic goitre. ..	1
Rheumatism	57	Lumbago	3	Diabetes	1
Nervousness	45	Cerebral disease	3	Myxœdema	1
Headaches	35	Nasal catarrh	3	Fatty tumour	1
Bronchitis	23	Gastric ulcer	3	Mammary tumour ..	1
The gouty state ..	22	Colic	3	Epigastric tumour ..	1
Eczema	17	Hepatic congestion ..	3	Phlebitis	1
Vertigo	17	Gall-stones	3	Boils	1
Neuralgia	17	Malaria	3	Urticaria	1
Catarrhal diarrhoea ..	12	Erysipelas	2	Cerebral congestion ..	1
Melancholia	10	Pseudo-hypertrophic ..	2	Diphtheritic paralysis ..	1
Acne	9	paralysis	2	Paralysis agitans ..	1
Albuminuria	8	Apraxia	2	Writers' cramp	1
Anæmia	8	Otitis	2	Renal hæmorrhage ..	1
Pulmonary congestion ..	7	Tinnitus	2	Choroiditis	1
Hepatic catarrh ..	7	Consolidation of lungs ..	2	Ozena	1
Renal calculus	6	Fibroid phthisis	2	Laryngeal catarrh ..	1
Epilepsy	5	Chr. pharyngitis	2	Chronic pneumonia ..	1
Embolism of arteria ..	4	Pyloric catarrh	2	Dysentery	1
centralis retinæ ..	4	Renal inadequacy	2	Perityphilitis ch. ..	1
Influenza	4	Vesical catarrh	2	Jaundice	1
Phthisis	4	Chill	1	Capsular hepatitis ..	1
Constipation	4	Osteo-arthritis	1	Dysmenorrhœa	1
Colonic catarrh ..	4	Struma	1	Menorrhagia	1

Arranged according to physiological systems, and in the order of frequency, it will be seen that, of those 684 persons, 326 were suffering from disorders or diseases of the digestive system; 134 were suffering from disorders or diseases of the nervous system; 61 were suffering from rheumatic affections; 47 were suffering from disorders or diseases of the respiratory system; 30 were suffering from affections of the skin; and 23 were suffering from gout.

And now I venture to say that, with all their drawbacks, known and unknown, the facts which I have laid before you, and the facts which have been laid before you by other observers, are sufficient, not only to justify, but to require, in the interests of practical medicine, a systematic, critical, and exhaustive study of the whole subject. To make this inquiry fruitful in practical issues, we need information which cannot be accurately supplied by consulting practitioners; we need the detailed facts of family and personal histories, of personal peculiarities and habits, and of the general conditions of health and occupation. This knowledge, and much more knowledge of incalculable value to medicine, is in the possession of the general practitioner, and he must be urged to still greater acts of self-denial, in order that this knowledge may be placed at our command.¹

ON THE PROGNOSIS OF CERTAIN CASES OF VALVULAR DISEASE OF THE HEART.

Remarks made after the Reading of the above Paper,

By W. T. GAIRDNER, M.D., LL.D.,

Professor of Medicine in the University of Glasgow.

HAVING been asked to take a part in this very important discussion, and having the advantage of following an elaborate statement by such a distinguished authority as Sir Andrew Clark, I may as well save the time of the meeting by recognising the distinction which he has drawn between "impressions" and positive facts. As the latter are of much greater relative importance where time is necessarily limited, I may also, perhaps, with advantage, state in general terms that, as regards his "impressions," my experience in general, not, perhaps, in every detail, but still sufficiently for the present purpose, may be taken as at one with that of Sir Andrew Clark. I must not, however, omit to state that I am not less than overwhelmed and

amazed at the extent, and even the minute detail, of the record he has submitted to us, out of the abounding treasury of his case-books. I believe there are very few men who, having only a fractional part of his vast experience to go upon, would have been able to produce the details of that experience in a such a well-ordered fashion. I cannot deal with these details on the present occasion. They require careful and deliberate study. Moreover, I sympathise entirely with a remark he has made upon them, that, after all is done, it is to the general practitioner that we must look for further progress in knowledge as to the prognosis of long-drawn-out cases of cardiac disease. With whatever amount of attention he may note, or even record, the facts, the consultant is in a position which deprives his record of much of its value. He cannot follow up his cases. Of those that die soon, he often knows something to the end. Of those that live long, and especially of those that get apparently well, he commonly knows nothing except by the merest accident. Hence, his experience is biased, as it were, by circumstances over which he has absolutely no control, and which tend to familiarise him with the unfavourable side of the question. The same, or nearly the same, applies to the hospital physician. It is only the general practitioner who is the lifelong friend of his patients, and can give us the facts of which we are at present in search. But my experience happens to present at least one feature of some importance, in respect of which it is, perhaps, not too much to say that I am probably alone in this room. I doubt if there is anyone else now present, and perhaps not many even beyond this meeting, who can say that he wrote down his opinions on this subject twenty-five years ago, and produced cases in support of them; and further, who is able now to take up the parable as regards some of these very same cases, and to give some sort of account of them to this meeting. And as I have this very peculiar, if not unique, position in reference to the subject of our debate, perhaps I had better confine myself, in what remains of my time, to dealing with these comparatively few, but really most important, hard facts, leaving "impressions," for the most part, out of the statement. One sentence, however, I should like to quote from what I wrote in 1861, because it is to this, or something like it, that Sir Andrew Clark must have alluded in his kindly and far too complimentary remark, that I had treated the subject more fully and completely than he could attempt to do. This I would entirely and emphatically disclaim; but it is, nevertheless, true that I used these words, which I think now to be quite as fully borne out by a more lengthened experience as they were at the time they were written. "The tendency of half-instructed auscultators is to over-estimate the importance of the murmur as a fact, and to under-estimate it as a means of investigation; to pay too much attention to the mere existence of the sound, and too little to the circumstances in which it occurs. And from this springs another tendency, which is, to take too grave and sombre a view of cardiac murmurs generally, and especially of such as are loud and obtrusive." (*Clinical Medicine*, Edinburgh, 1862, p. 561.) The instances I adduced at that time, with a few others closely related to them, will afford me the materials for what remains to be said now.

CASE I. (*Clin. Med.*, p. 562).—To this case I have nothing to add. It was that of a physician of some distinction, who, while attending Laennec's clinique, had discovered a cardiac murmur in himself, referable, as the event proved, to the aortic valve. He made himself very unhappy about it for a time, until he got by habit to disregard it, and even, perhaps, to be unconscious of its existence, although it was known as a tradition to all his intimate friends at the time of his death. He died, between 60 and 70 years of age, of tubercular peritonitis, and I (then a young man) was asked to open his body. The aortic valves were glued together, and their segments firmly incorporated for about a third of an inch, near their insertions, still leaving a sufficient current for the blood (in one never plethoric), but amply accounting for the murmur. The heart was not even enlarged, nor was there anything to show that the disease had in any way shortened life.

CASE II. (*Ibid.*, p. 562).—This also is the case of a medical practitioner, who, in 1861, had been for "half a life-time," in all probability, the subject of a mitral regurgitation. He had, in early adult life, an attack of acute pulmonary œdema, which he himself considered to have been, so far as observation goes, the starting-point of the cardiac lesion. At this time (1861), he was what might be fairly called a middle-aged man, in very active practice in a country town and extensive district; holding also a hospital appointment, and doing much medico-legal and other duty, as well as general and surgical practice. Several very threatening attacks (one or more of them of angina-like character) occurred after my account of him in 1861 was written; but he still survives; still, in a modified way, practises his profession; and, according to his last statement to me personally, and all the in-

¹ The elaborate tables by which the paper was illustrated, together with the conclusion of Sir Andrew Clark's remarks, will be published next week.

formation available up to this date, is "as well as he ever was in his life." What is still more interesting and remarkable, the murmur, after being followed up from time to time for several years, was found to have disappeared; and this many years ago, though long subsequent to the record of 1861.

CASE III. (*Ibid.*, p. 563).—This "young and active man" (in 1861) certainly survived for many years the discovery of an aortic murmur, of which very full details are given from my notebooks at that date, but he has been lost sight of, and I have quite recently ascertained that he is dead; my authority for this single fact being the friend and stalwart companion whom I found walking with him over highland hills shortly before the record of 1861, and who told me that he was a capital pedestrian, and very good company, and showed no trace at that date of any infirmity appreciable to one who was with him. Another case mentioned incidentally in the same page, but not so fully recorded, was more or less under observation for some years; but unhappily the subject of the murmur committed suicide; and nothing is known further of the circumstances in detail, except that he went to India, held a public appointment, and returned home again without apparent or very troublesome cardiac disease.

CASE IV. (*Ibid.*, p. 565).—This case is one of very great interest, because there is reason to suppose that the murmur may probably have been congenital. It was detected at an early period of life, and verified by me as a very singular clinical fact when the young man had barely emerged from being a schoolboy. The boy's uncle was a much respected and excellent country practitioner, not far from Edinburgh; and Dr. George Balfour (whose high authority on such subjects is well known to you) was intimately cognisant of the facts of the case almost, if not quite, from the time of my introduction, and until the patient's death, which happened only a few years ago, in his 47th year. There was some doubt, from first to last, as to the precise nature and point of origin of the murmur, but none at all as to its intensity and its rushing or roaring character; significant, it might be supposed, of a great disturbance in the current of the blood. The account I have given of it in detail as in 1861, requires to be qualified by the statement that it was not always exactly the same in its apparent localisation, being sometimes adjudged more like an aortic, sometimes more like a pulmonic, obstructive murmur; but at one time, very many years afterwards, I was able to recognise the facts recorded in 1861 as being still present. This man was twice married, had children by both his wives, and, somewhat to my surprise, managed to get his life insured in two first-class offices, after very full statements of all the facts from the medical point of view. He died certainly not of directly cardiac, but of cerebral, symptoms, which may very well, however, have been secondary to a cardiac lesion. For many years, and certainly up to his second marriage (when I was called upon to make a formal statement about him for the consideration of the insurance offices), he professed to be perfectly well, and to have no cardiac symptoms of any significance whatever. Dr. Balfour writes to me that "he suffered more during the last few years of his life from breathlessness and bronchial attacks, but he never had dropsy, not even oedema of the lower limbs. About a month before his death, he was seized with an epileptic attack while at his place of business; he recovered perfectly, and kept well for a day or two, after which violent and never-ceasing headache set in, and he died somewhat suddenly about a week after his first attack. I looked upon the case as one of embolism, with subsequent softening. His father refused a *post mortem* examination, as he thought his widow would not like it. She told me that, if I had asked herself, I would have got an examination, as her husband made her promise that, if I asked it, I was to have his heart."

CASE V.—The last case is certainly of very peculiar interest—I had almost said of unique interest: but I happen to have seen several, at least two, cases more or less closely resembling it, which, therefore, I will here call Cases V. and VI. In both of these there was reason to suspect that the murmur was congenital, and that it may have been the consequence of a malformation rather than of what is commonly termed valvular disease. In both of them it was detected during the period of childhood or adolescence; and one of these patients has lived into full manhood, and, so far as I know, is in fairly good health now, although, as he is a rather retiring, shy man and never consults me, I have not ventured for many years to ask him about it. This I know, that he shoots over a moor in autumn, and, so far as appears, has no breathlessness or other indication of cardiac trouble. Yet the murmur in this case was, and probably is, not less striking than in Case IV., and of nearly the same kind. It was discovered by my predecessor, Professor Macfarlane, and brought under my notice soon after my becoming professor in Glasgow in 1862. At that time, moreover, the boy was subject to turns of lividity, which inspired some uneasiness at

times, and was also very slightly choreic, to the extent of occasional momentary twitches of the muscles of expression. Of both of these symptoms, so far as I have lately observed, he has nearly, if not quite, got rid. At all events, it may be quite distinctly affirmed that neither of them has ever assumed the proportions of a disease since he grew up.

CASE VI. is that of a young boy still at school, seen with the late Dr. Scott Orr. He can scarcely be hindered from playing cricket and going in for all the sports proper to his age.

CASE VII.—This case is not to be found in my *Clinical Medicine*, but is referred to incidentally, and with all the details necessary, in the article on Angina Pectoris in Reynolds's *System of Medicine* (1st edition, vol. iv, p. 685.) There was evidence (though not of a very precise kind, I admit) of valvular disease leading to hæmoptysis in 1852; and, in 1872, well-marked aortic regurgitation, with all the usual sequelæ, existed, leading to a fatal result about five years afterwards, and therefore nearly a quarter of a century after the first alarm. In the interval, he had been able to carry out several arduous pedestrian tours in Switzerland, and to discharge the ordinary duties of a parish clergyman in a populous place.

CASE VIII.—This is a very remarkable, if not unique, case of tricuspid obstruction, the facts of which, along with the heart, were submitted by me to a numerous attended meeting of the Medicine Section of this Association in London, in 1873. The *post mortem* appearances then demonstrated, and which evidently corresponded with what was recognised during life as "an auricular-systolic murmur over the tricuspid orifice, absolutely uncomplicated and free from the suspicion of mistake" (see *Clin. Med.*, p. 602), were a growth about the size of a small walnut, arising from the endocardium of the right auricle, and so placed as to fall over, in the manner of a ball-valve, into the tricuspid orifice, whenever the flow of blood was towards the ventricle; thus accounting perfectly for a very prolonged murmur, "beginning immediately after the second sound, continuing throughout the pause, and then going on *crescendo* up to the first sound, at which it stops abruptly" (p. 603). These facts were constantly present during a lengthened period of observation; as also a remarkable undulation in the jugular veins, which, indeed, had been the chief fact to attract the patient's attention; otherwise he was wonderfully well, "of firmly-built frame, tolerably active, and neither livid nor dropsical." This man lived for more than five years after these clinical facts were carefully noted, and probably for more than double that period from the commencement of the disease (which may, indeed, even have been congenital, as no accurate data could be obtained about it). He died at about 25 years of age, or more, of acute pneumonia; and it could not be ascertained that this had any very appreciable connection with the cardiac lesion, inasmuch as the heart showed no deformity of any kind, nor was it in any degree abnormal in size or in the proportion of its various cavities.

CASE IX. was submitted by me to the Clinical and Pathological Society of Glasgow (see *Glasgow Medical Journal*, September, 1879, page 224). The interest of the case is chiefly as bearing on the prognosis of that common form of valvular disease, mitral stenosis, and it differed in no essential particular from others, which have led me to the conclusion that, in comparison even with other forms of valvular disease, and especially with the regurgitations, the fatal prognosis of this form of disease has been immensely exaggerated by some considerable authorities. This subject, however, I have no time to deal with adequately at present, and I will only say that, although this lady (Case IX.) suffered more or less all her life, so much that there is at least a fair presumption that the disease may have been congenital; and although the mitral orifice after death was found to be smooth, contracted as from very old lesion, with vegetation, and so small as not to admit the little finger, she had been able to grow up to mature womanhood, had married, had borne a considerable family without accident, and finally had had to encounter a great deal of mental distress from her husband becoming insane, and an inmate of an asylum. She was seen by me for the first time, in a very extreme state of cardiac suffering, and she died soon afterwards. It was only after her death, and the revelation of these facts at the *post mortem* examination, that I was able to learn that her ordinary medical attendant had always been puzzled to account for her symptoms (not hearing any murmur), and had tried to satisfy her that her disease was "nervous," and the heart in reality sound.

CASE X. may be taken as another, bearing somewhat in the same direction, but adduced among many similar cases of mitral stenosis to illustrate the fact that the apparently first symptom, or at least distinctly appreciable symptom, of this lesion, years after it has been in existence, may be a cerebral attack, which, nevertheless, is distinctly and unmistakably related to the cardiac disease through em-

bolism. In this instance the patient was, as the sequel showed, distinctly of a rheumatic constitution, and had passed through several confinements before she was known to be the subject of a cardiac valvular lesion, which was first discovered in hospital, in the course of the investigations in connection with an attack of hemiplegia. The case has been carefully recorded as to the pathological phenomena by Drs. Coats and Middleton, the clinical facts being furnished by myself (see *Glasgow Medical Journal*, April, 1879, pages 258 and 310).

The bearing of such instances as some of those I have submitted to you, on life-assurance, is too obvious to require commentary; and anything like an adequate dealing with so vast a subject is precluded by the limits imposed on me, even were I in a position otherwise to undertake it. I will, therefore, close with a record, in his own words, of three interesting cases communicated to me by Dr. Wallace, of Greenock, Examiner in Surgery in the University of Glasgow, which may, I think, very well stand for a sample of the kind of information that may be expected from senior family practitioners of good standing and large experience, when your Committee begins its operations.

"Mr. R. B., merchant and sugar-refiner, consulted me, about the year 1855, as to whether he was likely to be accepted for life-insurance by any of the leading offices. He came to me as a personal friend, telling me he was afraid there was something wrong with his heart, as he felt a curious pulsation in his neck when he lay down in bed at night. On examination, I found that there was a loud bellows-murmur, synchronous with the systole, and audible at the base and along the aorta and the great vessels in the neck. There was no increase of the impulse, but the vessels at the root of the neck pulsated visibly. He had no discomfort beyond the feeling described. He was otherwise vigorous, and was, besides, active and temperate in his habits. He never had rheumatism. His father, however, was rather a rheumatic subject, and was known to have had disease of the heart when 30 years of age, but was able to lead an active and useful existence for nearly fifty years after, dying, it may be said, of decay of nature, at the age of 85. Mr. R. B. had most probably the valvular affection long before coming to me. Be that as it may, his life was accepted by a good office, which, however, charged the premium for a man twelve years older than the applicant. After this, Mr. R. B. led a busy life, and had a good deal of domestic as well as business trouble. He was, however, always apparently calm and composed, and seldom made any complaint of his lot. So far as I know, he kept in excellent heart till within the last six months. He died about two months ago, at the age of 64. Whether his death was entirely due to the heart affection or not, I cannot say. But a gentleman, whose case I will presently give you, told me to-day that he had been informed R. B. died from the effects of a fall from the top of an omnibus a few weeks previously. R. B. was married.

"The case just referred to is that of P. C., now aged 51. He had an attack of rheumatic fever when 11 years of age, when the heart was touched. He was bred an accountant, and has led a very active life, taking a leading part in local and imperial politics. When 26 years of age, he was examined in London for life-assurance, and was then told by the medical man he had an affection of the heart, but that the constitution would get accommodated to it. He was taken at the ordinary premium. He has twice been under my care for attacks of rheumatic fever, and of great severity. He occasionally complains of rheumatic pains; but, from being up to the best way of warding off the fever, he keeps, on the whole, in good health, and can address large public meetings, night after night, without experiencing any inconvenience or discomfort. He is unmarried, and a strict teetotaler. He allowed me to examine him to-day, when I found the impulse and rhythm normal, and no extension of the præcordial dulness; but there is a mitral regurgitant as well as an aortic onward murmur, both being well marked, and in no way changed from what I found them to be about twenty years ago. The murmurs must have existed now for forty years. His father was drowned at sea. His mother died from myelitis at the age of 77.

"A third case worth noting is that of H. M., a Custom House officer. He is now 55 years of age, and unmarried. He retired with the rank of surveyor, about six months ago. When 11 years of age, he had an attack of rheumatic fever of great severity. When convalescent, he was seen, in consultation with the regular family attendant, by your predecessor, Dr. Macfarlane, who then told Mr. M.'s mother that the boy's heart was affected. He was brought up first in a merchant's office, and then entered the Custom's service as an indoor officer. He has been active and regular in his habits. He has had two severe attacks of rheumatism, for which I attended him; and I know that, when in Hull about twelve years ago, he had also a severe attack. He was, notwithstanding, always able to return to

business, but, when appointed surveyor a few years ago, he found the night-work telling upon him unfavourably. He, therefore, made up his mind to retire, more particularly as the superannuation allowance was nearly as high as he was likely to get. He complains occasionally of rheumatic pains in change of weather, and has at such times some uneasiness in the præcordial region. He manages, however, by taking a run to Buxton now and then, to keep himself in tolerable condition, and he enjoys life fairly well. I examined him on Saturday, and found the state of the heart just as I found it more than twenty-five years ago. There is a blowing sound synchronous with the systole at the base, and along the aorta, and also a blowing sound synchronous with the systole at the apex. The impulse and rhythm are normal, and there is no increase of the præcordial dulness. I may add that his father died from a fever at a comparatively early age, and that his mother is still alive and hale, at the age of 86."

THE DOME-TROCAR AND ASSOCIATED INSTRUMENTS IN PARACENTESIS, ASPIRATION, TRANSFUSION, OVIOTOMY, AND TUNNELLING THE ENLARGED PROSTATE.*

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THE dome-trocar comprises a series of instruments upon which I read a preliminary paper at the International Medical Congress at Philadelphia, in 1876, and which was published in the *Transactions* of that Congress; and I desire now to bring this more fully before the British Medical Association.

The progress of surgery during the past half-century is well illustrated by the achievements of the trocar in detection, diagnosis, and cure of diseases which previously were occult or obscure, and intractable. Fifty years ago, paracentesis was hardly practised, except in cases of fluid distension of the abdomen, bladder, or scrotum, after other means of relief had failed, and then it was a clumsy and unvalued procedure. The old trocar, with triangular point and big head, entered a cavity abruptly, endangering the interior, then the split cannula, pushed onwards over the bulging occiput, would often catch some bit of the three-cornered margin, and fail to go in properly, or, in entering, would tear or split up the edges of the aperture, and, upon being withdrawn, would leave a jagged punctured wound, indisposed to heal.

But, now, paracentesis is called upon both to detect and treat some of the most serious diseases to which the body is liable; such as hydrothorax and empyema, hydropericardium, septic deposits in the abdomen, intrapelvic and lumbar abscesses, intractable retention of urine, hydatids and abscesses of the liver and kidneys, strangulated hernia, hurtful effusions within or about the joints, hydrocephalus, and spina bifida; and the surgical management of these diseases is more critical, in consequence of the sensitive and vital character of the organs and textures involved, as the lungs, the heart, the abdominal viscera, the pelvic organs, the great joints, the spinal cord, the brain. In dealing with such diseases, in such parts, none of the instruments now in use are equal to what is required of them. Paracentesis now, with or without aspiration, with or without injection, is commonly done either with a single tubular trocar, having an unsheathed point dangerous to the interior of the cavity entered, or with a trocar, solid or tubular, guarded by an outer cannula, difficult of insertion, and, when inserted, only comparatively less dangerous than the point itself.

What, then, would be a perfect trocar? How far have recent improvements brought it towards perfection? What further changes are required to realise the ideal instrument?

The perfect trocar should be (1) easy of insertion, the point entering by incision rather than puncture, and having a guard following with certainty, without catching or dragging the margin of the aperture; (2) harmless when inserted, so that it shall not injure the interior of the cavity or adjacent parts; (3) safe as a probe or sound for internal exploration; (4) adaptable to every form of exhausting and injecting apparatus; (5) competent to give uninterrupted exit and entrance to fluids; (6) certain to leave a simple incised wound ready to heal.

Appreciation of paracentesis and improvements in the trocar seem to have commenced in 1850, when Sir James Simpson reduced the large head of the trocar to the same circumference as the shaft, so that it should stretch the orifice less; and as the cannula could then be advanced without spreading, he omitted the split in the end, and published his employment of a long slender trocar of this kind, with

* Read in the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association at Brighton.