much of him, can tell so fully of what he was; can so perpetuate him in the vast store of facts, in the purpose for which they are set forth, in the illustration of principles, in the suggestion of truths beyond those it can show, above those it can reach; in all this, I say, no memorial, however majestic, can rival our Museum. The foundation of this with his own hand and his whole heart he laid; it has grown and still is growing from his strength, and it must be made for ever worthy of his name.

ABSTRACTS OF THE ERASMUS WILSON LECTURES ON EVOLUTION IN PATHOLOGY.

Delivered at the Royal College of Surgeons of England, January and February, 1887.

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LECTURE III.—ATAVISM.

Definition of Atavism.—By atavism is understood a tendency in the offspring to resemble its grandparents or remote ancestors, rather than its parents. The lecturer thought that few competent to form an opinion would deny that, in the embryological history of an animal, we read a brief epitome of its ancestry—in fact, its evolution. This being so, atavistic phenomena, in so far as they concerned anatomical details, fell under three headings: 1, persistent foetal conditions; 2, the attainment of a functional condition by structures usually suppressed in the course of development in a particular animal; 3, malformations, or spurious atavism.

1. *Persistent Foetal Conditions.*—Under this heading might be included the various forms of cleft palate. In fish, the nasal and oral chambers of man were represented by a common cavity. In birds and lizards, the division was only partial, the roof of the mouth being cleft posteriorly; in young kangaroos, the uvula remained for a long time bifid. The funicular pouch of the peritoneum which preceded the descent of the testicle was another instance. In the human subject, it was no uncommon event for the funicular process to remain unclosed, on one side or the other, for a long period after birth, or even to persist unclosed throughout the lifetime of an individual; in the very many species of mammals dissected by the lecturer, he had never yet found one with the process shut from the peritoneal cavity. In some cases, the recess would be very shallow, and admit the thumb; in others, long and slender, and only allowing of the passage of a probe. Reference was also made to the researches of His on the mode of development of the pinna from six tubercles budding from the margins of the first two clefts. The facts were used to illustrate and explain the mode of origin of branchial fistulae in the external ears and congenital foramina in the lobules, as well as to explain the mode by which supernumerary auricles arose in connection with malformed pinnae, and additional auricles in the neck.

2. *The attainment of a Functional Condition by Structures normally suppressed.*—This form was illustrated by reference to the case of the os centrale, described in the first lecture, and used throughout as the type of suppression. In the foetus, this element of the carpus was represented by a nodule of cartilage, which usually undergoes suppression during embryonic life. Occasionally, however, it grows, attains functional proportions, and takes rank with the normal carpal ossicles. One of the purest examples of this process was furnished by a lobster. Notwithstanding the extraordinary differences in the various appendages, the swimmerets, chelae, antennae, and eyestalks must be regarded as modifications of a common type. This was illustrated in a striking manner in a rock lobster, described by A. Milne-Edwards. On one side there sprouted from the centre of the cornea an antenna. Such cases as this had a parallel in man and mammals. A great number of cases had been recorded where a growth of wool, hair, etc., had sprouted from a piece of skin on the conjunctiva. Developmentally, the conjunctiva must be regarded as modified integument, hence these cases were examples of reversion.

3. *Spurious Atavism.*—Twenty years ago, anyone dealing with questions of this nature, and considering them as reversions to lower or ancestral types, would have been regarded in an unfavourable light. At the present time, there was a danger of running to the opposite extreme, for it was customary, when an abnormality presented itself, to find a corresponding condition in a lower form, and then to declare it to be a reversion. A good illustration of this was

furnished by the so-called congenital contraction of the stomach. Why this was termed "congenital" it was difficult to understand, for no one who had described examples of this malformation had found it in a foetus or young individual. In the various type-cases described in the lectures, the atavistic characters were either persistent foetal conditions, or repetitions of adult features in some closely-allied form. The contracted stomach was in no sense a persistent foetal character, for at no stage did it in the human subject present a division as indicated in these specimens, and for a similar stomach we should be obliged to descend to the specialised viscus of the ruminant. The phylogeny and ontogeny of the stomach were eloquent in proving that it was as unscientific as it was unreasonable and illogical to regard a contracted stomach as a reversion. It was necessary to be careful to avoid confusing physiological types with reversions. A naevus was histologically like the comb of a cock; but to regard a naevus over the anterior fontanelle of a child as a reversion to a cock's-comb would obviously be absurd. It was necessary to bear in mind that reversions were repeated forms which were not palaeontologically remote, or systematically far distant; for, in the majority of instances, the parts last to be suppressed were those most frequently atavistic. The difficulty of deciding between reversions and malformations was illustrated by those large hairy moles, which occasionally cover a large part of the body, and the hairy patches seen in spina bifida occulta. The former the lecturer regarded as due to the persistence and subsequent growth of the ladugo, this being truly atavistic; the latter was the result of irritation of the cord and nerves in the immediate neighbourhood of the spina bifida. The similarity of this to the tuft on the head of the Polish fowl, and the underlying encephalocele, as pointed out by Virchow, was referred to.

Polydactylism.—This was briefly considered, and the chief characters of the condition indicated. It was pointed out that supernumerary fingers and toes, except in a few instances, were not to be regarded as atavistic, but examples of a tendency inherent in all kinds of axes, whether of limbs, tails, or vertebral column to bifurcate, not only in man, but in all vertebrata, even the lowest.

In concluding the course, the lecturer pointed out that at the present time, when a description of the histology of a morbid structure appears to mark the finality of pathology in the minds of many, this branch of medical science ran a chance of being hampered by a wealth of details. Efforts should be made to trace out general laws whereby the accumulation could be regulated. For this purpose Comparative Pathology, studied from the stand-point of Evolution, offered every inducement to those who had the time, opportunity, or inclination to prosecute its study.

SUBSTANCE OF SOME REMARKS CONCERNING CASES OF VALVULAR DISEASE OF THE HEART, KNOWN TO HAVE EXISTED FOR OVER FIVE YEARS WITHOUT CAUSING SERIOUS SYMPTOMS.¹

By SIR ANDREW CLARK, BART., M.D., LL.D., F.R.S.,
One of the Teachers of Clinical Medicine at the London Hospital.

[Concluded from page 327.]

SUCH, then, are the facts which I have selected for the illustration of our subject; and now arise the questions which give interest and importance to those facts, which call for further study, and which require of us that they shall be put forth to use and increase. What inferences can we draw from them? To what uses can we apply them? In what ways can we turn them to account in resolving some of the difficulties inseparable from the prognosis and the treatment of heart-disease? What was there in the histories, the habits, the occupations, the environments, the general conditions, of those six hundred persons with diseased hearts, which exempted them from the secondary consequences of valvular lesions? Can we discover the *differentia* between those who suffer and die and those who do not suffer and live? And, if we can discover them, how shall we employ them, that those who are still well shall be preserved in health, and that those who have begun to suffer shall be relieved?

Hitherto I have been dealing with facts; now I must content myself with impressions. But then they are clinical impressions, which have passed through the ordeal of a long and varied experience, which have been subjected to the limitations, corrections, and qualifications of enlarging knowledge and increasing critical discernment, which in process of time are transfigured into maxims, and which become at last, for most of us, our trustiest guides in difficult circumstances.

¹ Read in the Section of Medicine at the Annual Meeting of the British Medical Association at Brighton.

But neither the occasion nor the circumstances will permit me to enter upon any systematic and critical examination of the questions emerging from our present inquiry. All that it is possible, with any just prospects of advantage, to submit to your consideration, is a narrow and general statement of the impressions and conclusions which I have collected from a study of the cases tabulated or related for the purpose of our discussion.

Now, for the most part, it could be said of those persons who, having valvular heart-disease, were engaged in the ordinary business of life, and doing well therein, that they had average general health; that they were in even circumstances; that they were moderately careful livers; that they had sound ventricles and vessels with a quiet regular circulation; that a fair volume of blood passed through the smaller arteries; that there were no secondary congestions; and that there was no special liability to catarrhal or to rheumatic affections.

But there were some considerable and curious exceptions to this statement, and they were met with exclusively among cases of mitral regurgitation. In these cases, although no complaint was made against the heart, nor of any symptom directly arising from its disturbance, there was extreme cardiac irregularity, and the subjects of it were nervous and always ailing persons. One of these cases, a lady, still living, and seen on more than one occasion by Dr. Wilks and Dr. Wilson Fox, has been under my observation for nearly thirty years. I examined her a few months ago, when she had entered the eighty-fifth year of her age. Her only complaints were want of appetite, general pains, and weakness. The heart was extremely irregular in time, force, and rhythm; there was a loud but varying mitral systolic murmur; and the impulse of the heart against the chest was weak and diffused. But the arteries were sound; the cervical veins were free; there were no secondary congestions; the urine was of normal constitution; the feet never swelled; and, except for the symptoms complained of, the patient was well. Even of those symptoms, it may be said, with the strictest accuracy, that they were neither better nor worse than they had been for ten years before.

Another case of this kind occurred in a gentleman of great mental activity, and closely occupied with engineering works of the highest importance. I first examined him over twenty years ago, and at that time his condition closely resembled the condition of the lady whose case I have just related. He was a very careful and regular liver, but took little or no physical exercise. Seven years ago, he began to have "palpitation storms," which recurred at irregular intervals of three or four months, which begat no obvious evil consequences, and which, to the last, left the kidneys, liver, and lungs free from abiding change. He died recently, in his eighty-third year, of an acute gastro-enteric catarrh.

A moderately careful study of the histories of the cases which I have tabulated makes it plain that there are some conditions which favour, and some which disfavour, continued exemption from the secondary consequences of valvular lesions of hearts.

Among the circumstances which favour exemption from the secondary consequences of valvular lesions, I mention a rational obedience to the laws of health, the following of a simple, regular, occupied, and moderately active life, early hours, a tranquil mind, a disciplined control of the emotions and the will; regular, but neither too frequent nor too full, supplies of fresh nourishing food; extreme moderation in the use of tea, coffee and alcoholic beverages; the temperate use of liquids of every kind, avoidance of sudden and violent forms of exertion, of hurry and worry, of prolonged tension of mind, and of serious and depressing cares or fears. It is true that many of these conditions are beyond human control, and that, together, they frame an ideal of life to which few can attain. But it is not less true that serious endeavour, if unhindered by physical self-consciousness and self-distrust, may accomplish them in a measure sufficient to strengthen the whole nature, and to get from them all the good that they can give.

The circumstances or conditions which disfavour exemption from the consequences of valvular lesions are numerous and easy to be understood. Some act directly upon the heart, others act through a related physiological system, many act through the state of the general health, and all of them capable of exercising an adverse influence upon this organ, when once in action, seldom cease to act. Chief among the disfavouring circumstances, I specify irregularity of life, excesses and irregularities of eating and drinking, the too generous use of alcoholic beverages, the intemperate use of liquids in themselves harmless, the abuse of tea, coffee, and tobacco, excessive and insufficient exercise, anxious introspection and self-distrust, undisciplined emotions, prolonged and serious cares, inattention to the excretory functions of the body, and a sedentary, self-indulgent life.

To many persons—perhaps even to some in this assembly—these

statements and suggestions may seem too trite or too trivial to call for radical consideration and discussion. But to me at least it seems otherwise; for when I reflect that there are conditions of health; that it is in long-continued petty violations of them that chronic troubles take root; that it is the little eatings and drinkings and doings of the ever-recurring daily life, which, after their kind, make for health or disease; and that eventually it is at least quite as much through the skilful management of hygiene as through the skilful management of drugs that disorders are overcome and health established;—I confess that these small statements assume a great importance. To eat and drink and do what you desire, so long as no sensible inconvenience follows the indulgence, is a very pleasant and a very popular prescription; but, if I can read aright my experience of medicine and of life, there is no prescription fraught with greater or with surer peril. The true and lasting effects of errors in habits, and in the uses of food and of alcohol, seldom become manifest until long after those errors have been begun. It often happens, indeed, not only that there is nothing in your feelings to make you aware that you are taking too much or doing what is wrong, but that there is something in your feelings which makes you believe that your health is becoming exceptionally good. Look at some young and generous liver, who eats to the limits of his appetite, and drinks to the fulness of his desire. In his well-nourished body, in his rosy face, in his animated expression, in his vivacious manners, in his rampant spirits, in his hardy habits, in his unceasing activities, and in his scorn of what *he* calls excess, you seem to see the embodiment of the health and strength of which, sometimes smiting his breast, he will proudly boast. But, if you will wait and watch, you will find, before fifty comes upon him, that in a crippled heart, or in thickening arteries, or in a shrinking kidney, or in an indurating liver, he is already paying the price of pleasures which he knew not were forbidden. How was he to know that they were forbidden? Not by nature; for his sensations, his feelings, his desires all misled him. How then? Why, only by the carefully-collected empirical experience of medicine, which can accommodate the law of the race to the individual who in some measure traverses it, and which can guide him in safety through difficulties which neither personal experience nor personal reflection can fully solve.

And now, turning to another side of our subject, let me ask concerning a given case of valvular heart lesion; say, for example, a case of mitral regurgitant disease;—What are the conditions which, assuming on the part of the patient, obedience to properly adjusted rules of health, would justify us in permitting him to continue the ordinary duties and enjoyments of life, in sustaining an application for life assurance, in sanctioning marriage, and in speaking favourably of his prospects of longevity. Well, according to my experience and judgment these conditions are as follow:

- a. Good general health.
- b. Just habits of living.
- c. No exceptional liability to rheumatic or to catarrhal affection.
- d. Origin of the valvular lesion independently of degeneration.
- e. Existence of the valvular lesion without change for over three years.
- f. Sound ventricles of moderate frequency and general regularity in action.
- g. Sound arteries with a normal amount of blood and tension in the smaller vessels.
- h. Free course of blood through the cervical veins.
- i. Freedom from pulmonary, hepatic, and renal congestion.

Here it must be said, as a matter of course, that the conditions of a favourable prognosis would differ for different valves, and for each valve according to the character of the lesion. A comparatively small "loading" might justify assurance in a favourable case of mitral regurgitant disease, whilst no "loading," however heavy, for a time however short, would warrant acceptance of a case of regurgitant disease of the aortic valves. If in the former case the risks to be incurred were to be reckoned as one, then in the latter case the risks to be incurred would have to be reckoned as a thousand. The person with aortic, might possibly live as long as the person with mitral disease; but there would be such small security for the transaction that, considering the possibilities of disaster, it could not be regarded as other than a reckless speculation.

But now I must no longer encroach upon your patience and time. Several distinguished physicians are to follow me; and from their collective experience as well as from their critical judgments, you will hear much that I am unable to tell you, much that all of us need to know, and much that will crown with authority, whatever may be the just results of this interesting and important discussion.

Let me conclude with the following propositions, in which are
(Continued on page 379.)

Cases of Valvular Lesions of Heart, without definite Cardiac Symptoms. Sir Andrew Clark's Case-Books, Series II (1873 to 1886).

No.	Case Bk. Series 2.	Age.	Sex.	State.	Valvular Lesion.					Probable Cause.	Duration in Years.		Habits of Life.	General Health.	Disease for which Relief was Sought.		
					Mitral.		Aortic.				Unknown.	Known.					
					Direct.	Regurg.	Double.	Direct.	Regurg.	Double.							
1	1	41	56	—	—	—	—	—	—	n	?	—	13	Temperate	Good	Pharyngeal catarrh.	
2	1	51	33	—	—	—	—	—	—	nn	?	—	13	Fair	Fair	Headache.	
3	1	53	38	—	—	—	—	—	—	n	Rheumatic fever	—	10	?	Nervous	Nervousness.	
4	1	93	42	—	—	—	—	—	—	nn	?	—	—	?	Poor	Disease of left lung.	
5	1	97	33	—	—	—	—	—	—	—	?	—	—	?	Fair	Gastric catarrh.	
6	1	107	27	—	—	—	—	—	—	nn	?	—	—	Temperate	Poor	Nervousness.	
7	1	112	48	—	—	—	—	—	—	—	?	—	—	Free	Fair	Dyspepsia.	
8	1	123	42	—	—	—	—	—	—	—	?	—	—	Temperate	Poor	Nervousness.	
9	1	133	20	41	—	—	—	—	—	n	?	—	—	?	Fair	Nervousness.	
10	1	246	42	—	—	—	—	—	—	—	?	—	—	Regular	Fair	Dyspepsia.	
11	1	333	21	42	—	—	—	—	—	—	?	—	—	Generous	Fair	Dyspepsia.	
12	1	351	19	—	—	—	—	—	—	—	?	—	—	?	Poor	Nervousness.	
13	1	352	17	—	—	—	—	—	—	nn	Rheumatic fever	—	6	Temperate	Fair	Embolism of arteria centralis retinae.	
14	1	364	20	—	—	—	—	—	—	n	?	—	7	?	Poor	Dyspepsia.	
15	1	370	58	—	—	—	—	—	—	—	?	—	20	?	Fair	Debility.	
16	1	377	58	—	—	—	—	—	—	nn	Gouty state	—	—	Moderate	Fair	Embolism of arteria centralis retinae.	
17	1	405	67	—	—	—	—	—	—	nn	?	—	—	?	?	Dyspepsia.	
18	1	457	—	91n	—	—	—	—	—	—	?	—	—	?	Fair	Lumbago.	
19	1	473	35	—	—	—	—	—	—	—	?	—	—	Temperate	Ailing	Chronic rheumatism.	
20	1	477	40	—	—	—	—	—	—	—	?	—	10	Moderate	Fair	Dyspepsia.	
21	1	502	21	—	—	—	—	—	—	—	?	—	—	Temperate (careful)	Poor	Neuralgia.	
22	2	81	31	—	—	—	—	—	—	—	?	—	—	Temperate	Fair	Ulcer of stomach.	
23	2	109	42	—	—	—	—	—	—	—	?	—	6	Careful	Poor	Dyspepsia.	
24	2	131	61	—	—	—	—	—	—	n	Arthritis	—	11	Generous	Fair	Dyspepsia.	
25	2	153	52	—	—	—	—	—	—	—	?	—	—	Moderate	"	Gouty state.	
26	2	173	74	—	—	—	—	—	—	n	?	—	12	Generous	Poor	Indigestion.	
27	2	191	28	?	?	?	?	?	?	—	?	—	—	Always eating	Fair	Gastro-hepatic catarrh.	
28	2	237	?	?	?	?	?	?	?	—	?	—	—	Generous	Fair	Acne.	
29	2	263	17	—	—	—	—	—	—	—	?	—	—	Careful	Good	Dyspepsia.	
30	2	275	43	—	—	—	—	—	—	—	?	—	—	?	Poor	Eczema.	
31	2	329	60	—	—	—	—	—	—	—	?	—	5	?	Fair	Dyspepsia.	
32	2	348	61	—	—	—	—	—	—	—	?	—	7	?	Poor	Dyspepsia.	
33	2	357	36	—	—	—	—	—	—	—	Rheumatic fever	—	8	Careful	Fair	Dyspepsia.	
34	2	439	54	—	—	—	—	—	—	n	?	—	—	?	Ailing	"	
35	2	478	32	—	—	—	—	—	—	—	?	—	—	?	Fair	"	
36	2	508	19	—	—	—	—	—	—	—	?	—	—	?	?	"	
37	3	47	30	—	—	—	—	—	—	—	Typhoid fever	—	6	?	Poor	"	
38	3	49	45	—	—	—	—	—	—	—	?	—	12	Moderate	"	"	
39	3	107	36	—	—	—	—	—	—	nn	?	—	8	?	Fair	Gouty state.	
40	3	131	47	—	—	—	—	—	—	—	?	—	—	?	Fair	Lumbago.	
41	3	169	32	—	—	—	—	—	—	n	Rheumatism	—	8	Generous	Poor	Rheumatism.	
42	3	174	54	—	—	—	—	—	—	—	?	—	6	Moderate	Delicate	Dyspepsia.	
43	3	217	31	—	—	—	—	—	—	n	?	—	—	?	Fair	"	
44	3	224	28	—	—	—	—	—	—	—	?	—	8	Generous	Poor	Colonic disease.	
45	3	265	60	—	—	—	—	—	—	—	?	—	11	?	Fair	Dyspepsia.	
46	3	309	50	—	—	—	—	—	—	n	Rheumatic fever	—	28	Moderate	"	"	
47	3	339	58	—	—	—	—	—	—	nn	?	—	13	?	Poor	Nervousness.	
48	3	355	63	—	—	—	—	—	—	—	?	—	9	Careful	Fair	Dyspepsia.	
49	3	356	17	—	—	—	—	—	—	—	?	—	10	Moderate	Fair	Nervousness.	
50	3	458	32	—	—	—	—	—	—	n	?	—	14	?	Fair	Dyspepsia.	
51	3	456	51	—	—	—	—	—	—	—	?	—	9	?	"	"	
52	3	477	38	—	—	—	—	—	—	nn	?	—	8	Careful	"	Anæmia.	
53	3	487	15	—	—	—	—	—	—	—	Gout	—	—	Generous	"	Gouty state.	
54	3	491	63	—	—	—	—	—	—	n	?	—	12	Temperate	"	Dyspepsia.	
55	3	497	32	—	—	—	—	—	—	n	?	—	12	Generous	"	Locomotor ataxy.*	
56	4	6	43	—	—	—	—	—	—	—	?	—	—	?	"	"	"
57	4	21	19	—	—	—	—	—	—	—	?	—	—	?	"	"	"
58	4	35	37	—	—	—	—	—	—	—	?	—	—	?	"	"	"
59	4	41	63	—	—	—	—	—	—	nn	Gouty state	—	10	Generous	"	Gastric catarrh.	
60	4	63	23	—	—	—	—	—	—	n	?	—	12	Careful	"	Dyspepsia.	
61	4	95	58	—	—	—	—	—	—	n	Gouty state	—	10	Generous	"	Gouty state.	
62	4	99	54	—	—	—	—	—	—	—	?	—	—	?	"	"	Gastro-hepatic catarrh.
63	4	157	52	—	—	—	—	—	—	n	Rheumatism	—	9	?	"	"	"
64	4	163	42	—	—	—	—	—	—	—	?	—	8	?	Poor	Gastric catarrh.	
65	4	213	44	—	—	—	—	—	—	n	?	—	—	?	Fair	Dyspepsia.	
66	4	223	61	—	—	—	—	—	—	—	?	—	—	?	"	"	"
67	4	343	32	—	—	—	—	—	—	nn	?	—	8	Generous	"	"	"
68	4	347	65	—	—	—	—	—	—	n	?	—	13	?	"	Gouty state.*	
69	4	377	51	—	—	—	—	—	—	n	?	—	—	?	"	Dyspepsia.	
70	4	397	50	—	—	—	—	—	—	n	?	—	—	?	Good	Neuralgia.	
71	4	465	27	—	—	—	—	—	—	n	?	—	11	Generous	Delicate	Dyspepsia.	
72	4	467	57	—	—	—	—	—	—	n	?	—	—	?	Good	"	"
73	4	479	38	—	—	—	—	—	—	n	Rheumatism	—	—	Moderate	Fair	Rheumatism.	
74	4	505	61	—	—	—	—	—	—	nn	?	—	9	Generous	"	Dyspepsia.	
75	5	1	53	—	—	—	—	—	—	n	?	—	—	?	"	Acne.	
76	5	19	37	—	—	—	—	—	—	nn	?	—	8	?	"	Dyspepsia.	
77	5	39	40	—	—	—	—	—	—	nn	?	—	6	?	"	Perityphilitis.	
78	5	165	?	?	?	?	?	?	?	—	?	—	—	?	?	"	Rheumatism.
79	5	107	31	—	—	—	—	—	—	n	?	—	6	?	Fair	Dyspepsia.	
80	5	171	33	—	—	—	—	—	—	nn	?	—	10	Careful	Fair	Neuralgia.	
81	5	199	53	—	—	—	—	—	—	n	?	—	17	Generous	Nervous	Dyspepsia.	
82	5	219	56	—	—	—	—	—	—	—	?	—	—	?	Fair	"	"
83	5	269	58	—	—	—	—	—	—	n	Rheumatism	—	10	?	"	Nerve troubles.	
84	5	371	48	—	—	—	—	—	—	nn	?	—	—	?	"	Influenza.	
85	5	387	45	—	—	—	—	—	—	n	?	—	8	?	"	Cerebral disease.	
86	5	401	45	—	—	—	—	—	—	n	?	—	—	Generous	"	Dyspepsia.	
87	5	479	42	—	—	—	—	—	—	n	?	—	10	?	"	"	"

Note.—One n indicates murmur of moderate intensity. Two nn means very loud. A line connecting one column with another means that the sounds indicated concur.

No.	Case Bk. Series 2.	Age.	Sex.	State.	Valvular Lesion.						Probable Cause.	Duration in Years.		Habits of Life.	General Health.	Disease for which Relief was Sought.						
					Mitral.			Aortic.				Unknown.	Known.									
					Direct.	Regurg.	Double.	Direct.	Regurg.	Double.												
Volume.	Page.	1-20	20-40	40-60	60-80	80-100	Male.	Female.	Married.	Single.	Married.	Direct.	Regurg.	Double.	Direct.	Regurg.	Double.	Unknown.	Known.	Habits of Life.	General Health.	Disease for which Relief was Sought.
88	6	153	—	51	—	—	M	?	?	?	—	nn	—	—	—	—	—	—	12	Generous	Fair	Renal calculus.
89	6	255	—	60	—	—	M	?	?	?	—	n	—	—	—	—	—	—	6	"	"	Hepatic catarrh.
90	6	329	—	67	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	Careful	"	Diarrhoea.
91	7	54	35	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
92	7	90	28	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
93	7	132	38	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
94	7	152	50	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
95	7	262	68	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	Generous	Fair	Colonial dyspepsia.
96	7	270	17	—	—	—	M	F	S	M	—	nn	—	—	—	—	—	—	—	"	"	Dyspepsia.
97	7	284	39	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
98	7	300	34	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Dyspepsia.
99	7	328	18	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
100	7	356	19	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	Careful	Fair	Cephalalgia.
101	7	362	32	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
102	7	390	34	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
103	7	414	17	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Rheumatism.
104	7	514	45	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Cephalalgia.
105	8	138	49	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
106	8	144	65	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	"
107	8	188	52	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
108	8	198	30	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	"
109	8	208	69	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Neuralgia.
110	8	236	70	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	Generous	Fair	Dyspepsia.
111	8	296	47	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	"
112	8	342	58	—	—	—	M	F	S	M	—	nn	—	—	—	—	—	—	—	"	"	"
113	8	391	?	?	?	?	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Debility.
114	8	401	33	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Dyspepsia.
115	8	457	29	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
116	8	473	36	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Melancholia.
117	8	491	41	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
118	8	497	53	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
119	8	505	45	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Nervousness.
120	9	4	30	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	"
121	9	10	54	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
122	9	31	40	—	—	—	M	F	S	M	—	nn	—	—	—	—	—	—	—	"	"	Dyspepsia.
123	9	104	52	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Neuralgia.
124	9	144	18	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	Generous	"	Irregular catarrh.
125	9	410	40	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Nervousness.
126	9	464	63	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
127	9	509	24	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
128	10	18	54	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Phthisis.
129	10	42	50	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Diarrhoea.
130	10	80	46	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
131	10	130	54	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Constipation.
132	10	162	62	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
133	10	176	38	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Vertigo.
134	10	182	60	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	"
135	10	287	25	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Malaria.
136	10	295	48	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Dyspepsia.
137	10	299	29	—	—	—	M	F	S	M	—	nn	—	—	—	—	—	—	—	"	"	Bronchial catarrh.
138	10	321	58	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Dyspepsia.
139	10	361	35	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
140	10	363	11	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
141	10	379	14	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
142	10	431	42	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Bronchial catarrh.
143	10	493	29	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Albuminuria.
144	11	18	30	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Cephalalgia.
145	11	64	52	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
146	11	133	65	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Gall-stones.
147	11	170	72	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
148	11	181	18	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
149	11	214	40	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Bronchial catarrh.
150	11	228	60	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
151	11	283	42	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	"
152	11	316	37	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Gout.
153	11	321	24	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
154	11	334	66	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
155	11	335	46	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Rheumatism.
156	11	352	—	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
157	11	359	49	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
158	11	381	57	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Dyspepsia.
159	11	397	64	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Gall-stones.
160	11	425	21	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Eczema.
161	11	456	26	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
162	11	465	58	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Bronchial catarrh.
163	11	471	39	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Vertigo.
164	11	479	30	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Neuralgia.
165	11	483	30	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
166	11	489	23	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Epilepsy.
167	13	8	32	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"
168	13	75	30	—	—	—	M	F	S	M	—	n	—	—	—	—	—	—	—	"	"	Pulmonary congestion.
169	13	123	38	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	Dyspepsia.
170	13	163	53	—	—	—	M	F	S	M	—	—	—	—	—	—	—	—	—	"	"	"</

Note.—One n indicates murmur of moderate intensity. Two nn means very loud. A line connecting one column with another means that the sounds indicated concur.

No.	Case Bk. Series 2.		Age.					Sex.	State.	Valvular Lesion.						Probable Cause.	Duration in Years.			Habits of Life.	General Health.	Disease for which Relief was Sought.		
	Volume.	Page.								Mitral.			Aortic.				Unknown.	Known.						
			1-20	20-40	40-60	60-80	80-100			Direct.	Regurg.	Double.	Direct.	Regurg.	Double.			Probable.						
177.	13	413	25					M	F	S				nn				?	7		Careful	Fair	Dyspepsia.	
178.	13	419	32					F	F	S								?			Generous	"	Rheumatism.	
179.	13	455	29					F	F	S				n				?	6		Careful	"	Urticaria.	
181.	13	467	56					M	F	S				nn				?	Several years		"	"	Sclerosis.	
182.	13	501	25					M	F	S				n				?	8		"	"	Enteric catarrh.	
183.	14	140	68					F	F	S				n				?			Generous	"	Erysipelas.	
184.	14	191	34					F	F	S				n				?	6		"	"	Dyspepsia.	
185.	14	209	60					M	F	S				n				?	10		Generous	"	Gouty state.	
186.	14	257	33					M	F	S				n				?	8		"	"	Pulmonary congestion.	
187.	14	309	39					M	F	S				n				?			"	"	Dyspepsia.	
188.	14	345	55					F	F	S				n				?			Careful	"	"	
189.	14	393	14					M	F	S				n				?			"	"	"	
190.	14	477	46					F	F	S				n				?			Careful	"	Enteric catarrh.	
191.	14	491	32					M	F	S				n				?	9		"	Delicate	Nervousness.	
192.	15	63	42					M	F	S				n				?	Several years		Temperate	Fair	Headaches.	
193.	15	229	62					F	F	S				n				?			Delicate	"	Nervousness.	
194.	15	253	45					F	F	S				n				?			"	"	Rheumatism.	
195.	15	261	58					M	F	S				n				?			"	"	Bad	
196.	15	287	30					M	F	S				n				?	10		"	Fair	Liver congestion.	
197.	15	445	48					M	F	S				n				?	7		Generous	Poor	Headaches.	
198.	15	459	68					F	F	S				n				?			"	Fair	Lithiasis.	
199.	15	463	50					M	F	S				nn				?	6		"	"	Headaches.	
200.	15	471	23					F	F	S				n				?			"	"	Bronchitis.	
201.	15	488	57					M	F	S				n				?			"	"	Dysmenorrhoea.	
202.	15	509	40					M	F	S				n				?	8		Temperate	"	"	
203.	15	514	67					F	F	S				n				?	Several years		"	"	Dyspepsia.	
204.	16	1	58					M	F	S				n				?	10		Careful	"	Melancholia.	
205.	16	45	38					M	F	S				n				?			"	"	Bronchial catarrh.	
206.	16	62	56					F	F	S				nn				?	7		Generous	"	Dyspepsia.	
207.	16	82	38					F	F	S				nn				?	Several years		Careful	"	"	
208.	16	98	31					M	F	S				n				?			"	Delicate	Chill.	
209.	16	109	36					M	F	S				n				?	8		"	Fair	Neuralgia.	
210.	16	135	37					F	F	S				n				?	11		Temperate	"	Nervousness.	
211.	16	154	45					F	F	S				n				?			Generous	"	Erysipelas.	
212.	16	167	57					F	F	S				n				?	6		Temperate	"	Gouty dyspepsia.	
213.	16	187	41					M	F	S				n				?	Several years		"	Poor	Melancholia.	
214.	16	289	51					F	F	S				n				?			"	Fair	Dyspepsia.	
215.	16	301	66					M	F	S				n				?	6		Generous	"	Headaches.	
216.	16	377	68					M	F	S				n				?			Temperate	"	Bronchial catarrh.	
217.	16	391	68					F	F	S				n				?	Several years		"	"	Melancholia.	
218.	16	414	30					M	F	S				nn				?			"	"	Nervousness.	
219.	16	431	16					F	F	S				n				?			"	Delicate	Otitis.	
220.	16	437	31					M	F	S				n				?			"	"	Nervousness.	
221.	16	467	33					M	F	S				n				?	Several years		Generous	Good	Constipation.	
222.	16	501	30					M	F	S				n				?			"	Fair	Dyspepsia.	
223.	17	11	30					F	F	S				n				?	10		Generous	"	Neuralgia.	
224.	17	15	48					F	F	S				n				?			"	"	Gout.	
225.	17	66	60					F	F	S				n				?	Several years		"	"	Headaches.	
226.	17	67	44					M	F	S				n				?	11		Generous	"	Renal calculus.	
227.	17	69	35					M	F	S				n				?	Several years		"	"	Dyspepsia.	
228.	17	75	30					M	F	S				n				?			Abstemious	"	Nervousness.	
229.	17	85	28					F	F	S				n				?	Several years		Careful	Good	Headaches.	
230.	17	87	37					F	F	S				n				?			"	Fair	Eczema.	
231.	17	142	50					F	F	S				n				?	Several years		"	"	Dyspepsia.	
232.	17	154	20					F	F	S				n				?			"	"	Gastric ulcer.	
233.	17	168	53					M	F	S				n				?			Generous	"	Dyspepsia.	
234.	17	196	54					M	F	S				n				?			"	Poor	Spinal sclerosis.	
235.	17	217	38					M	F	S				n				?			Moderate	Fair	Dyspepsia.	
236.	17	226	32					M	F	S				n				?			"	"	Melancholia.	
237.	17	234	33					F	F	S				n				?			Careful	"	Dyspepsia.	
238.	17	277	43					F	F	S				n				?	Several years		"	"	Migraine.	
239.	17	333	37					M	F	S				n				?			Careless	Bad	Dyspepsia.	
240.	17	335	38					F	F	S				n				?			Careful	Delicate	Enteric catarrh.	
241.	17	342	73					F	F	S				n				?			"	Fair	Bronchial catarrh.	
242.	17	428	57					F	F	S				n				?			"	"	Headaches.	
243.	17	442	22					F	F	S				n				?			"	Poor	Dyspepsia.	
244.	18	5	16					F	F	S				n				?			"	Good	Eczema.	
245.	18	139	42					F	F	S				n				?			"	"	Vertigo.	
246.	18	171	28					M	F	S				n				?	Several years		Generous	Fair	Cephalalgia.	
247.	18	329	60					M	F	S				n				?	10		"	"	Dyspepsia.	
248.	18	421	52					F	F	S				n				?	Several years		"	"	Neuralgia.	
249.	18	422	32					F	F	S				n				?			"	"	Rheumatism.	
250.	18	474	57					F	F	S				n				?			"	"	Dyspepsia.	
251.	18	505	33					M	F	S				n				?			"	"	Melancholia.	
252.	19	67	21					F	F	S				n				?	Many years		"	Poor	Dyspepsia.	
253.	19	123	40					M	F	S				n				?	Some years		Moderate	Fair	"	
254.	19	139	49					M	F	S				n				?			"	"	Nervousness.	
255.	19	160	22					F	F	S				n				?			"	"	Dyspepsia.	
256.	19	182	62					F	F	S				n				?	Several years		Temperate	Poor	Sclerotic.	
257.	19	188	18					F	F	S				n				?			"	"	Bronchial catarrh.	
258.	19	218	18					F	F	S				n				?	Several years		"	Weak	Anaemia.	
259.	19	231	19					F	F	S				n				?			"	Poor	Dyspepsia.	
260.	19	234	17					M	F	S				n				?			"	"	"	
261.	19	302	47					M	F	S				n				?	Several years		Generous	"	Vertigo.	
262.	19	305	63					F	F	S				n				?			Moderate	Fair	Dyspepsia.	
263.	19	342	24					F	F	S				n				?	8		Careful	"	"	
264.	19	344	30					F	F	S				n				?	Several years		"	Delicate	"	"

Notes.—One n indicates murmur of moderate intensity. Two nn means very loud. A line connecting one column with another means that the sounds indicated concur.

No.	Case Bk. Series 2.		Age.					Sex.	State.	Valvular Lesion.					Probable Cause.	Duration in Years.		Habits of Life.	General Health.	Disease for which Relief was Sought.	
	Volume.	Page.								Mitral.		Aortic.				Unknown.	Probable.				Known.
			1-20	20-40	40-60	60-80	80-100			Direct.	Regurg.	Double.	Direct.	Regurg.							
266	19	347	19					F	S	n						?		Careful	Fair	Dyspepsia.	
267	19	354		55				M	S		n		n			Rheumatism		6	"	"	Rheumatism.
268	19	380	28					F	S		n		n			?		"	"	"	Neuralgia.
269	19	403		60				M	M		n					?		"	"	"	Dyspepsia.
270	19	439	38					M	M		n					?		?	Poor	"	"
271	19	448		42				F	S				n			?		Careful	Fair	"	Cephalalgia.
272	19	465	26					F	S		n		n			?		8	"	"	Dyspepsia.
273	19	466		58				F	S				n			?		Several years	Moderate	"	Gastric catarrh.
274	19	475	33					F	S		n		n			?		6	Careful	"	Dyspepsia.
275	19	480		55				F	S				n			Rheumatism		Several years	"	Poor	"
276	19	501	37					F	S		n		n			?		"	"	"	"
277	20	9		44				M	M				n			?			Free	"	"
278	20	44		45				F	S				n			?		8	Irregular	"	Melancholia.
279	20	52		53				M	M		n		n			?			Generous	Good	Hepatic catarrh.
280	20	59		52				F	S				n			?		7	Moderate	Fair	Ozæna.
281	20	62		65				M	M		n					?		Several years	?	Poor	Cerebral disease.
282	20	69		63				F	S				n			?			Careful	Fair	Colonic dyspepsia.
283	20	78		70				F	S				n			?			Fanciful	Poor	Dyspepsia.
284	20	83		56				F	S				n			Gout		Several years	Generous	Fair	Eczema.
285	20	108		58				M	M		n					?			?	"	Dyspepsia.
286	20	154	25					F	S	nn		n				?			Moderate	"	Nervousness.
287	20	166		60				F	S		n					Rheumatic fever			"	"	Rheumatism.
288	20	167	24					F	S				n			?			"	"	"
289	20	175	23					M	S					n		?			"	"	"
290	20	179		63				F	S				nn			Gout		Several years	Careful	Delicate	Paralysis agitans.
291	20	222		55				M	M		n		n			?			?	Fair	Dyspepsia.
292	20	250	35					F	S				n			?			Generous	"	"
293	20	278		54				F	S				n			?			?	Good	Vertigo.
294	20	301		45				M	M		n		n			?		Several years	Moderate	Fair	Melancholia.
295	20	313		52				M	M		n					?			?	"	Cephalalgia.
296	20	356		63				M	M		n					?		6	Careful	"	Bronchial catarrh.
297	20	358		49				M	M					n		?			?	"	Dyspepsia.
298	20	362	23					F	S				n			?			?	"	Hepatic catarrh.
299	20	399	11					M	S	nn		n				?		Several years	Careful	Good	Dyspepsia.
300	20	448		29				F	S		n		n			?			Careless	Fair	"
301	20	458		58				M	M	nn				n		?			"	Poor	Albuminuria.
302	20	488		67				M	M		n					?		6	Careful	Fair	Vertigo.
303	20	492		60				M	M	n						Rheumatic fever		Several years	Careful	"	Dyspepsia.
304	21	6		52				M	M	n			n			?		10	"	"	"
305	21	64		37				F	S	n						Rheumatism		Several years	"	"	Rheumatism.
306	21	91		45				M	M		n					?			"	"	Melancholia.
307	21	92		54				M	?		n					?			?	"	Dyspepsia.
308	21	94		34				F	S		n					?			?	"	"
309	21	96		63				M	M		n					?			?	"	"
310	21	104		32				M	M		n					?			?	"	"
311	21	117		48				M	M			n				?		7	Careless	Poor	Vesical catarrh.
312	21	137	16					M	S		n					?			?	"	Bronchial catarrh.
313	21	195		66				M	S		n					?			?	"	"
314	21	199	33					M	S			n		n		Rheumatism		Several years	Generous	Fair	Dyspepsia.
315	21	209		56				M	M		n					?			Careful	"	"
316	21	218		46				M	M	n						?			"	"	Coryza.
317	21	230		84				M	M	n						?			"	"	Dyspepsia.
318	21	242		69				F	S		n		n			Gout			Simple	Fair	Constipation.
319	21	276		34				M	M		n					Rheumatism		?	Generous	"	Dyspepsia.
320	21	310		42				M	M				n			?		Several years	Careful	"	"
321	21	322		47				M	S		n					?			Moderate	"	"
322	21	328		40				M	M		n					?			?	"	"
323	21	341		37				M	M	n						?			?	"	Vertigo.
324	21	349		63				M	M		n					?			?	"	Dyspepsia.
325	21	369		42				M	?		n					?		Several years	?	"	"
326	21	390		21				M	S			n				?			?	"	"
327	21	410		48				M	M			n				?		Several years	?	Fair	"
328	21	428		32				M	S		n					?			?	"	"
329	21	489		60				M	S	?		n				?			?	"	Nervousness.
330	22	22		42				M	S					n		?			?	"	Dyspepsia.
331	22	57		26				M	S		n					?			?	"	Phthisis.
332	22	86		29				M	S							?		8	?	Fair	Dyspepsia.
333	22	112		56				M	M		n					?			?	"	"
334	22	133		52				F	S	n						?			Free	Poor	Albuminuria.
335	22	160		64				M	M		n					?			?	Fair	Diarrhoea.
336	22	174		42				M	M		n					?		10	Careful	Delicate	Dyspepsia.
337	22	209		40				F	S		n					?		Several years	Free	"	"
338	22	265		46				M	M		n					?		10	Careful	"	"
339	22	301		46				F	S		n		n			?		Several years	Moderate	"	Vertigo.
340	22	307		22				F	S		n					?			?	Poor	Dyspepsia.
341	22	314		66				F	S		n		n			?		Several years	?	Good	Tumour of breast.
342	22	334		26				F	S					nn		?			?	Fair	Rheumatism.
343	22	352		31				M	S		n					?		6	Careful	Good	Hemicrania.
344	22	374		23				F	S		n					?			Moderate	Fair	Eczema.
345	22	381		56				F	S							?		Several years	"	"	Nervousness.
346	22	425		48				F	S				n			Rheumatism			?	"	"
347	22	460		35				M	S					n		?		8	?	"	Cephalalgia.
348	23	53		50				F	S	n			n			?		Several years	Moderate	"	Dyspepsia.
349	23	106		49				M	S				n			?			?	Bad	Chronic pneumonia.
350	23	336		22				F	S			n				?			Moderate	Fair	Dyspepsia.
351	23	405		29				M	S			n				?		6	"	Good	Pulmonary congestion.
352	23	447		47				F	S				n			?		Several years	Careful	Fair	Lumbago.
353	24	60		70				M	M		n		n			?		Some years	Free	Poor	Pulmonary congestion.
354	24	98		49				M	M				n			?		Several years	Careful	Fair	Myxodema.

Note.—One n indicates murmur of moderate intensity. Two nn means very loud. A line connecting one column with another means that the sounds indicated concur.

No.	Case Bk. Series 2.	Age.					Sex.	State.	Valvular Lesion.					Probable Cause.	Duration in Years.		Habits of Life.	General Health.	Disease for which Relief was Sought.		
		Volume.	Page.	1-20	20-40	40-60			60-80	80-100	Mitral.				Aortic.					Unknown.	Known.
											Male.	Female.	Single.		Married.	Direct.					
855	24	102	—	53	—	—	—	F	M	—	—	—	—	—	—	Rheumatism	?	Several years	?	Good	Rheumatism.
856	24	146	—	50	—	—	—	F	M	—	—	—	n	—	—	?	—	—	?	Fair	Bronchitis.
857	24	162	—	54	—	—	—	F	M	—	—	—	n	—	—	?	—	—	?	Good	Fatty tumours.
858	24	170	—	41	—	—	—	F	M	—	—	—	n	—	—	?	—	—	?	Good	Neuralgia.
859	24	175	—	52	—	—	—	F	M	—	—	—	n	—	—	?	Several years	Careful	?	Good	Dyspepsia.
860	24	185	18	—	—	—	—	M	M	—	—	—	n	—	—	?	—	—	?	Good	Pulmonary congestion.
861	24	188	—	60	—	—	—	M	M	—	—	—	n	—	—	?	—	Careful	?	Good	Enteric catarrh.
862	24	234	39	—	—	—	—	F	M	—	—	—	n	—	—	?	Some years	Moderate	?	Fair	Rheumatism.
863	24	242	—	56	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Good	Albuminuria.
864	24	259	—	73	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Good	Dyspepsia.
865	24	271	—	57	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Generous	?	Fair	Pulmonary congestion
866	24	298	—	56	—	—	—	M	M	—	—	—	n	—	—	?	—	Free	?	Fair	Rheumatism.
867	24	306	33	—	—	—	—	M	M	—	—	—	n	—	—	?	—	Moderate	?	Fair	Dyspepsia.
868	24	317	—	42	—	—	—	M	M	—	—	—	n	—	—	?	Several years	?	?	Poor	Gout.
869	24	319	36	—	—	—	—	M	M	—	—	—	nn	—	—	?	—	Moderate	?	Fair	Dyspepsia.
870	24	349	—	63	—	—	—	F	M	—	—	—	nn	—	—	?	—	Free	?	Fair	Bronchitis.
871	24	446	—	50	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
872	24	470	—	55	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Nervous	Bronchial catarrh.
873	24	474	37	—	—	—	—	F	M	—	—	—	n	—	—	?	—	Generous	?	Fair	Menorrhagia.
874	24	499	—	35	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Careful	?	Poor	Dyspepsia.
875	25	11	—	28	—	—	—	F	M	—	—	—	n	—	—	?	—	Irregular	?	Fair	Dyspepsia.
876	25	28	17	—	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Renal calculus (?)
877	25	93	—	26	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Poor	Dyspepsia.
878	25	128	—	33	—	—	—	M	M	—	—	—	n	—	—	?	Several years	?	?	Fair	Dyspepsia.
879	25	134	—	46	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Good	Dyspepsia.
880	25	147	—	57	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
881	25	210	—	60	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Rheumatism.
882	25	224	—	58	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Good	Sciatica.
883	25	250	—	52	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Generous	?	Fair	Rheumatism.
884	25	336	—	50	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
885	25	403	30	—	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Liberal	?	Fair	Hepatic congestion.
886	25	428	—	29	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Poor	Debility.
887	25	468	—	32	—	—	—	F	M	—	—	—	n	—	—	?	Several years	Careful	?	Fair	Cephalalgia.
888	25	469	—	55	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
889	25	498	—	26	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Good	Dyspepsia.
890	26	34	—	56	—	—	—	M	M	—	—	—	n	—	—	?	—	Careful	?	Fair	Dyspepsia.
891	26	39	—	57	—	—	—	M	M	—	—	—	n	—	—	?	—	Ascetic	?	Fair	Dyspepsia.
892	26	77	37	—	—	—	—	F	M	—	—	—	n	—	—	?	Several years	?	?	Fair	Rheumatism.
893	26	164	15	—	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Poor	Epilepsy.
894	26	193	—	26	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Nervousness.
895	26	203	—	49	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Cephalalgia.
896	26	253	—	27	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
897	26	282	—	21	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Careful	?	Nervous	Nervousness.
898	26	319	—	54	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Poor	Bronchitis.
899	26	341	—	54	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
900	26	360	—	70	—	—	—	M	M	—	—	—	n	—	—	?	Several years	?	?	Fair	Dyspepsia.
901	26	403	—	42	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
902	26	471	—	20	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Careful	?	Fair	Dyspepsia.
903	26	486	—	24	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
904	26	509	—	37	—	—	—	F	M	—	—	—	n	—	—	?	Several years	Careful	?	Fair	Dyspepsia.
905	26	52	—	33	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
906	27	9	—	29	—	—	—	M	M	—	—	—	n	—	—	?	Several years	?	?	Fair	Dyspepsia.
907	27	25	—	55	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Nervous	Nervousness.
908	27	80	—	41	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Rheumatism.
909	27	127	—	56	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
910	27	244	—	49	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Generous	?	Fair	Eczema.
911	27	282	—	27	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
912	27	356	—	39	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
913	27	381	—	27	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Free	?	Fair	Dyspepsia.
914	27	411	—	50	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
915	27	480	—	30	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
916	28	11	—	48	—	—	—	M	M	—	—	—	n	—	—	?	Several years	Careful	?	Fair	Dyspepsia.
917	28	26	—	40	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
918	28	96	—	50	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
919	28	106	—	63	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
920	28	175	—	63	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
921	28	176	—	21	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
922	28	200	—	52	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
923	28	208	—	31	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
924	28	273	—	39	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
925	28	303	—	40	—	—	—	F	M	—	—	—	n	—	—	?	Several years	?	?	Fair	Dyspepsia.
926	28	309	—	34	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
927	28	360	—	23	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
928	28	385	—	70	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
929	28	493	—	56	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
930	29	95	—	46	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
931	29	119	—	50	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
932	29	182	—	65	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
933	29	230	—	56	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
934	29	242	—	45	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
935	29	260	—	24	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
936	29	261	—	49	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
937	29	262	—	62	—	—	—	M	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
938	29	265	—	74	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
939	29	285	—	25	—	—	—	F	M	—	—	—	n	—	—	?	Several years	Careful	?	Fair	Dyspepsia.
940	29	418	—	25	—	—	—	F	M	—	—	—	n	—	—	?	—	?	?	Fair	Dyspepsia.
941	29	436	—	50	—	—	—	F	M	—											

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No.	Case Bk. Series 2.		Age.				Sex.	State.	Valvular Lesion.						Probable Cause.	Duration in Years.		Habits of Life.	General Health.	Disease for which Relief was Sought.	
	Volume.	Page.							Mitral.		Aortic.		Unknown.	Known.							
			1-20	20-40	40-60	60-80			80-100	Direct.	Regurg.	Double.			Direct.	Regurg.	Double.				
444	30	35		55			M	M		n		n			Rheumatism	?	—	Moderate	Fair	Rheumatism.	
445	30	48		41			F	F				n			?	—	?	"	"	Dyspepsia.	
446	30	78		27			M	F		nn					?	—	?	"	"	"	
447	30	81		42			F	M				n			?	—	Careful	"	"	Vertigo.	
448	30	195		29			M	M		nn					?	—	?	"	"	Dyspepsia.	
449	30	158		21			M	S		nn					?	Several years	?	"	"	Acne.	
450	30	161		28			M	M			n				?	—	Liberal	"	"	Nervousness.	
451	30	208		40			M	S		n		n			?	Several years	Careful	"	"	Epilepsy.	
452	30	273		78			M	M			n				?	—	?	"	"	Gout.	
453	30	370		61			M	M		nn					Gout	?	—	Free	Disorder'd	Dyspepsia.	
454	30	480		45			F	M		n					?	—	?	Fair	"	Gastro-hepatic catarrh.	
455	30	494		50			F	M		n					?	—	?	?	"	Dyspepsia.	
456	31	16		40			F	M		n					?	—	Careful	"	"	Alcoholism.	
457	31	23		47			F	M		n		n			?	Several years	Free	Bad	Fair	Diphtheritic paralysis.	
458	31	34		35			M	M		n					?	—	Moderate	Fair	Delicate	Vertigo.	
459	31	47		28			M	S		n					?	Several years	Free	Fair	Fair	Dyspepsia.	
460	31	57		25			F	M			n				?	—	?	Poor	"	"	
461	31	85		46			F	M			n				?	—	?	Fair	"	"	
462	31	129		35			F	M				n			?	—	Careful	Fair	"	Nervousness.	
463	31	187		48			M	M		n					?	—	?	Fair	?	Dyspepsia.	
464	31	258		22			F	S				n			?	—	Careful	Good	"	Pseudo-hypertrophic paralysis.	
465	31	287		23			M	S				n			Rheumatism	?	Several years	?	Fair	Rheumatism.	
466	31	291		29			M	M		n					?	—	?	?	"	"	
467	31	355		33			M	M		n		n			Syphilis	?	Several years	Free	Fair	Eczema.	
468	31	395		31			F	M							Rheumatism	?	—	Careful	"	Rheumatism.	
469	31	472		71			M	M		n					?	Several years	?	?	"	Dyspepsia.	
470	31	489		25			F	M		n					?	—	Careful	Ailing	"	"	
471	31	499		18			M	S		n					Rheumatic fever	?	8	?	Poor	Epilepsy.	
472	31	503		42			M	S				n			?	—	Free	"	"	Bronchial catarrh.	
473	31	505		55			M	M		n		n			?	—	?	"	"	Alcoholic dyspepsia.	
474	31	506		53			M	?	?	n					?	—	?	?	?	Cerebral congestion.	
475	32	5		52			M	M		n					?	—	?	?	?	Diarrhoea.	
476	32	55		42			F	M		n					?	—	?	?	?	Nervousness.	
477	32	131		58			M	M		n					?	—	Free	Delicate	Fair	Dyspepsia.	
478	32	173		30			F	S		n					?	Several years	?	Delicate	Fair	Exophthalmic goitre.	
479	32	225		24			M	S		n					?	—	?	Fair	"	Diarrhoea.	
480	32	235		45			F	S		n					?	—	?	Fair	"	Dyspepsia.	
481	32	313		49			F	S		n					?	—	Careful	Poor	"	Rheumatism.	
482	32	383		14			F	S							?	—	?	?	"	Acne.	
483	32	443		50			M	M		n					?	—	Liberal	Fair	"	Colic.	
484	33	81		23			F	S		n					?	—	?	Poor	"	Dyspepsia.	
485	33	83		32			M	M		n		n			?	—	?	?	"	Rheumatism.	
486	33	93		57			M	M							?	—	?	?	"	Dyspepsia.	
487	33	363		59			F	M			n	nn			?	—	?	?	"	Fibroid pathosis.	
488	33	411		48			M	S		n					?	—	Generous	Delicate	Fair	Cephalalgia.	
489	33	447		42			F	S		n					?	—	Careful	Fair	"	Gout.	
490	33	449		67			M	M		n					Gout	?	—	?	"	Dyspepsia.	
491	33	457		45			M	M		n					?	Several years	Generous	"	"	"	
492	34	21		52			M	M		n					?	—	?	"	"	"	
493	34	33		55			F	M		n					?	Several years	Generous	"	"	"	
494	34	79		50			F	M		n		n			?	—	?	"	"	"	
495	34	155		60			M	M		n					?	—	?	Poor	"	Gastric catarrh.	
496	34	339		24			M	S		n					?	—	?	Fair	"	Acne.	
497	34	361		35			F	M		n					?	—	Generous	"	"	Choroiditis.	
498	34	413		58			F	M		n					?	Several years	Free	Poor	"	Hepatic catarrh.	
499	34	431		23			F	S		n					?	—	?	"	"	Dyspepsia.	
500	35	41		31			F	S		n					?	—	?	"	"	"	
501	35	95		48			M	S		n					?	—	?	Fair	"	Rheumatism.	
502	35	159		41			M	M		n					?	—	?	"	"	Colic.	
503	35	277		44			F	S		n					?	Several years	?	Delicate	"	Cephalalgia.	
504	35	371		71			M	M		n		n			?	—	Generous	Fair	"	Dyspepsia.	
505	35	373		65			M	M		n					?	10	Free	"	"	Renal inadequacy.	
506	36	83		56			F	M		n					?	—	Generous	"	"	Rheumatism.	
507	36	235		35			F	M		n		n			?	—	?	"	"	Dyspepsia.	
508	36	357		63			F	M		n					?	8	Generous	"	"	Hepatic congestion.	
509	36	385		54			M	M		nn					?	Several years	?	Poor	"	Gastro-hepatic catarrh.	
510	36	433		21			M	S		n					?	6	Moderate	"	Fair	Nervousness.	
511	36	437		27			M	S		n					?	—	?	?	"	Dyspepsia.	
512	37	41		50			F	S		n		n			?	Several years	Generous	"	Fair	Rheumatism.	
513	37	47		29			F	S		n					?	—	?	"	"	"	
514	37	153		81			F	S		n		n			?	Many years	Generous	"	"	Nervousness.	
515	37	199		62			F	S		n					?	—	?	"	"	Dyspepsia.	
516	37			34			M	M		n					?	Several years	Moderate	Delicate	"	Rheumatism.	
517	37	345		49			F	S		n					?	—	?	"	"	Diarrhoea.	
518	37	351		50			M	M		n					?	—	Generous	Fair	"	Influenza.	
519	37	417		27			F	M		n					?	—	Moderate	"	"	Dyspepsia.	
520	37	433		42			F	S		n					?	—	?	?	"	Neuralgia.	
521	37	453		21			F	S		n					?	—	Moderate	?	Delicate	"	Dyspepsia.
522	38	53		29			F	S		n		n			?	Several years	Fair	Fair	"	Rheumatism.	
523	38	95		32			M	M		n					?	co. genital (?)	Careful	Delicate	"	Debility.	
524	38	117		45			F	M		n					?	—	Generous	"	"	Diabetes.	
525	38	209		67			M	M		n		n			Gout	?	Several years	?	Fair	Gout.	
526	38	255		71			M	M		n					?	—	Ascetic	"	"	Bronchitis.	
527	38	285		18			M	S		n					?	—	?	Fair	"	Acne.	
528	38	303		22			F	S		n					?	—	Moderate	Delicate	"	Debility.	
529	38	409		72			M	M		n					?	Several years	?	"	"	Eczema.	
530	39	29		68			F	S		n					?	—	Careful	"	"	Nervousness.	
531	39	41		33			F	S		n					?	—	Generous	"	"	Dyspepsia.	

Note.—One n indicates murmur of moderate intensity. Two nn means very loud. A line connecting one column with another means that the sounds indicated concur.

No.	Case Bk. Series 2.		Age.					Sex.	State.	Valvular Lesion.						Probable Cause.	Duration in Years.			Habits of Life.	General Health.	Disease for which Relief was Sought.
	Volume.	Page.								Mitral.			Aortic.				Unknown.	Probable.	Known.			
			1-20	20-40	40-60	60-80	80-100			Direct.	Regurg.	Double.	Direct.	Regurg.	Double.							
532	39	83			57			F	M			n		n				?	Several years	Generous	Fair	Cephalalgia.
533	39	137				36		F	M			n						?	"	"	"	Nervousness.
534	39	209				60		M	M					n				?	"	"	"	Albuminuria.
535	39	267				60		M	M									?	"	Generous	Good	Dyspepsia.
536	39	319			45			F	S					n				?	"	?	Delicate	Tinnitus.
537	39	349			21			M	M									?	"	Very generous	Fair	Rheumatism.
538	39	395			27			M	M			n						?	"	Moderate	"	Nervousness.
539	39	404			27			M	M									?	Several years	"	Delicate	Dyspepsia.
540	39	475			59			F	M		nn							?	"	"	Fair	"
541	40	99			50			M	M			n						?	"	Moderate	"	Cephalalgia.
542	40	135			50			F	S					nn				?	"	"	"	Acne.
543	40	189			70			M	M									?	"	"	"	Epileptoid disease
544	40	251			27			M	M									?	"	"	"	Dyspepsia.
545	40	345			35			F	S			n						?	"	Generous	Delicate	"
546	40	353			51			M	M									?	"	"	"	"
547	40	443			60			F	S			n		n				?	"	Very careful	Good	Osteo-arthritis.
548	40	507			29			M	M					n				?	Several years	Generous	Delicate	Dyspepsia.
549	41	243			43			M	M			n			n			?	"	Careful	Poor	Phthisis.
550	41	293			30			F	S									?	Several years	Generous	Delicate	Dyspepsia.
551	41	310			60			F	S					n				?	"	Moderate	Fair	Indigestion.
552	41	387			61			M	M						n			?	Rheumatism	44	"	Rheumatism.
553	41	391			36			M	M			n						?	Several years	"	"	Dyspepsia.
554	41	395			38			M	F	S		n		n				?	"	"	"	Neuralgia.
555	41	440			41			M	M	S		n						?	"	Very free	Poor	Albuminuria.
556	41	445			20			M	M	S		n						?	"	Generous	Delicate	Laryngeal catarrh.
557	41	451			27			M	M	M								?	"	"	"	Vertigo.
558	41	453			54			M	M	M		n		n				?	Rheumatism	?	Good	Rheumatism.
559	41	476			56			F	F	M		n						?	"	"	"	Sciatica.
560	41	479			63			F	F	M		n		n				?	"	"	"	Hepatic catarrh.
561	41	481			17			F	F	S				n				?	"	"	Delicate	Pulmonary congestion.
562	41	489			58			M	M	M		n		n				?	Rheumatism	?	"	Rheumatism.
563	42	66			48			M	M	M			n					?	Rheumatic fever	?	Weak	Consolidation of lung.
564	42	143			30			M	M	M		n						?	"	Free	Nervous	Nervousness.
565	42	145			48			M	M	M		n						?	"	Abstemious	Fair	Headaches.
566	42	191			23			F	F	S		n						?	"	"	"	Dyspepsia.
567	42	197			46			F	F	M		n		n				?	Gout	?	"	Gout.
568	42	217			40			M	M	M				n				?	"	Free	"	Dyspepsia.
569	42	225			29			M	M	M		n						?	Gout	?	Fair	Eczema.
570	42	265			24			M	M	S								?	Rheumatic fever	?	Delicate	Rheumatism.
571	42	288			41			F	F	M		n						?	"	?	Fair	Dyspepsia.
572	42	319			61			M	M	M								?	Rheumatism	?	Delicate	Nervousness.
573	42	341			41			M	M	M		n						?	"	Free	"	Hepatic catarrh.
574	42	375			45			M	M	M		n						?	"	Generous	Good	Dyspepsia.
575	42	381			64			M	M	M		n		n				?	"	"	"	Bronchial catarrh.
576	42	387			55			M	M	M								?	"	?	Fair	Dyspepsia.
577	42	432			27			M	M	S		n						?	"	Careful	"	Nervousness.
578	42	447			42			M	M	M				n				?	"	Generous	"	Albuminuria.
579	42	450			46			F	F	S								?	"	Careful	"	Dyspepsia.
580	42	467			30			M	M	M		n						?	Rheumatism	?	Feeble	"
581	42	489			39			F	F	S				n				?	"	Generous	Fair	Rheumatism.
582	43	29			28			F	F	S		n						?	"	Moderate	Weak	Bronchial catarrh.
583	43	157			42			F	F	S		n						?	"	Free	Bad	Melancholia.
584	43	171			22			F	F	S		n						?	"	Moderate	Fair	Dyspepsia.
585	43	173			62			F	F	S								?	"	"	"	Tinnitus.
586	43	179			65			M	F	S		n						?	Rheumatism	?	"	Rheumatism.
587	43	197			59			F	F	S				n				?	"	Generous	"	Nervous debility.
588	43	309			29			F	F	S		nn						?	"	Careful	"	Dyspepsia.
589	43	347			66			M	M	M		n						?	Rheumatism	?	"	Vertigo.
590	43	391			49			M	M	M		n						?	"	"	"	Dyspepsia.
591	43	475			24			M	M	S								?	"	?	Delicate	Bronchial catarrh.
592	43	493			32			F	F	M		n						?	"	Moderate	Good	Dyspepsia.
593	44	55			48			M	M	M				n				?	Gout	?	Fair	Eczema.
594	44	62			43			M	M	S		n						?	"	Careful	Delicate	Dyspepsia.
595	44	109			25			F	F	S								?	Rheumatism	?	Fair	Rheumatism.
596	44	111			40			F	F	S				n				?	"	Generous	"	"
597	44	130			17			M	M	S		n						?	"	"	Weak	Struma.
598	44	145			28			F	F	S		n						?	"	Liberal	Fair	Colic.
599	44	176			40			F	F	S				n				?	"	"	"	Dyspepsia.
600	44	191			69			M	M	M		n						?	"	Moderate	"	Pyloric catarrh.
601	44	231			17			F	F	S				n				?	"	Generous	"	Neuralgia.
602	44	341			40			F	F	S		n						?	"	Moderate	Delicate	Headaches.
603	44	343			20			F	F	S		n						?	"	"	"	Nervousness.
604	44	475			34			M	M	S		n						?	Rheumatism	?	Fair	Sciatica.
605	44	493			55			M	M	M		n						?	"	"	Delicate	Dyspepsia.
606	44	497			48			M	M	M		n						?	"	Generous	Fair	Influenza.
607	45	13			64			F	F	S				n				?	Gout	?	Delicate	Gout.
608	45	16			69			F	F	S								?	"	Careful	Fair	Dyspepsia.
609	45	18			42			F	F	S		n						?	"	"	"	Diarrhoea.
610	45	27			38			M	M	S								?	"	?	Good	Enquiry.
611	45	35			60			M	M	M		n						?	"	Careful	Fair	Dyspepsia.
612	45	93			25			F	F	S				n				?	"	"	"	"
613	45	129			26			F	F	S		n		n				?	Rheumatism	?	Delicate	Rheumatism.
614	45	133			52			F	F	M		n						?	"	Generous	Fair	"
615	45	201			54			M	M	M					n			?	"	"	Feeble	"
616	45	308			61			M	M	M		n			n			?	"	Generous	"	Neurasthenia.
617	45	375			48			M	F	M		n						?	Gout	?	Good	Eczema.
618	45	389			50			F	F	M					n			?	"	"	Fair	Headaches.
619	45	403			43			M	F	M		n		n				?	Gout	?	"	Dyspepsia.
620	45	413			60			F	F	M								?	Arthritis	?	Good	Rheumatism.

Note.—One n indicates murmur of moderate intensity. Two nn means very loud. A line connecting one column with another means that the sounds indicated concur.

No.	Case Bk. Series 2.		Age.					Sex.	State.	Valvular Lesion.						Probable Cause.	Duration in Years.		Habits of Life.	General Health.	Disease for which Relief was Sought.	
	Volume.	Page.								Mitral.			Aortic.				Unknown.	Probable.				Known.
			1-20	20-40	40-60	60-80	80-100			Direct.	Regurg.	Double.	Direct.	Regurg.	Double.							
621	45	427		57				M			n		n			Gout		Several years	Generous	Good	Dyspepsia.	
622	45	503		26				F			n		n			?		6	?	Fair	"	
623	46	19		70				M			n		n			?		?	Careful	"	"	
624	46	34		51				M			n		n			Gout		?	"	"	"	
625	46	83		26				F			n		n			?		?	Generous	Good	Neuralgia.	
626	46	115		75				M			n		n			?		?	"	"	Aphasia.	
627	46	177		27				M			n		n			?		?	"	Delicate	Dyspepsia.	
628	46	352		64				F		n			n			?		?	"	"	Epigastric tumour.	
629	46	363		29				M			n		n			Rheumatism		?	"	Fair	Rheumatism.	
630	46	389						M			n		n			Gout		?	Generous	"	Headaches.	
631	46	395						M		nn			n			Rheumatic fever		?	Moderate	"	Rheumatism.	
632	46	418		23				M		n			n			?		?	Regular	Feeble	Dyspepsia.	
633	46	425		65				M					n			Gout		"	Careful	Ailing	Renal calculus.	
634	46	450		32				M					n			?		"	Generous	Fair	Dyspepsia.	
635	46	478		53				M					n			?		8	Careful	"	Writer's cramp.	
636	46	481		12				M					n			?		?	Generous	"	Nervousness.	
637	47	29	13					F			n		n			?		?	Simple	Delicate	Consolidation of lung.	
638	47	51		60				M			n		n			?		?	Generous	Fair	Dyspepsia.	
639	47	53		37				M			n		n			Rheumatism		?	Moderate	"	Nervousness.	
640	47	55		36				F			n		n			?		?	"	"	Boils.	
641	47	75		35				M			n		n			?		?	Moderate	"	Dyspepsia.	
642	47	81		51				M			n		n			Rheumatism		?	Careful	"	Rheumatism.	
643	47	153		24				M			n		n			?		?	Moderate	"	Hepatic catarrh.	
644	47	181		47				M	n				n			?		?	Generous	"	Dyspepsia.	
645	47	225	15					F			n		n			?		?	Careful	Weak	"	
646	47	241	19					F	n				n			?		?	"	Delicate	Ulcer of stomach.	
647	47	307		56				M	n		n		n			Rheumatism		?	"	"	Rheumatism.	
648	47	321		36				M			n		n			?		?	Free	Fair	Nervousness.	
649	47	375		24				F			n		n			?		?	"	"	Nasal catarrh.	
650	47	445		26				M			n		n			?		?	"	"	Albuminuria.	
651	48	9		50				M			n		n			?		?	Generous	Ailing	Headaches.	
652	48	43		33				M			n		n			?		?	Moderate	"	Dyspepsia.	
653	48	131		65				M			n		n			Rheumatic fever		?	Generous	"	"	
654	48	257		70				M			n		n			?		?	"	"	Chronic gastritis.	
655	48	289		55				M			n		n			Rheumatism		?	Generous	"	Chronic bronchitis.	
656	48	408		42				M			n		n			Rheumatic gout		?	"	Good	Headaches.	
657	48	439		52				F			n		n			?		?	Careful	Fair	"	
658	48	449		44				M			n		n			?		?	Generous	Ailing	Dyspepsia.	
659	48	499		31				M			n		n			?		?	"	Fair	Malaria.	
660	48	505		23				F	M		n		n			?		?	"	Ailing	Headaches.	
661	50	23		27				M			n		n			?		?	"	"	Diarrhoea.	
662	50	69		62				F	M		n		n			Gout		?	Generous	Fair	Eczema.	
663	50	171		25				M		n			n			?		?	Careless	Ailing	Colitis.	
664	50	323		23				F	S	n			n			?		?	Careful	"	Dyspepsia.	
665	50	329		68				M	M	n			n			Gout		5	Generous	"	Albuminuria.	
666	51	83		48				M			n		n			?		?	"	"	Eczema.	
667	51	135		63				M			n		n			?		?	"	"	Vertigo.	
668	51	263		34				M			n		n			?		?	Careful	Fair	Dyspepsia.	
669	51	271		24				F	M		n		n			?		?	"	Ailing	"	
670	51	307		50				M			n		n			?		?	Moderate	"	"	
671	51	473		46				M			n		n			?		?	"	Good	"	
672	51	521		38				F	M		n		n			?		?	Careful	Ailing	"	
673	52	163		60				F	S	n			n			?		?	Abstemious	Good	Influenza.	
674	52	257		33				F	M		nn		n			Rheumatism		?	Generous	Ailing	Dyspepsia.	
675	52	373		36				M	M		nn		n			?		?	Free	"	Albuminuria.	
676	52	451		60				M			n		n			?		15	?	"	Dyspepsia.	
677	52	495		58				M			n		n			?		?	"	Ailing	"	
678	52	521		68				F	M		n		n			?		?	Generous	Fair	Eczema.	
679	53	81		60				F	S	n	nn		n			Rheumatic fever		45	Careful	Good	Dyspepsia.	
680	53	91		61				F	M		n		n			Rheumatism		?	Generous	"	"	
681	53	133		27				F	S	n			n			Rheumatic fever		9	"	Fair	"	
682	53	149		44				M			n		n			Gout		?	Generous	Good	Eczema.	
683	53	171		47				M			n		n			?		30	Careful	"	"	

Note.—One n indicates murmur of moderate intensity. Two nn means very loud. A line connecting one column with another means that the sounds indicated concur.

summed up the chief points which I have submitted to your consideration.

1. That there are many persons with long-standing valvular disease of the heart, engaged in the active business of life, who without any symptom of heart-disorder have enjoyed good health and have reached an advanced age.

2. That the mitral regurgitant murmurs so often encountered in chorea, for the most part disappear within eight or nine years of the attack.

3. That valvular inflammations, and their effects arising in the course of rheumatic fever, do sometimes disappear, and leave behind no clinical evidence of their former existence; and that this occurring for the most part in the young, also occurs sometimes in the middle-aged.

4. That the signs of valvular defects arising out of the degenerative changes of middle life do also, on rare occasions, disappear, and that, when circulatory and respiratory disturbances accompany their commencement, they sometimes subside, and permit of apparently complete re-adjustment.

5. That as there must be in the histories, habits, occupations, and surroundings of patients with valvular disease conditions which, in one case, bring about secondary disorders, and, in another case, exempt it from them, it is desirable that the respective *differentie* should be discovered, and made capable of application to practice.

6. That any systematic and critical study of this subject likely to lead to practical issues could be undertaken only by the Collective Investigation Committee, and not by it, unless actively assisted by experienced general practitioners who possess, in a special manner, the knowledge necessary to the end in view.

7. That a joint inquiry of the kind proposed, conducted with due patience, discrimination, and accuracy would greatly extend our knowledge of the natural history of diseases of the heart, and largely increase our means of assisting those who suffer from them.

Dr. CLIFFORD ALLBUTT.—I shall allude preferably to my impressions rather than to facts. We all know that rheumatic fever and its consequences fall very heavily upon young people, and therefore young

people supply a good many cases of the kind. But, given an adult heart, there can be no question that the heart which has suffered the lesions of the rheumatic kind during the period of growth, will grow so as to bear the pressure of the lesions in a way that no heart after that period can offer. When development is complete, of course growth is necessarily incomplete. Under favourable circumstances, however, we know that the heart does change to a very remarkable extent, and a very extraordinary amount of readjustment can take place. At the Leeds Infirmary, we had a man who had pursued his work for thirty years with one of these rheumatic lesions. I was called to a similar case at Doncaster, where my patient had been in the habit of doing a good deal of horse-riding. He was said to be then breaking up from the effects of heart-disease. I found him with effusion into one pleura, his legs were swelling, and he had a mitral murmur. We made out, however, that his swelled legs were due to gouty phlebitis, his effusion into the pleura was decidedly pleuritic; there was no dilatation of the heart, and within six weeks he was again hunting. He died some ten or fifteen years subsequently. Now, I cannot tell you how important dietary considerations are in cases of this sort. Tobacco is important, tea is important; but, above all, alcohol. I am perfectly certain that people who take a liberal quantity of wines and spirits, do much to weaken the ventricles. The action of tea and tobacco is more transient, and after dropping the habit, the inconveniences tend to disappear, but alcohol seems to have a direct and pernicious influence on the heart substance. Often, by simply giving up rich living, wines and the like, a murmur will disappear, and the general health improve. It has very properly been remarked that the mere noise of a murmur is nothing, and I certainly am of opinion that these very noisy, musical murmurs really do not signify very much. If you turn a tap a little way, the water rushes out with a great noise, but if you turn it right on full, the noise ceases, although a much larger quantity of water is passing. The important points seem to be as to the position of the apex and as to dilatation, together with changes in the circulation generally. I think you will mostly agree with me, that in those cases where the heart-beat is "murmurish" we may have a serious amount of regurgitation, whilst the more noisy ones may go on for years. Now, as to the diseases of valves, I think there is little doubt that mitral disease from rheumatic fever may disappear; at any rate, people who have them for years do not get any displacement of the heart. As to the aortic murmur, this requires to be considered. I think that, as a rule, the aortic valves are not attacked unless the damage to the heart is severe. In most cases it begins at the mitral, and goes on to the aortic, so you have a double mischief. As regards life assurance, I may say that I have passed persons with mitral disease under certain restrictions, but I cannot say this of aortic disease, for in this case you are never sure that your man may not die suddenly, so that a certain amount of care is requisite. I certainly think that a person who has aortic regurgitation ought to be informed of it, or, at any rate, a member of his family should be warned of the liability to die suddenly. If a person has a mitral regurgitant murmur from rheumatic fever which has lasted for some years, and there are no important signs of dislocation of the heart, I am in the habit of recommending these cases to be taken as invalid lives. I would suggest that they should be put on the early payment system, so that all the premiums are paid before 30 or 35.

Dr. BRISTOWE: I have no doubt that organic murmurs do occasionally disappear. Not very long ago a gentleman consulted me about the condition of his heart. He had had rheumatic fever some years before, and had been told to consider himself the victim of heart disease. At this time, business matters had worried him, and made him feel very poorly, and this had called his attention to the state of his heart. I examined him, but found no murmur, nor any sign of disease, though of the fact that he had had cardiac lesion there could be no doubt. Next, as regards the duration of life with definite evidence of heart disease. I will begin by making a remark or two upon the question of life-assurance. When cases came to me in which I discovered murmurs, I rejected them on that account; but, during the last few years, I have been inclined to accept patients of this kind; certainly, I have admitted two or three of them. When I find a mitral systolic murmur extending over many years, and I find that the second sound is not accentuated, and the apex is in its place, I think I am justified in admitting them; at any rate, I can say that, as time has gone on, I have become more and more convinced that we have organic murmurs which do not imply discomfort or shortening of life. I have picked out a few cases which correspond to Sir A. Clark's afternoon cases. A clergyman, aged 52, came to me not long ago who was then suffering from aneurysm of the transverse arch of the aorta, with pressure on the trachea. His history was this: at six years of age he had rheumatic fever, followed by mitral disease.

He was looked upon as an invalid, but having much energy of character, he went to college, and had lived on well until quite recently; so for nearly forty years he had been perfectly healthy. I saw another gentleman, aged 45, whose life, twenty years before, had been declined on account of heart disease. He had several times been examined since, all the medical men reporting the existence of disease. On examining him, I found a systolic mitral and some murmur at the aortic orifice. He, however, had no consciousness of disease, not even breathlessness. I never saw this patient again. I know a medical man at the present time in whom, nine or ten years ago, a mitral systolic murmur was discovered. He is still alive and conducting an active practice. Some time since, a gentleman, aged 65, called on me with symptoms of angina pectoris. He had a mitral murmur dating from twenty years previously, but had always enjoyed good health with the exception of these anginal symptoms. In another instance, a schoolmaster consulted me; he was about 40 years of age. He made no particular complaint about his heart, but he had a musical systolic murmur over the sternum. He did not know that there was anything wrong with his heart, nor that he had had rheumatism. He subsequently ascertained that he had a severe attack of rheumatic fever with pericarditis, the nature of his illness having been concealed from him. I may tell you that I reassured him, and he is still a perfectly healthy man. About fifteen years ago, I was asked to see a nephew of mine who had suffered slightly from rheumatism, and he had a systolic murmur. He is now seven or eight and twenty, and a short time since, when he was about to marry, and wished to insure his life, I examined him, and found the murmur as loud and musical as ever. Now, with respect to obstructive mitral disease, I remember a woman, in good health, with one of the best murmurs of the kind I have ever heard. I should like to echo the sentiment that has been expressed several times to-day to the effect that the character and loudness of the murmur are really of very little importance in the question of prognosis. As to the treatment, I am sometimes inclined to think it is a pity there are physicians; many persons would lead a happy life enough but for them. Now I think it is quite time enough for persons to discover that they have heart disease when they begin to feel the effects of it. We should endeavour to keep up the health of the patient, and enable them to continue useful members of society. It is related of Dr. Murchison, seven or eight years before his death, that he found out that he had aortic regurgitation. He consulted as to what he should do, and he determined to go on enjoying himself as well as he could under the circumstances. It is certainly what I should endeavour to do under the circumstances, and it is what I recommend to patients. I do not believe that I have heart disease. I certainly hope I have not, but under no circumstances would I allow Sir Andrew Clark, or anybody else, to examine me for the purpose of finding it out.

Dr. LEECH (Manchester): I have noticed, in hospital practice, how many cases of heart-disease come to us without any history of origin being discoverable. I find among my notes one case of mitral disease and aortic stenosis, after scarlet fever, where health was not sensibly impaired. Many cases of cardiac disease, beginning in early life, do live to a good old age. Aortic disease is certainly more apt to terminate earlier than the other variety; but I had a clergyman under my care for the last twelve years, who says he is now as well as ever he was in his life. We must be guided in our prognosis by the condition of the heart itself. Curiously enough, the tracing which I took of the pulse presented a perfectly normal character, intimating that the circulation was carried on as usual. I had a case of mitral stenosis about twelve years ago, with as plain a murmur as ever I heard in my life. I saw the patient twelve months ago, and then no murmur was present; possibly this may depend on the state of the circulation. In many cases where the murmur disappears, it is possibly because the physical factors have altered. Now, whether we advise patients to exert themselves or not, I believe it to be a bad plan to advise patients to keep perfectly quiet, since it affects the general health; but I am not prepared to go to the other extreme. I certainly consider that overfeeding is one of the very greatest faults for persons suffering from cardiac disease. I cannot think it is a proper thing to recommend to an insurance company any patient with a cardiac murmur.

Dr. BOWLES: To the general question I shall have little or nothing to say, except that I agree with what has been said; but there are some points a little different to the line which has been taken to-day. I think, as members of the Collective Investigation Committee, we must not ignore temporary murmurs; and I am particularly desirous that we should be exact and clear as to the terms of the matter in hand. I can call to mind, about twenty-seven years ago, a woman I went to see one night, with a feverish excitability of the nervous system which I did not understand. I examined her heart, and found

a considerable *bruit*. I gave her a dose of Dover's powder, and left her. I saw her in the morning, and she had had a miscarriage, and was getting all right again, and the murmur had disappeared. I have since directed my attention to temporary murmurs. I knew a gentleman, on whom I made a *post-mortem* examination the other day, who had a mitral murmur—without, however, any particular symptoms. Eventually, he had an attack of kidney disease, and was confined to bed; then the murmur, which had been previously noticed, disappeared. At the *post-mortem* examination, I found there was a little puckering of the mitral valve, and a little hole, about the size of a pin, through the valve. Reference was made to some cases in which murmurs had existed, and had gone away. I remember one such case, a boy of 15, who had had rheumatic fever with great disturbance of the heart's action. He eventually went to Cambridge, went through the usual athletic sports, ran races, etc., without inconvenience, yet the murmur and irregularity were still present. Ten years afterwards, I examined him again; there was not a trace of murmur, and the man was as sound as possible. In relation to the aortic regurgitations, I cannot help thinking we have rather overestimated their importance. I know a man who, fifteen years ago, had extensive heart-disease with dropsy, and yet he eventually got quite well. I have several more cases of the same kind, which time will not allow me to narrate. As to failure of the heart's action, I have known one gentleman for fifteen years with regurgitant heart-disease; he improved, and is now hard at work.

Dr. FRANK DONALDSON, of Baltimore, U.S.A.: I propose, Mr. President, to trespass only a few minutes upon the time of this Section. Sir Andrew Clark's valuable and very suggestive paper opens up for discussion three important points in connection with heart-disease: 1, the pathological significance of cardiac murmurs; 2, their prognostic importance; and 3, the question as to the insurability of individuals in whom such murmurs are found. We have all seen cases showing that the mere existence of cardiac murmurs may not result in serious disability of the heart. Sir Andrew Clark's report of no fewer than 682 such cases is of great value, in giving support and confirmation to the now generally accepted view that Laennec, and subsequently the pathological school, greatly exaggerated the unfavourable prognostic value of heart-murmurs. We consider that it is an admitted fact that no murmur can exist without a physical cause. Nature, in fact, so regulates in health the circulation within the heart that the blood moves noiselessly; (1) the systole of the heart giving the propulsive force, (2) the normal consistence of the blood, and (3) the size of the several orifices through which the blood passes, are adapted to secure this end. Modify any one of these physical factors, and you may have abnormal sounds or murmurs. In the cases under discussion, we must omit the consideration of murmurs of a hæmic character, now generally admitted not to be merely functional, because a material lessening of the number of blood-globules is an alteration of the physical construction of the blood. In the 682 innocuous murmurs that Sir Andrew Clark has spoken of, most of them were systolic as to time, and located over the mitral or aortic area. Aortic stenosis and mitral insufficiency were the lesions diagnosed. I do not for an instant question that these two prominent heart-lesions may be so slight as to cause but little or no inconvenience, and yet give audible evidence of their existence. Not only is this true, but, in cases of incompetency and resulting regurgitations, ordinarily the loudness of the murmur is in inverse proportion to the size of the new opening. It is a well known physical fact, that the friction caused by the flow through a small orifice is greater than through a larger orifice. Dr. Todd, years ago, said that the disappearance of a regurgitant mitral murmur was of serious import, because it showed the increase of the patency of the valve. But it is not the less true that the blood, by the force of the ventricle, is thrown and pressed against all portions of its internal surface. Is it not now admitted by pathologists that, as the result of impaired nutrition or degeneration, as well as by exudative endocarditis, thickening of the connective tissue under the endocardium results at other points besides the valves? The papillary muscles, as well as the other muscular structures of the heart, become degenerated; the chordæ tendinæ become less elastic, and, indeed, thickened and shortened. Resulting from these altered conditions causing abnormal friction as the blood circulates, we may have, and do have, intra-ventricular murmurs without having any valvular disease. Stenosis of the internal orifices and imperfect closure and adaptation of the segments of the valves, are not the only lesions capable of producing murmurs. Not only is the distance between the valves very small, but the points of which we have been speaking are between the valves. Such being the case, the differential diagnosis of these murmurs becomes frequently almost impossible if attempted to be made simply

from the morbid sounds. By the aid of the rational symptoms, and those of a subjective character, approximative diagnoses may be ventured upon. Exercise in even slight valvular disease not only increases the intensity of the murmur, but causes increased frequency of the heart's beat, and some dyspnoea. As the patient advances in life, the deficiency of cardiac force makes the slight flow more evident in its effects. The sphygmograph gives us valuable assistance in testing the nature of these several murmurs. From the close observation of a number of cases in hospital practice, as well as in life-insurance examinations similar to those mentioned by Sir Andrew Clark, I have been convinced that many of them were cases of non-valvular intra-ventricular murmurs. I frankly acknowledge that I have learned to pay less attention to the murmurs, and more to the size and position of the heart, and, above all, to the signs of weakness of the heart's walls. I look more and more to the physical signs of degeneration and dilatation. One word more in reference to the insurability of persons with cardiac murmurs. I endorse the general course pursued, which is that even slight visceral disease may prevent a man from living out his expectancy, and consequently the insurance company ought to have the benefit of the doubt, and not the applicant.

Dr. OLIVER, of Newcastle-upon-Tyne: Next to aortic obstruction, I regard, of all the other forms of cardiac disease, that in which disease is located at the mitral orifice, as the one most consistent with prolonged life. And of the two forms of lesion met with here, I should say mitral stenosis is more favourable than mitral regurgitation. Coming from a centre where cardiac disease is very prevalent, we see a large number of cases of mitral stenosis, very frequently, too, among people, often under the age of puberty, from whom no history of rheumatism or rheumatic fever can be obtained, but only one of scarlet fever or measles. In such, nature evidently adapts herself to the effects of the lesion in two ways. There occurs in many of them a toning down of the whole circulation, and of the system generally, so that you find puberty is retarded, and, later on, when you see the patient at the age, say, of 20, he looks more like a lad of 15 or 16. In such, the heart is small; particularly is this true of the left ventricle; and quite in keeping with the smallness of the heart is the diminished size of the body generally—a body which frequently shows other indications of malnutrition in the rickety shape of the chest, etc. But all cases of mitral stenosis do not exhibit this dwarfing of the individual; many patients so affected are plump and full-sized. Nature, in them, has risen to the occasion, and the result is that you find behind the obstructing lesion dilatation, with thickening of the walls of the left auricle, a thickening of its muscular walls, and a strengthening of the endocardium, thickening, too, of the walls of the pulmonary veins, and hypertrophy of the right ventricle. With this increase of power behind the lesion, and time given for the contracting forces to act upon the slightly increased amount of blood in the left auricle (for the auricle contracts in the period of pause which is the longest in the rhythms of the heart, and it will be admitted, too, that the auricle in such cases acts earlier) a sufficiently large amount of blood is squeezed through the contracted orifice into the ventricle, and by this means the circulation is effectively maintained. Such individuals often suffer but little, if at all, for years. And much of what I have said here will apply to mitral regurgitation. So long as compensation is maintained, life is, on the whole, pleasurable. As for the combination of aortic stenosis and mitral regurgitation, of that I can speak hopefully. Many patients thus affected, whom I saw years ago, are now following their daily avocations (frequently hard work) without any, or next to no, cardiac disturbance whatever. But of all forms of cardiac disease, that which is regarded as extremely fatal, and that which, at least, so frequently appals us by the rapidity with which a fatal termination is reached, I think the place will be given to aortic regurgitation. And yet I know of cases where, when the individual and external conditions are favourable, this disease is quite compatible with longevity. We are asked to give illustrations of cases. I would briefly mention three. The first is that of a young joiner, aged 26, who was under my care six years ago, for the effects of aortic disease, due to scarlet fever, not rheumatic fever. He made a good recovery, and, for the last six years, has regularly followed his occupation, never having been obliged to give up work. He is pale, is not breathless, suffers only occasionally from palpitation on exertion; and yet in him is the most marked aortic regurgitation, judging from the audibility of the diastolic murmur in the vessels of the neck, and the water-hammer character of his pulse. But his pulse is never higher than 64, and a sphygmographic tracing of it shows high arterial tension. Another case is that of a labourer, aged 38 years, who is the subject of aortic regurgitation; his heart is much enlarged; the apex beat can be seen and felt between the sixth and seventh ribs. Yet what is the history of the case? Twenty years ago he had a severe attack of rheumatic fever, which

laid him aside for several months. Two years after this another attack occurred. Fifteen years ago he was carefully examined by a medical man, who told him he had heart-disease. For all these years this man had followed his occupation—not so hard lately, he admits, as formerly—without in the least having suffered from the effects of this lesion. His only complaint is that he suffers from flatulence, and a sense of fullness after eating. His pulse varies from 70 to 74; a tracing of it shows the tidal wave carried above the percussion, indicating, therefore, firm arterial tension. And if I might be allowed to quote a third case, it is that of a manager of a public-house, whom I was asked to see a year ago, as he was suffering from gout. His urine, beyond being extremely acid, was healthy. On asking to examine his heart, he laughed, and told me I would find something there, as years before he was told he had a peculiar affection of the heart, which, he said, was spoken of as “double action.” To my astonishment I found aortic and mitral regurgitation, great heaving of the chest and vessels of the neck. And what was his history? Twenty-four years ago he met with an injury whilst in Edinburgh, for which he was taken to the infirmary, and his fractures treated under the direction of Professor Syme. On his recovery he was examined by Drs. Heron Watson and Gillespie, as well as others, and was afterwards, on account of his heart, made the subject of a clinical lecture in the theatre of the infirmary. His pulse is under 70, and is anacrotic, and, from the day on which he was told that he had a heart-affection, he had suffered no inconvenience from it whatever. From a review of the life history of the above cases, therefore, and of others that have done well under treatment, or lasted more than five years without any serious symptoms, I am inclined to think that, all things being equal—good home, good food, regular rest, and temperance in the use of alcohol—the occupation of the individual has influenced but very little the after history of the case. For all that, however, we must regard rest as very essential. And yet, at the present time, I know of a few young ladies who, a few years ago, were under my care, some for mitral stenosis, others for mitral regurgitation, who, in winter, skate a good deal, and, at private and public dances, dance every waltz on the programme; and, in the summer months, spend much of their time playing lawn-tennis, without suffering any inconvenience whatever. Speaking now of girls, these are the hopeful cases whose development has gone on; menstruation has not been retarded, as in the other stunted individuals. In fact, as the result of the advent of puberty, there has been sent through the whole system an influence making for increased nutrition or development concurrently with the establishment of menstruation. As for aortic disease, however, the cases that do well are those where the pulse ratio remains from 60 to 74, or thereabouts, where, with a slowly, regularly acting heart, the pulse tracing shows heightened arterial tension. Theoretically, this is not what we expect, but, with a hypertrophied left ventricle behind or below the lesion, and the peripheral arteries in a state of good tension, I see in these a means whereby the circulation can be effectually carried on, and the growing wants of the system supplied. For such a condition in all forms of heart-disease, slow pulse, good tension, and good nutrition of the heart, I strive to get by treatment, and, when I obtain it, the patient ceases, at least for the present, to be an object of anxiety to me.

Sir ANDREW CLARK: In replying, I will confine myself to three things. First, with respect to life-insurance, I defined my position very clearly, that I did not feel myself at liberty to enter upon the subject; but, as it has been taken up, I may say something about it. I have nothing to do with any life-insurance office, but I frequently have submitted to me cases for arbitration. First of all, the mitral disease shall have existed independently of degeneration in the heart; secondly, that it shall have existed for two years; thirdly, that the ventricles shall be in good order; fourthly, that the arteries shall be sound; fifthly, that there is no persistent basic congestion nor recurrent hepatic congestion; that the patient should not be liable to colds which hang about him; and, finally, that his general health shall be good. Under these circumstances, I am prepared to say that the mitral disease will not shorten life. My second remark is this: We have been told how very important it is not to tell patients of any disease of the heart, and I gave cases in which the disease arose apparently from the information. I must recall that the attitude of the public towards us obliges us sometimes to do so. Patients are only too pleased to find out a mistake or an omission on our part. I am of opinion that it is the duty of a medical man, when he discovers any sort of injury, to deposit that knowledge with some discreet friend, with whom shall rest the responsibility of its use. Dr. Bowles has said that it would have been better for me to include in my tables cases of murmurs heard within the pulmonary area. Now, what would have been the result of that? Many of you would have said

directly these tables do not show the existence of the very valvular lesions the existence of which it is necessary to prove. Two things are well worth remembering: that, with the existence of aortic injury, it may be said that the valvular affection is to be considered, not in relation to the murmur at all, but in relation to the state of the ventricles and to the general health of the patient.

HERNIA OF THE CÆCUM.

By FREDERICK TREVES, F.R.C.S.,

Surgeon to, and Lecturer on Anatomy at, the London Hospital.

HERNIA of the cæcum, although not actually common, is certainly not rare. It has been met with in the umbilical, inguinal, and femoral regions; is most frequent in the first-named situation and most uncommon in the last. In the umbilical district it is associated, so far as I know, only with that variety of rupture known as the congenital umbilical. This rare hernia is met with at the time of birth. The coverings of the sac are formed from the tissues of the cord, and into that structure the protrusion originally extends. The condition depends upon a defect in the closure of the visceral plates, a defect that seems to be often consequent upon some imperfect development of the bowel. There is a time in the history of the formation of the gut when the cæcum lies without the future abdominal cavity. It then enters that cavity and, performing nearly a circuit in the abdomen, finally reaches the right iliac region. In the congenital umbilical hernia, the cæcum is often found arrested at the umbilical aperture. It occupies the rupture. The rupture is provided with a perfect peritoneal sac, and the cæcum lies free within it as would any segment of the small intestine. I have met with and operated upon three examples of this hernia (*Lancet*, 1881, record of one of these cases). In two the sac contained the caput coli, and in the third it was mainly occupied by a large Meckel's diverticulum. With this form of caecal protrusion, I do not propose to deal further, but to limit my remarks to the herniae that occur in the inguinal and femoral regions.

I shall describe two examples of this rupture in the situations named, and shall deal mainly with the question of the sac. There is a remarkable statement that seems to have attached itself to this condition. It is to the effect that the caecal hernia has no sac. This statement occurs, with one or two exceptions, in all the modern text-books in English and French that I have specially consulted. It appears to have been handed down from one manual to another as a species of entailed property. I shall endeavour to show that caecal ruptures are, except in a few instances, always provided with a sac, and that the gut lies clear within the interior of that sac. I believe also that there is little or no evidence to show that the cæcum may descend into the scrotum or crural region entirely bared of peritoneum, and unaccompanied by any diverticulum from that membrane. Further, I doubt if the *hernie akystique* of the French has any existence, so far, at least, as caecal ruptures are concerned.

Among the early reported cases of caecal hernia is one recorded in 1732 by Arnaud (*Dissertation on Hernias*, pt. 2, obs. xvii.) that may here be noticed. It concerned a man of 60, who had had a scrotal hernia for twenty years. The tumour had a circumference of twenty-seven inches, and reached to the middle of the thigh. For some years he had had occasional attacks of colic. At last the rupture became incarcerated, and on the fifth day herniotomy was performed. The sac contained the ileum with the cæcum and colon—some ten inches in all. “The intestines were adherent to the hernial sac and to each other, and were even gangrenous at several points.....I employed one hour and a quarter in dividing the adhesions and bridles which connected the colon to the hernial sac. At last, being at a loss what method to follow in order to finish the operation, I resolved to cut away the whole mass of the protruded intestines close to the internal ring.....The ileum, the cæcum, and the beginning of the colon were twisted together, the colon having passed over the ileum towards the inner side and the ileum towards the outer side, and both of these intestines had contracted strong adhesions with the edges of the inguinal ring.” The patient made a good recovery, a permanent fecal fistula, however, resulting. Scarpa, in commenting upon this case, maintains that the adhesions were natural, and that there was an imperfect sac. The description, however, more closely accords with the view that the adhesions were the result of the local peritonitis that is frequently associated with this form of hernia.