cells were again charged with energy, the paralysis passed off. The diagnosis made at the time, viz. that of concussion of the brain with some cortical laceration, seems to me to correspond best with the symptoms, and I am glad that I did not operate, as the patient has made a complete recovery without such grave interference.

Pathological Notes on Cases of Heart Disease at the Durham County Asylum. By T. Aldous Clinch, M.D., Pathologist.

A. *Five Cases of Mitral Disease.*—(1) Stenosis and incompetency; death due to sudden complete obstruction of the mitral orifice. (2) Stenosis; no tubercle of lung. (3) Stenosis; atrophy of heart; advanced tubercle of lung. (4) Stenosis; right-sided dilatation; tubercle of lung. (5) Stenosis (? also insufficiency); calcification of musculi papillares; early tubercle of lungs.

B. *Three Cases of Cardiac Degeneration.*—(1) A. No. 5. (2) Rigidity and calcification of the fibrous ring surrounding the mitral orifice; tubercle of lungs. (3) Rigidity and calcification (? ossification) of the same structure; muscular degeneration.

C. *One Case of Congenital Deformity.*—(1) Two cusps to the pulmonary valve.

A. *Five Cases of Mitral Disease.*

1. M. M—, admitted 19th May, 1894, æt. 60, female. Soon after admission evidence of cardiac disease was found; at first mitral insufficiency, but later loud murmurs, both systolic and diastolic, developed. The case clinically showed no special features, and appeared to be doing satisfactorily under suitable treatment. One night, however, she rose from bed, and before the nurse was able to reach her dropped down insensible. When medical assistance arrived she was found to be dead.

The necropsy showed slight brain degeneration; a little blood in pericardium; a fatty epicardium and diseased coronary arteries; dilatation of the right side of the heart; hypertrophy of the left side; stenosis of mitral valve; *retroversion of the anterior flap, to which was adherent a mass of vegetation, and this was drawn back into the auricle and now laid across the stenosed orifice in such a manner as to completely block it;* lungs slightly

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œdematous and passively congested; liver passively congested; spleen large and swollen; *kidneys with commencing interstitial nephritis.*

2. G. H—, admitted 17th July, 1894, æt. 64, male. Pulse was then rapid (104), feeble, heart dilated, cardiac sounds feeble; no murmur audible. General condition was very weak, and till his death the greater part of his time was spent in bed. Rather more than four years after his admission he was seized with an acute attack of cardiac dyspnœa, and when seen medically showed all the signs of extreme heart failure; in spite of appropriate treatment he sank rapidly and died in about two hours from onset of attack.

Necropsy showed chronic disease of brain; tortuosity and varicosity of choroid veins; considerable arterial degeneration; normal costal cartilages; much thickened and somewhat adherent pericardium; fatty epicardium; diseased coronary arteries; *mitral stenosis;* thickened but competent aortic valves; œdematous lungs; congested liver; spleen small; *kidneys with early cirrhosis.*

3. Admitted January 28th, 1897, æt. 48, male. No specific cardiac disease was noted clinically, but the heart's action is reported to have been very feeble and the circulation defective. Phthisis commenced soon after admission, and the patient died about a year later.

Necropsy showed chronic disease of brain; calcification of costal cartilages; normal pericardium; small and atrophied heart (6½ ounces); *great stenosis of mitral valve;* other valves normal; huge cavities in apices of both lungs; numerous small cysts in liver, containing bile-stained mucoid material; large and soft spleen; *degenerated kidneys;* tubercular ulceration of intestine and of skin.

4. S. F—, chronic dement, æt. 74, female. In April phthisis was observed, followed in May by cardiac dilatation; her health rapidly gave way, and in the middle of June there was commencing œdema generally, œdema of lungs and hydrothorax. She gradually sank and died at the end of the month.

The necropsy showed chronic brain disease; costal cartilages normal; a little fluid in pericardium; right-sided dilatation of heart; tricuspid incompetence; *thickening and stenosis of mitral valve,* which only admits the little finger; aortic valves normal;

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muscular substance of good appearance and consistence; hydrothorax on both sides. Left lung: emphysema, tubercle (recent), congestion, œdema, and collapse. Right lung: old fibroid phthisis; large area of recent tubercle. Liver slightly cirrhotic; gall-bladder contains thin bile and several calculi of various sizes; spleen large and soft; *kidneys small, granular, contracted.*

5. M. C—, admitted 22nd November, 1895, æt. 82, female.

She was very feeble; severely affected with rheumatoid arthritis; very feeble cardiac action; cardiac dilatation; no murmurs; pulse 78; emphysema and chronic bronchitis. Patient vegetated for two years more, gradually dying from asthenia.

The necropsy showed petechiæ on limbs; dorsal kyphosis; sclerosis of uncinate gyri; basal vessels much atherosed; chronic brain disease (including cerebellum); costal cartilages normal; pericardium normal; heart atrophied but covered with much fat; tricuspid valve thickened; pulmonary valve normal; *mitral valve stenosed, c.d. 2 cm., musculi papillares calcified at tips;* chordæ tendineæ thick and rigid; aortic valves thickened, rigid, and slightly incompetent; aorta and roots of large vessels show calcareous atheroma; early tubercle of upper lobe of right lung; remainder of lung is œdematous and congested; biliary calculi; venous congestion of liver; *small, cystic, granular contracted kidneys.*

It is generally taught that mitral stenosis is a disease especially affecting young women, but in this series of cases if we take those which have tolerably pure stenosis we find that two cases are male and one female, and all of them past middle life; by including the cases in which insufficiency of the valve was also present we alter the proportion of sexes but not the age, having now three cases in females and two in males; all these patients, excepting one and that a male, have passed the climacteric. It may be argued, and we think fairly, that in an asylum an undue proportion of patients are comprised of people who have broken down at the commencement of old age, and hence our proportion of old patients is excessive. There is undoubtedly truth in this, but if these cases really commenced in early life then the mitral stenosis of that period must be a much less rapidly fatal disease than is usually supposed, for our patients do not belong to a class living under conditions favourable to the treatment of cardiac affections. Dr.

Sansom ([1]) quotes various authorities showing that forty is above the average age for these patients to live.

But there are other points which lead us to conclude that these cases belong to a different type of the disease. It will be observed that all these cases were subject to interstitial nephritis varying in degree. This observation was not made till the cases had been collected together and classified, and it is therefore all the more impressive. Dr. Sansom, ([1]) following Goodhart (1880) and Pitt (1887), refers at length to a class the existence of which as a morbid entity appears to be doubted, although it includes the cases now described. In these cases we find throughout the body more or less evidence of arterio-fibrosis. The heart lesion is merely a local manifestation of the general disease.

Tuberculosis has been shown to occur very frequently in mitral stenosis, and some have gone so far as to attribute the cardiac disease to the tuberculosis; but though the tubercle bacillus has been found in cases with vegetation, and tuberculous endocarditis has been experimentally produced, ([2]) the bacillus has never been found without them. In our cases tuberculosis was present in three out of five cases, and was generally of so recent a character that it could hardly have been the cause of the endocarditis. That the interference with the pulmonary circulation, producing venous stasis and waterlogging of the tissues, will predispose to the attack of the bacillus is certain, and we therefore believe that the relation between the two is that the lung disease is secondary to that of the heart.

B. *Three Cases of Cardiac Degeneration.*

1. The same case as is reported fifth in Series A.
2. M. H—, admitted 8th May, 1897, æt. 64, female.

On admission there was no evidence of cardiac disease; about nine months later he fell and fractured his thigh; lobar pneumonia set in, and patient died.

The necropsy showed ununited fracture of thigh; basal vessels of brain much diseased; chronic brain disease; costal cartilages not ossified; pericardium toughened; epicardium fatty; *right side of heart dilated; left side hypertrophied; rigidity and calcareous degeneration of fibrous ring surrounding mitral orifice; bases of aortic cusps calcareous*, valve competent;

pneumonia of lower lobe of left lung, probably infected with tubercle in patches; old cured phthisis in right apex. Liver cirrhotic, kidneys normal to naked eye.

3. Of this case we have the necropsy notes only. A. L—, æt. 80, female.

Brain shows chronic disease; chronic vascular disease in ganglia; much atheroma of all large vessels. Chest contracted and approaching the type seen in osteomalacia; costal cartilages slightly calcareous; pericardium normal, sac full of slightly turbid fluid; epicardium exceedingly fatty. Coronary arteries tortuous and atheromatous. Myocardium very soft and dark in colour. Tricuspid valve slightly fibrotic; pulmonary valve normal; mitral valves somewhat thickened and rigid; *the fibrous band surrounding the mitral orifice is thickened to the size of a cedar pencil, and is of the consistence and appearance of cancellous bone.* The lungs show senile atrophy. Liver is fatty. Kidneys are very congested and slightly atrophied.

Of these cases only the last two need special comment; it would appear that the degeneration described is exceedingly rare; it is not mentioned in Zeigler's *Pathology* or in Clifford Allbutt's *System of Medicine.* One might assume that it would lead to increased accentuation of the first sound in the aortic area, and in cases of mitral incompetence associated with it would conduct the murmur to the aortic area in rather a puzzling and misleading manner.

C. *One Case of Congenital Deformity.*

1. Two cusps to the pulmonary valve.

Patient was an epileptic; he showed no symptoms during life.

It would appear from researches of Dr. Simpson ([3]) that while two cusps to the aortic valve and four cusps to the pulmonary are comparatively common, two cusps to the pulmonary is much rarer, especially so perfect a specimen as the present one. In this case there is a slight indication of a division in the anterior one.

I must express my thanks to Drs. Skeen, Geddes, and Jones for permission to make use of their clinical notes.

([1]) A. E. Sansom, Clifford Allbutt's 'System of Medicine.'—([2]) Michaelis und Blume, 'Deuts. medicin. Wochen.,' September 1st, 1898.—([3]) Simpson, 'Journal of Anatomy and Physiology,' July, 1898.