perance in eating and drinking and defective bodily exercise. The Oertl plan consists of three parts. First, the reduction in the amount of liquid. This is an important factor in reducing the fat in these patients. It also slightly increases the density of the blood. Oertl allows daily about thirty-six ounces of liquid, which includes the amount taken with the solid food. Free perspiration is promoted by bathing (if advisable, the Turkish bath), or even by the use of pilocarpine.

The second important point in his treatment is the diet, which should consist largely of proteids.

Morning.—Cup of coffee or tea, with a little milk, about six ounces altogether. Bread, three ounces.

Noon.—Three to four ounces of soup, seven to eight ounces of roast beef, veal, game, or poultry, salad or a light vegetable, a little fish; one ounce of bread or farinaceous pudding; three to six ounces of fruit for dessert. No liquids at this meal, as a rule, but in hot weather six ounces of light wine may be taken.

Afternoon.—Six ounces of coffee or tea, with as much water. As an indulgence an ounce of bread.

Evening.—One or two soft-boiled eggs, an ounce of bread, perhaps a small slice of cheese, salad, and fruit; six to eight ounces of wine with four or five ounces of water (Yeo).

The most important element of all is graduated exercise, not on the level, but up hills of various grades. The distance walked each day is marked off and is gradually lengthened. In this way the heart is systematically exercised and strengthened.

There is no doubt of the great value of this or like methods in appropriate cases. At several of the health resorts in Germany, particularly the Bad Nauheim, under Schott, the results are striking. The plan is rarely advisable in valvular lesions and should not be adopted when there is marked arterio-sclerosis. Cases of fatty overgrowth of the heart are those most suitable. The plan of treatment reduces the obesity, and the patients are, for a time at least, much more comfortable and are able to go about and do their work without cardiac distress or great shortness of breath.

Aneurism of the Heart.

(*a*) **Aneurism of a Valve** results from acute endocarditis, which produces softening or erosion and may lead either to perforation of the segment or to gradual dilatation of a limited area under the influence of the blood-pressure. The aneurisms are usually spheroidal and project from the ventricular face of a sigmoid valve. They are much less common on the mitral segments. They frequently rupture and produce extensive destruction and incompetency of the valves.

(*b*) **Aneurism of the Walls.**—This comparatively rare condition results from the weakening of the walls by chronic myocarditis, or occasionally

it follows mural endocarditis, which more commonly, however, leads to perforation. Aneurism has followed a stab-wound of the heart. The left ventricle near the apex is usually the seat, at the situation in which the fibrous degeneration is most common. Fifty-nine of the 90 cases collected by Legg were situated here. In the early stages the anterior wall of the ventricle, near the septum, sometimes involving the septum itself, is slightly dilated, the endocardium opaque, and the muscular tissue sclerotic. In a more advanced stage the dilatation is pronounced and layers of thrombi occupy the sac. Ultimately a large rounded tumor may project from the ventricle and may attain a size equal to that of the heart. Occasionally the aneurism is sacculated and communicates with the ventricle through a very small orifice. The sac may be double, as in a case reported by Janeway. In the museum of Guy's Hospital there is a specimen showing the wall of the ventricle covered with aneurismal bulgings. Rupture occurred in 7 of the 90 cases collected by Legg.

The *symptoms* produced by aneurism of the heart are indefinite. Occasionally there is marked bulging in the apex region and the tumor may perforate the chest wall. When the sac is large and produces pressure upon the heart itself, there may be a marked disproportion between the strong cardiac impulse and the feeble pulsation in the peripheral arteries.

Rupture of the Heart.

This rare event is usually associated with fatty infiltration or degeneration of the heart-muscles. In some instances, acute softening in consequence of embolism of a branch of the coronary artery, suppurative myocarditis, or a gummatous growth has been the cause. Of 100 cases collected by Quain, fatty degeneration was noted in 77. Two thirds of the patients were over sixty years of age.

The rent may occur in any of the chambers, but is found most frequently in the left ventricle on the anterior wall, not far from the septum. The accident usually takes place during exertion. There may be no preliminary symptoms, but without any warning the patient may fall and die in a few moments. Sudden death occurred in seventy-one per cent of Quain's cases. In other instances there may be in the cardiac region a sense of anguish and suffocation, and life may be prolonged for several hours. In a Montreal case which I examined the patient walked up a steep hill after the onset of the symptoms, and lived for thirteen hours. A case is on record in which the patient lived for eleven days.

New Growths and Parasites.

Tubercle and syphilis have already been considered. Primary cancer or sarcoma is extremely rare. Secondary tumors may be single or multiple, and are usually unattended with symptoms, even when the disease

is most extensive. In one case I found in the wall of the right ventricle a mass which involved the anterior segment of the tricuspid valve and partly blocked the orifice. The surface was eroded and there were numerous cancerous emboli in the pulmonary artery. In another instance the heart was greatly enlarged, owing to the presence of innumerable masses of colloid cancer the size of cherries. The mediastinal sarcoma may penetrate the heart, though it is remarkable how extensive the disease of the mediastinal glands may be without involvement of the heart or vessels.

Cysts in the heart are rare. They are found in different parts, and are filled either with a brownish or a clear fluid. Blood-cysts occasionally occur.

The parasites will be discussed under the appropriate section, but it may be mentioned here that both the *cysticercus cellulosæ* and the echinococcus cysts occur occasionally in the heart.

Wounds and Foreign Bodies.

Wounds of the heart are usually fatal, although there are many instances in which recovery has taken place. Bullets have been found encysted inside the ventricle. A majority of the cases of gunshot wounds, however, are necessarily fatal. Puncture of the heart by a sharp-pointed body, such as a needle or a stiletto, does not always prove fatal. Peabody has reported a case in which a pin was found embedded in the left ventricle. Suicide has been attempted by passing a needle or pin into the heart. It is not, however, necessarily fatal. Moxon mentioned a case, at the Clinical Society of London, in which a medical student, while on a spree, passed a pin into his heart. The pericardium was opened, and the head of the pin was found outside of the right ventricle. It was grasped and an attempt made to remove it, but it was withdrawn into the heart and, it is said, caused the patient no further trouble. Hysterical girls sometimes swallow pins and needles, which, passing through the œsophagus and stomach, are found in various parts of the body. A remarkable case is reported by Allen J. Smith of a girl from whom several dozen needles and pins were removed, usually from subcutaneous abscesses. Several years later she developed symptoms of chronic heart-disease. At the post-mortem needles were found in the tissues of the adherent pericardium, and between thirty and forty were embedded in the thickened pleural membranes of the left side.

Puncture of the heart has been recommended as a therapeutic procedure to stimulate it to action, as in chloroform narcosis, and experimental evidence has been brought forward by B. A. Watson in favor of the operation. He advises abstraction of blood in combination with the puncture—cardiocentesis. The proceeding is not without risk. Hæmorrhage may take place from the puncture, though it is not often extensive.

At the Philadelphia Hospital the procedure was tried by one of the resident physicians in a case of acute dilatation. The anterior coronary vein was cut across and considerable blood was found in the pericardium. There is danger also of striking Kronecker's inhibition centre.

V. NEUROSES OF THE HEART.

Palpitation.

In health we are unconscious of the action of the heart. In some people one of the first indications of debility or overwork is the consciousness of the cardiac pulsations, which may, however, be perfectly regular and orderly. This is not palpitation. The term is properly limited to irregular or forcible action of the heart perceptible to the individual.

Etiology.—The expression "perceptible to the individual" covers the essential element in palpitation of the heart. The most extreme disturbance of rhythm, a condition even of what is termed *delirium cordis*, may be unattended with subjective sensations of distress, and there may be no consciousness of disturbed action. On the other hand, there are cases in which complaint is made of the most distressing palpitation and sensations of throbbing, in which the physical examination reveals a regularly acting heart, the sensations being entirely subjective. We meet with this symptom in a large group of cases in which there is increased excitability of the nervous system. Palpitation may be a marked feature at the time of puberty, at the climacteric, and occasionally during menstruation. It is a very common symptom in hysteria and neurasthenia, particularly in the form of the latter which is associated with dyspepsia. Emotions, such as fright, are common causes of palpitation. It may occur as a sequence of the acute fevers. Females are more liable to the affection than males.

In a second group the palpitation results from the action upon the heart of certain substances, such as tobacco, coffee, tea, and alcohol. And, lastly, palpitation may be associated with organic disease of the heart, either of the myocardium or of the valves. As a rule, however, it is a purely nervous phenomenon—seldom associated with organic disease—in which the most violent action and the most extreme irregularity may exist without that subjective element of consciousness of the disturbance which constitutes the essential feature of palpitation.

The irritable heart described by Da Costa, which was so common among the young soldiers during the civil war, is a neurosis of this kind. The chief symptoms were palpitation with great frequency of the pulse on exertion, a variable amount of cardiac pain, and dyspnœa. The factors at work in producing this condition appeared to be the mental excitement, the unwonted muscular exertion associated with the drill, and diarrhœa.