The *symptoms* of this disease are very variable. R. P. Howard recognized five clinical forms:

(*a*) *Arthralgic*, in which there are wandering pains about the joints, without redness or swelling. These persist for a long time.

(*b*) *Rheumatic*, in which several joints become affected, just as in subacute articular rheumatism. The fever is slight; the local inflammation may fix itself in one joint, but more commonly several become swollen and tender. In this form cerebral and cardiac complications may occur.

(*c*) *Acute gonorrhœal arthritis*, in which a single articulation becomes suddenly involved. The pain is severe, the swelling extensive, and due chiefly to peri-articular œdema. The general fever is not at all proportionate to the intensity of the local signs. The affection usually resolves, though suppuration occasionally supervenes.

(*d*) *Chronic Hydrarthrosis.*—This is usually mono-articular, and is particularly apt to involve the knee. It comes on often without pain, redness, or swelling. Formation of pus is rare. It occurred only twice in ninety-six cases tabulated by Nolen.

(*e*) *Bursal and Synovial Form.*—This attacks chiefly the tendons and their sheaths and the bursæ and the periosteum. The articulations may not be affected. The bursæ of the patella, the olecranon, and the tendo Achillis are most apt to be involved.

The disease is much more intractable than ordinary rheumatism, and relapses are extremely common. It may become chronic and last for years. A patient under my care, at the University Hospital, Philadelphia, was practically bedridden for nearly ten years with his first attack, and was carried from one health resort to another without getting much benefit. He finally recovered sufficiently to resume work, and enjoyed fair health for more than a year. Then he unfortunately had another attack of gonorrhœa. The multiple arthritis recurred, and when he came under my observation he had been ill nearly two years.

Complications.—Iritis is not infrequent and may recur with successive attacks. The visceral complications are rare. Endocarditis, pericarditis, and pleurisy may occur. R. L. MacDonnell recently analyzed twenty-seven cases of gonorrhœal rheumatism at the Montreal General Hospital, of which four presented signs of recent cardiac disease. Gluzinski has collected thirty-one cases from the literature. The endocarditis is usually simple, but occasionally there is an intense infection and ulcerative endocarditis with symptoms resembling typhoid fever.

Treatment.—The salicylates are of very little service, nor do they often relieve the pains in this affection. Iodide of potassium has also proved useless in my hands, even given in large doses. A general tonic treatment seems much more suitable—quinine, iron, and, in the chronic cases, arsenic.

The local treatment of the joints is very important. The thermocautery may be used to allay the pain and reduce the swelling. In acute cases, fixation of the joints is very beneficial, and in the chronic forms, massage and passive motion. The surgical treatment of this affection, as carried out nowadays, is more satisfactory, and I have seen strikingly good results follow incision and irrigation.

IV. MUSCULAR RHEUMATISM (*Myalgia*).

Definition.—A painful affection of the voluntary muscles and of the fasciæ and periosteum to which they are attached. The affection has received various names, according to its seat, as torticollis, lumbago, pleurodynia, etc.

Etiology.—The attacks follow cold and exposure, the usual conditions favorable to the development of rheumatism. It is by no means certain that the muscular tissues are the seat of the disease. Many writers claim, perhaps correctly, that it is a neuralgia of the sensory nerves of the muscles. Until our knowledge is more accurate, however, it may be considered under the rheumatic affections.

It is most commonly met with in men, particularly those exposed to cold and whose occupations are laborious. It is apt to follow exposure to a draught of air, as from an open window in a railway carriage. A sudden chilling after heavy exertion may also bring on an attack of lumbago. Persons of a rheumatic or gouty habit are certainly more prone to this affection. One attack renders an individual more liable to another. It is usually acute, but may become subacute or even chronic.

Symptoms.—The affection is entirely local. The constitutional disturbance is slight, and, even in severe cases, there may be no fever. Pain is a prominent symptom. It may be constant, or may occur only when the muscles are drawn into certain positions. It may be a dull ache or a bruised pain, or sharp, severe, and cramp-like. It is often sufficiently intense to cause the patient to cry out. Pressure on the affected part usually gives relief. As a rule, myalgia is a transient affection, lasting from a few hours to a few days. Occasionally it is prolonged for several weeks. It is very apt to recur.

The following are the principal varieties:

(1) **Lumbago**, one of the most common and painful forms, affects the muscles of the loins and their tendinous attachments. It occurs chiefly in workingmen. It comes on suddenly, and in very severe cases completely incapacitates the patient, who may be unable to turn in bed or to rise from the sitting posture.

(2) **Stiff neck** or **torticollis** affects the muscles of the antero-lateral region of the neck. It is very common, and occurs most frequently in the young. The person holds the head in a peculiar manner, and rotates the whole body in attempting to turn it. Usually it is confined to one side. The muscles at the back of the neck may also be affected.

(3) **Pleurodynia** involves the intercostal muscles on one side, and in some instances the pectorals and serratus magnus. This is, perhaps, the most painful form of the disease, as the chest cannot be at rest. It is more common on the left than on the right side. A deep breath, or coughing, causes very intense pain, and the respiratory movements are restricted on the affected side. There may be pain on pressure, sometimes over a very limited area. It may be difficult to distinguish from intercostal neuralgia, in which affection, however, the pain is usually more circumscribed and paroxysmal, and there are tender points along the course of the nerves. It is sometimes mistaken for pleurisy, but careful physical examination readily distinguishes between the two affections.

(4) Among other forms which may be mentioned are **cephalodynia**, affecting the muscles of the head; **scapulodynia, omodynia**, and **dorsodynia**, affecting the muscles about the shoulder and upper part of the back. Myalgia may also occur in the abdominal muscles and in the muscles of the extremities.

Treatment.—Rest of the affected muscles is of the first importance. Strapping the side will sometimes completely relieve pleurodynia. No belief is more wide-spread among the public than the efficacy of porous plasters for muscular pains of all sorts, particularly those about the trunk. If the pain is severe and agonizing, a hypodermic of morphia gives immediate relief. For lumbago acupuncture is, in acute cases, the most efficient treatment. Needles of from three to four inches in length (ordinary bonnet-needles, sterilized, will do) are thrust into the lumbar muscles at the seat of the pain, and withdrawn after five or ten minutes. In many instances the relief is immediate, and I can corroborate fully the statements of Ringer, who taught me this practice, as to its extraordinary and prompt efficacy in many instances. The constant current is sometimes very beneficial. In many forms of myalgia the thermo-cautery gives great relief. In obstinate cases blisters may be tried. Hot fomentations are soothing, and at the outset a Turkish bath may cut short the attack. In chronic cases iodide of potassium may be used, and both guaiacum and sulphur have been strongly recommended. Persons subject to this affection should be warmly clothed, and avoid, if possible, exposure to cold and damp. In gouty persons the diet should be restricted and the alkaline mineral waters taken freely. Large doses of nux vomica are sometimes beneficial.

V. ARTHRITIS DEFORMANS (*Rheumatoid arthritis*).

Definition.—A chronic disease of the joints, characterized by changes in the cartilages and synovial membranes, with periarticular formation of bone and great deformity.

Etiology.—Long believed to be intimately associated both with gout

and rheumatism (whence the names rheumatic gout and rheumatoid arthritis), this close relationship seems now very doubtful, since in a majority of the cases no history of either affection can be determined. It is difficult to separate some cases from ordinary chronic rheumatism, but the multiple form has, in all probability, a nervous origin, as suggested by J. K. Mitchell. This view is based upon such facts as the association of the disease with shock, worry, and grief; the similarity of the arthritis to the arthropathies due to disease of the cord, as in locomotor ataxia; the symmetrical distribution of the lesions; the remarkable trophic changes which lead to alterations in the skin and nails, and occasionally to muscular wasting out of proportion to the joint mischief. Ord regards the disease as analogous to progressive muscular atrophy and due either to a primary lesion in the cord or to changes the result of peripheral irritation, traumatic, uterine, urethral, etc. The true nature of the disease is still obscure, but the neuro-trophic theory meets very many of the facts. Females are more liable to the disease than males. In Archibald E. Garrod's table of 500 cases there were 411 females and 89 males. It most commonly sets in between the ages of twenty and thirty, but it may begin as late as fifty. It occurs also in children; within the past five years there have been at my clinics four cases in children under twelve. The degree of deformity may be extreme even at this early age. Hereditary influences are not uncommon. In Garrod's cases there were in 216 instances a family history of joint disease. Seguin has reported the occurrence of three cases in children of the same family. It is stated that the disease is more common in families with phthisical history. It seems to be more frequent in women who have had ovarian and uterine trouble, or who are sterile. In this country acute rheumatism or gout in the forebears is rare. Mental worry, grief, and anxiety seem frequent antecedents. It is an affection quite as common in the rich as in the poorer classes, though in England and the continent the latter seem more prone to the disease. Though often attributed to cold or damp, and occasionally to injury, there is no evidence that these are efficient causes.

Morbid Anatomy.—The changes in the joints differ essentially from those of gout in the absence of deposits of urate of soda, and from chronic rheumatism by the existence of extensive structural alterations, particularly in the cartilages. We are largely indebted to the magnificent work of Adams for our knowledge of the anatomy of this disease. The changes begin in the cartilages and synovial membranes, the cells of which proliferate. The cartilage covering the joint undergoes a peculiar fibrillation, becomes soft, and is either absorbed or gradually thinned by attrition, thus laying bare the ends of the bone, which become smooth, polished, and eburnated. At the margins, where the pressure is less, the proliferating elements may develop into irregular nodules, which ossifiy and enlarge the heads of the bones, forming osteophytes which completely lock the joint. The periosteum may also form new bone. There is usu-