

in the bronchi, as in bronchiectasis, intestinal conditions such as dysentery, all appear to have been the sources of infection. If such a focus can be found and removed, the improvement in the arthritis may be immediate and marked. In two instances recently reported, changes in the spine exactly comparable to those found in arthritis deformans occurred following an infection with the *Bacillus typhosus* in one patient and a paracolon organism in another. In a considerable number of cases in the literature similar changes have followed infection with the gonococcus. It may be that these should be more correctly termed cases of gonococcus arthritis, but at any rate the fact that the same lesions are found, goes to prove that an infection may set up these changes in the joints. Another point is the influence of an intercurrent infection on an established arthritis deformans. In many instances the joint symptoms are made worse. The exact explanation of what happens is of course difficult to give.

When we turn to the question of bacteriological results there is comparatively little to quote. Many observers have reported organisms, perhaps the most convincing being the findings of Poynton and Paine, who obtained a diplococcus from the joints of a patient, which set up very characteristic arthritis in a rabbit. Cultures from the joints are almost always negative. In this connection it is worthy of note, that even in the forms of arthritis associated with organisms, these may not be found. Thus in gonococcus arthritis, the gonococcus may be found only in scrapings from the membranes and not in the contents of the joint. Although suggestive, as yet the experimental work does not seem sufficiently definite to warrant positive conclusions. Streptococci, obtained from the throat, when injected into rabbits set up more or less chronic forms of arthritis.

With the infectious origin regarded as suggested, two modes of action seem probable. It may be metastatic, the organisms being carried by the blood to the joints, or toxic. Perhaps both of these may operate. Whichever it be, one striking feature is the general condition of the patients. This is usually markedly affected, the nutrition is poor and the whole individual suffers. In a general way it may be said that the most reasonable view seems to be that this variety of chronic joint disease is due to an infection of some kind, but whether with one or many organisms is still doubtful, although the evidence thus far suggests that many organisms may be concerned, always bearing in mind that different organisms may set up precisely the same changes in joints.

Of other etiological factors it is difficult to speak with any certainty. One is frequently asked if the disease runs in families. If it be an infection, it seems difficult to understand how heredity can play any part and yet one may see instances where a number of individuals of the same