

(The bundle of His and its two main divisions are supplied chiefly by branches from the right coronary artery.)

2. All five cases had a widely disseminated patchy sclerosis. The one case which did not belong to the atherosclerotic group was aged twenty and had no known etiology for the interstitial myocarditis except a recent grippe with cardiac disturbance.

3. The pathological changes, especially the sclerosis, predominate in the endocardial and subendocardial layers, *i. e.*, in the region of the Purkinje network, as compared with the outer two thirds of the ventricular musculature.

4. These changes were grossly more marked in the left ventricle than in the right.

Experiments with the use of two galvanometers have been planned to test out our tentative suggestion that the above mentioned changes in the electrocardiogram are evidence of a serious conduction disturbance in the tissues beyond the termination of the right and left chief branches of the atrioventricular bundle.

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The occurrence of lichenase in the digestive tract of invertebrates.

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A reducing sugar identified as glucose by the formation of the characteristic osazone was produced from lichenin (purified carbohydrate and crude extract of Iceland moss) by the action of extracts of the hepatopancreas or alimentary canal of twenty species of invertebrates, representing the following phyla; Porifera, Annelida, Echinodermata, Mollusca, Arthropoda, and Tunicata. No evidence of a lichenin-splitting enzyme was observed in twelve species of vertebrates, embracing the following classes: Pisces, Amphibia, Reptilia, Aves, and Mammalia. The activity of the preparations tested was in every case controlled by tests for an amylase, which was invariably found to be present. Extracts of muscle tissue of the crustaceans could not split lichenin. The

constant occurrence of lichenase in the digestive tract of the invertebrates studied, suggests that the ability to hydrolyze lichenin may be a characteristic of invertebrates as contrasted with vertebrates. The presence of an inulase or raffinase in the species studied was not constant. Lichenase to judge from the present series of experiments is not invariably associated with inulase as has been suggested (existence of an inulo-lichenase). The following species were studied; sponge, earthworm, leech, starfish (2 species), sea urchin, chiton (2), mussel (3), snail (2), crab (2), shrimp, grasshopper, tunicate, gold fish, frog (adult and tadpole stages), horned toad, garter snake, terrapin (2), domestic fowl, wild rabbit, pig, sheep, dog, and man (saliva). The strongest reactions were obtained with the star fish (*Asterias ochracea*), snail (*Planorbis trivolvum*), and grasshopper (*Melanoplus differentialis*).

38 (1216)

Further studies in serum sickness.

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In a previous paper,¹ I showed by anaphylactic methods that the blood of human beings who had received large injections of therapeutic horse serum contained not only horse serum, but antibodies thereto, at some stage of the serum sickness. Since that time I have approached the same problem by means of the precipitation method, which is very much the more delicate method for the purpose. Remnants of horse serum in the blood are demonstrated by precipitation with the serum of a rabbit immunized to horse serum. Antibodies to horse serum are demonstrated by precipitation of horse serum by the human serum. By this method it has been possible to demonstrate the presence of horse serum in the blood from the time of injection up to more than twenty-one days thereafter, in constantly diminishing amount. Antibody is, as a rule, demonstrable within seven to ten days after the thera-

¹ Weil, R., *Proc. Soc. for Exp. Biol. and Med.*, 1914, xii, 37.