from the vitamine fraction from yeast in 1912 and 1913 were tested. Those of 1913 were analyzed at that time and their formulas established. These substances showed an attenuated but definite activity. Polished rice was entirely negative as opposed to the statement of H. H. Green. Saliva was found inactive and urine as already reported by Muckenfuss was active. The latter test may prove of clinical value later on, but possibly blood could be used to greater advantage for diagnostic purposes. A few discrepancies were found however; for instance, yeast treated with Lloyd's reagent still retained a large portion of its activity and also it was found that corn and wheat, separated from the germ by the method of Voegtlin and Myers, still exhibited a large activity, although several times less than the germ containing portion. Further experimentation is under way to clear up these matters.

By comparing the method of extraction of Osborne and Wakeman from yeast with an extract prepared from autolyzed yeast and then heated over 50° to coagulate proteins (we found some heat coagulable protein in autolyzed yeast) we found that Osborne's preparation contains only one-fifth of the nitrogenous substances but exhibits only one-fifth of the activity of the autolyzed yeast extract. It remains to be seen therefore whether it is advisable to use very purified extracts for vitamine fractionations, since it appears that the concentration of vitamines in such crude extracts as above varies with the amount of impurities present.

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The site of the cardiac lesion in two instances of intraventricular heart block.

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The hearts of two cases were examined in order to determine the site of the lesion associated with electrocardiograms suggesting partial block of either the right or the left branch of the auriculo-

ventricular system. As the main deflections in the two sets of electrocardiograms were in opposite directions, it was to be expected that the lesions, if any, in the two instances, would be found on opposite sides of the heart. There has been considerable theoretical discussion as to which type of electrocardiogram is associated with right-sided and which with left-sided block.

The first case showed electrocardiographically a main deflection inverted in lead I, upright in leads II and III, a marked widening of the foot-points of the Q.R.S. complex, and only moderate voltage; in addition there was auricular fibrillation. Microscopic examination of serial sections of the A.-V. system, showed that the right bundle branch became attenuated almost immediately after its origin from the main stem, and was surrounded by connective tissue. This diminution became more pronounced until at a distance of 7.5 mm. from the bifurcation, scarcely one or two doubtful muscle fibers could be seen. Below this the right branch increased in size again until at 4 cm. below the bifurcation it was of normal dimensions. There was marked fibrous myocarditis of the septum, involving chiefly the left side, especially the sub-endocardial region. The left branch presented no lesion.

The second case showed, on two examinations at an interval of six weeks, electrocardiograms in which the main deflection was upright in lead I, inverted in leads II and III, was notched, and its foot-points abnormally separated. Wave *P* was present throughout. Serial sections showed the A.-V. node, stem and right branch intact. The left bundle branch was imbedded in dense fibrous tissue throughout its course, and at a distance of 3.5 cm. below its origin, its posterior (dorsal) half was replaced by connective tissue continuous with an adherent, organized mural thrombus. There was also a thrombus within the apex of the right ventricle, partially adherent to its right lateral wall, but not involving the septum. In addition, there was a general fibrous myocarditis which predominated in the left side of the septum, and an intense thickening of the endocardium on the left side only.

The direct application of the published electrocardiograms associated with experimental bundle branch lesion in dogs to the interpretation of bundle branch block in man is rendered somewhat doubtful by certain anatomical pecularities of the dog's

heart and its relation to the thorax. If the results in these two human cases are corroborated repeatedly by similar findings in other instances, it is possible that the usually accepted electrocardiographic interpretation of right and left bundle branch block may have to be revised.

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Studies in pyrimidine metabolism.

By **D. WRIGHT WILSON** (by invitation).

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By partial hydrolysis of yeast nucleic acid, preparations containing pyrimidines as the only nitrogenous constituents were prepared and administered to rabbits. Uracil nucleoside when administered per os, subcutaneously or intraperitoneally caused an increased excretion of urea often much more than enough to account for the nitrogen administered. The undetermined nitrogen (the difference between the total nitrogen and the urea nitrogen) was always increased. A part of the increase in the undetermined nitrogen was due to the excretion of free uracil which was isolated in pure crystalline form. As much as 20 per cent. of the uracil fed as the nucleoside was recovered free in the urine.

When a mixture of cytosine and uracil nucleosides was administered to rabbits, there was an increased excretion of urea and usually no increase in the undetermined nitrogen. Uracil was isolated from the urine of one animal and was barely detected by a color reaction in another. No increase of creatine, creatinine, or purines was detected after feeding either preparation. Not even a color reaction for pyrimidines was obtained by using the same procedures on the urine obtained after feeding yeast nucleic acid.

Mendel and Myers were unable to find a trace of pyrimidine in the urine after feeding yeast nucleic acid but found that uracil, when fed, was excreted unchanged. Taken together, the data show that increasing quantities of uracil appear in the urine as simpler complexes containing the uracil group are fed. The con-