These results indicate that a complex between the uridylyl group and the enzyme is formed, but a more obvious proof of the reaction would be to apply a C^{14} -labelled uridine compound to the same experiment with subsequent isolation of a C^{14} -labelled uridylyl enzyme compound. For this purpose C^{14} -labelled uridine di- and triphosphate can be prepared from C^{14} -labelled uridylic acid by a new enzyme, found in extracts from *Saccharomyces fragilis* (grown on galactose). This enzyme brings about a phosphorylation of UMP to UDP and UTP in the presence of ATP. The separation of the uridine compounds from the adenine compounds is accomplished by paper ionophoresis in citrate buffer, pH 4.2. The uridine polyphosphate compound formed gives positive reaction in the hexokinase test for triphosphates¹.

This phosphorylation process is most likely a phosphorylation of UMP to UDP (with subsequent action of nucleoside diphosphokinase to form UTP from UDP) since equimolar amounts of UMP and ATP give UDP exclusively, whereas excess of ATP yields both UDP and UTP. Experiments with ATP, labelled in the terminal phosphate group, agree with this explanation.

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Metabolism of Uridinediphosphoglucose (UDPGlucose) in *Hemophilus Influenza* B.

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Hemophilus influenza (obtained through the courtesy of Drs. Alexander and Zamenhof, College of Physicians & Surgeons, New York) was grown on bloodagar and harvested (our thanks are due to Dr. M. Pittmann, Department of Pathology, National Institutes of Health, and Dr. N. Sloane, Lederle Laboratories, New York). The cells were ruptured in the sonic vibrator and lyophilized. Enzyme fractions could be isolated which brought about a rapid splitting of UDPglucose from the cell extracts. The split products were mainly 5-uridylylate, uridine and α -glucose-1-phosphate. Unlike the usual nucleotide pyrophosphatases pyridine nucleotides did not undergo any splitting in the presence of the *Hemophilus* enzyme. UDP-N-acetyl glucosamine was not attacked to any detectable

degree. Also, unlike correspondent preparations from yeast or *E. coli* (extract from sonic lysates) the *Hemophilus* enzyme operates independent of addition of inorganic pyrophosphate or 1-esters (galactose-1-phosphate, ribose-1-phosphate). Moreover, addition of pyrophosphatase does not interfere in any way with the enzymic splitting of UDPglucose. The formation of glucose-1-phosphate is preceded by an induction period which has attracted our special attention. The enzyme reaction may be either a simple specific hydrolysis or a combined hydrolysis and transfer reaction, or finally a two step reaction. The two latter possibilities are under investigation in an attempt to find a possible relation between the peculiar UDPglucose metabolism in this organism and the presence of polyglycophosphates in the capsules¹. Dr. E. Maxwell and the author are investigating the presence of the UDPglucose splitting enzyme in various strains and mutants of the *Hemophilus* group with special reference to growth requirements and capsule formation.

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On the Interaction between Glucose-1,6-diphosphate and Ribose-1-phosphate

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Previous experiments¹ have shown that glucose-1,6-diphosphate (GDP) can serve as a coenzyme for the conversion of ribose-1-phosphate (R-1-P) to ribose-5-phosphate (R-5-P), and that this reaction can be catalysed by phosphoglucomutase from muscle. From incubation mixtures of GDP, R-1-P and phosphoglucomutase a ribose-1,5-diphosphate has been isolated. This led to the formulation of the reaction as follows: $GDP + R-1-P \rightleftharpoons RDP + G-6-P$. This reaction has now been studied in details by following the formation of G-6-P spectrophotometrically in the presence of TPN and excess of *Zwischenferment*. The K_m value of R-1-P was found to be about $2 \times 10^{-3} M$. The optimum concentration of GDP was about $4 \times 10^{-5} M$, and higher concentrations inhibited the reaction in a competitive way. The K_m of GDP as inhibitor was about $2 \times 10^{-3} M$. The equilibrium of the