Another medium which gave excellent results was a 5% defibrinated rabbit's blood infusion agar to which 1% glycerine had been added. Growth of all the strains on this medium was abundant on the third day. Microscopic examination showed compact masses larger than those seen in the smears from the cystine medium. No changes in the blood pigment were observed in any of the media employed in this investigation.

For comparison it may be stated that a 4 or 5 day growth on either the cystine or glycerine blood agar medium can be favorably contrasted with that obtained in a 15- to 20-day-old culture grown in Noguchi's medium.

Summary. Solid media for the rapid isolation of *Bartonella bacilliformis* are described. It is shown that this organism requires the x growth factor of blood. No growth was obtained with the v factor alone.

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A New Intravenous Galactose Clearance Test for Differentiation of Obstructive from Parenchymatous Jaundice.*

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Galactose is an ideal substance for testing hepatic function because it is utilized exclusively by the liver and because its utilization is independent of insulin. Nevertheless the usual method of performing the galactose test by giving this sugar orally and determining its excretion in the urine gives unreliable results, due in part to wide variations in the rate of intestinal absorption[1, 2] which are especially significant because of the absence of a renal threshold for galactose, and in part to difficulties in measuring the galactose in the urine of patients with marked bilirubinuria. Therefore we have modified the test by administering galactose intravenously and determining its clearance from the blood.

Technique: One cubic centimeter of a 50% solution of galactose per kilogram of weight is injected intravenously. The injection

* Aided by a grant from the Christine Breon Fund for Medical Research.

1 Althausen, T. L., and Stockholm, M., *Am. J. Physiol.*, 1938, **123**, 577.

2 Althausen, T. L., *Am. J. Digest. Dis.*, 1939, **6**, 544.

should consume 5 minutes. The amount of galactose remaining in the blood 75 minutes after injection is determined by the modified method of Somogyi.[3]

Results. This intravenous galactose tolerance test has been performed on 15 persons with normal livers and on 55 patients with marked jaundice many of whom posed the diagnostic question of obstructive versus parenchymatous jaundice. In the normal group all galactose was removed from the blood in 75 minutes. In most jaundiced patients some galactose was present in the blood at the end of the test, but the amount was strikingly different in the two types of jaundice. (see chart). Of the 34 cases of obstructive jaundice, 28 were confirmed by operation or autopsy, 5 by typical clinical course, and in 1 case the obstruction could not be demonstrated conclusively at operation. Of the 21 cases of hepatitis, 18 were diagnosed by the clinical course and laboratory tests, and 3 by autopsy findings. Patients with acute hepatitis averaged 45 mg % of galactose while those with extrahepatic biliary obstruction of less than 6 months' duration averaged only 14 mg %. If 20 mg % of galactose is chosen as the dividing line, 90% of the cases of hepatitis are above, and 83% of the cases of obstructive jaundice are below this line. In the small group of patients with

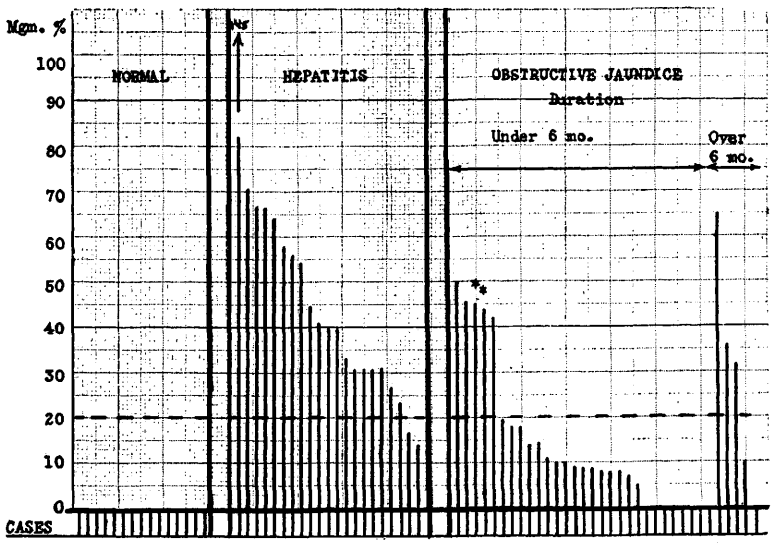

FIG. 1.

Level of galactose in 75-minute blood specimens of individual patients without hepatic disease, with acute hepatitis, and with obstructive jaundice.

[3] Raymond, A. L., and Blanco, J. C., *J. Biol. Chem.*, 1928, **79**, 649.

obstructive jaundice of over 6 months' duration, the secondary liver damage robs the test of its value in differential diagnosis. If obstructive jaundice develops in patients with pre-existing parenchymatous disease of the liver, the test shows a confusingly high blood level of galactose. This occurred in 2 cases (identified on the chart by asterisk) in which obstructive jaundice was associated with impaired clearance of galactose. Application of this test to other forms of liver disease is now in progress.

Conclusion. The intravenous galactose tolerance test offers valuable assistance in the differentiation of the parenchymatous or "medical" type from the obstructive or "surgical" type of jaundice.

11699

Antihemorrhagic Activity of Tetra Sodium 2-Methyl-1, 4-Naphthohydroquinone Diphosphoric Acid Ester and Other Naphthoquinone Derivatives.

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(Introduced by E. Chargaff.)
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In a recent communication[1] we reported preliminary data on the antihemorrhagic activity of the tetra sodium salt of 2-methyl-1, 4-naphthohydroquinone diphosphoric acid ester (for brevity, referred to hereafter as substance N-123). At this time preliminary tests indicated that doses of 0.6-0.8 γ administered subcutaneously to chicks on a vitamin K-free diet reduced the clotting time to below 10 minutes. In this report we are presenting more complete observations.

Ansbacher *et al.*[2] recently reported the potency of this phosphoric acid ester to be much less than we indicated. Further work has shown that while occasional chicks require only 0.6-0.8 γ of substance N-123 to reduce the clotting time to 10 minutes or less the average is somewhat higher. This average is still far below that reported by Ansbacher *et al.* Furthermore we find the average dose

[1] Foster, R. H. K., Lee, J., and Solmssen, U. V., *J. Am. Chem. Soc.*, 1940, **62**, 453.

[2] Ansbacher, S., Fernholz, E., and Dolliver, M. A., PROC. SOC. EXP. BIOL. AND MED., 1940, **43**, 652.