days, which resulted in reticulocyte increases from 6% to 14%, the longevity of the reticulocyte was found to be remarkably constant. It ranged from 4 to 6 days. This value is in close agreement with those obtained by Heath and Daland[3] for the *in vitro* and *in vivo* maturation of reticulocytes of pernicious anemia patients.‡

Summary. 1. The red cell longevity in normal guinea pigs ranges from 22-28 days. 2. This value increases after splenectomy, reaching a maximum of 32-38 days approximately a month following the operation, and then falls off, becoming normal in about 2½ months. 3. The longevity of the circulating reticulocyte ranges from 4 to 6 days in both normal and splenectomized animals.

9855

Decreased Choline-Esterase Activity of Serum in Jaundice and in Biliary Disease.*

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In a previous communication,[1] the choline-esterase activity of human serum was determined by the Ammon method[2] with the reaction continuing over a 2-hour period at 30°C. Choline-esterase activity was expressed in cubic millimeters of CO_2 liberated, in a total volume of 2 cc., from 7.5 mg. acetylcholine chloride by 0.5 cc. of diluted serum (diluted 50 times). It was found that in a control group of 60 normal adults, the average reading was 67.6 mm.^{3} CO_2 liberated, and that all of the cases, except 7, fell between 44 and 80 mm.^{3} In a series of over 500 determinations in pathological conditions it was stated that in cases of jaundice there was a tendency toward depressed values.[1]

[3] Heath, C. W., and Daland, G. A., *Arch. Int. Med.*, 1930, **46**, 533.

‡ The close correspondence between Heath and Daland's values for the *in vitro* maturation of reticulocytes and ours for the *in vivo* longevities would further support the contention that marrow hyperactivity ceases quite abruptly after withdrawal of the stimulus.

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[1] Antopol, W., Tuchman, L., and Schifrin, A., PROC. SOC. EXP. BIOL. AND MED., 1937, **36**, 46.

[2] Ammon, R., and Voss, G., *Pfluger's Arch. f. d. ges. Physiol.*, 1935, **235**, 393.

TABLE I.
Choline-esterase Activity of Serum in Jaundice.

Case	Age	Diagnosis	Choline-esterase activity†	Van den Berg	Icteric Index	Hb %	Patient Temp. °F	Ratio of esterified cholesterol to total cholesterol*
1	38	Cirrhosis of liver	10	1:67,000	14	63	99.4	40/250
2	56	" with hepatitis	13	1:250,000	27	85	98.6	30/205
3	62	Toxic hepatitis	15	1:17,000	35	70	101.	125/375
4	54	" " in pernicious anemia	18	——	20	98	100.2	61/200
					56		99.	
5	54	Cirrhosis of liver	19	1:500,000 (subicteric clin.)	2	96	98.6	50/200
6	59	" " " ; cholemia	20	1:100,000	12	86	98.6	46/315
7	48	" " " ; toxic hepatitis	22	1:100,000	14	46	99.8	——
8	13	Liver abscess; actinomycosis	24	1:50,000	17	78	99.	——
9	51	Acute hemolytic icterus	29	1:100,000	12	30	99.	trace/110
							103.	
10	23	Tertian malaria	30	1:80,000	15	75	98.	trace/85
11	63	Carcinoma of pancreas	31	1:60,000	23	70	100.	150
12	56	" " "	34	1:80,000	50	85	99.	140/270
13	42	Acute pancreatitis	38	1:14,000	40	—	102.4	——
14	46	Cholelithiasis; common duct stone	40	1:60,000	32	72	98.6	——
15	56	Chronic cholecystitis, cholelithiasis	46	1:250,000 (subicteric clin.)	27	78	98.6	——
16	50	Carcinoma of pancreas	48	1:17,000	42	85	98.6	315/515
17	71	Hypertension; cholecystitis, cholelithiasis	55	1:100,000	12	72	102.	——
18	26	Hepatosplenomegaly	57	——	36	75	99.	76/240
19	25	Catarrhal jaundice	63	1:80,000	13	80	98.6	105/200
20	8	" "	64	1:110,000	18	90	100.	25/200
21	17	Hodgkin's	76	1:70,000	20	90	99.	——

†Choline-esterase activity of serum expressed in mm^3. CO_2 developed in 2 hours at 30°C.
*Figures expressed in mg. %.

TABLE II.
Choline-esterase Activity of Serum in Biliary Disease.

Case	Age	Diagnosis	Choline-esterase activity†	Van den Berg	Icteric Index	Hb %	Patient Temp. °F	Ratio of esterified cholesterol to total cholesterol*
22	31	Liver abscess; actinomycosis	11	——	—	58	103.	——
23	66	Secondary anemia; cirrhosis of liver; heart failure	17	1:500,000	4	11	98.6	——
24	71	Acute cholecystitis	25	1:300,000	5	70	99.2	——
25	65	Splenic vein thrombosis	29	1:500,000	6	36	98.6	45/180
26	27	Bilharzia of liver	42	1:200,000	12	50	100.4	40/130
27	45	Chronic cholecystitis with cholelithiasis	48	1:500,000	8	85	99.	150/325
28	51	Essential hypertension; chronic cholecystitis with cholelithiasis	65	1:300,000	5	83	98.6	——

†Choline-esterase activity of serum expressed in mm^3. CO_2 developed in 2 hours at 30°C.
*Figures expressed in mg. %.

Twenty-one cases of jaundice (Table I) and 7 other instances of liver and biliary tract disease without jaundice (Table II) were investigated. Since fever and anemia also influence the choline-esterase activity,[1] we have tabulated the temperature at the time of drawing of the blood and have recorded the hemoglobin. It is obvious from these figures that there is a tendency to depressed values in cases of hepatic and biliary tract disease. The mechanism of this depression has not as yet been elucidated. However, a series of experiments which were suggested by these data showed that bile acids,[3] added to the reaction mixture in the form of their sodium salts, caused inhibition ranging from moderate effects to almost complete inhibition of enzymatic hydrolysis.

It was stated in the original publication that the choline-esterase activity in the serum may be a factor which is inversely related to the vagotonicity of the individual. In view of this, it is of interest to speculate on the relation of the depressed choline-esterase activity to the sweating, bradycardia, and fall in respiration, vagotonic symptoms which not infrequently occur in cases of hepatic disease with and without jaundice.

Summary. The choline-esterase activity of the serum in patients with jaundice or biliary tract disease was found to be depressed.

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Passage of Sulfanilamide from Mother to Fetus.

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Recent reports by Marshall and his associates[1, 2] indicate clearly that sulfanilamide when administered to animals and men is rapidly and uniformly distributed in different tissues. It is thus easy to conceive that the drug may also be detected in fetal circulation and amniotic fluid among pregnant animals. In order to substantiate this assumption, the following experiments were carried out.

Pregnant rabbits of not less than 3 weeks' duration were employed.

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3 Sobotka, H., and Antopol, W., *Enzymologica*, 1937, **4**, 189.

1 Marshall, E. K., Jr., Emerson, K., Jr., and Cutting, W. C., *J. A. M. A.*, 1937, **108**, 953.

2 Marshall, E. K., Jr., Emerson, K., Jr., and Cutting, W. C., *J. Pharm. and Exp. Therap.*, 1937, **61**, 196.