was a fall within 24 to 36 hours to the normal level. This was maintained for a varying time period (several days), during which the animal appeared normal. At the end of that time the metabolism began gradually to decrease, signs of adrenal insufficiency developed, and the cycle was repeated.

The changes have been studied in a series of 6 cats. One was observed through 3 cycles, one through 2 and the remainder through one. The metabolic changes were essentially the same in each case.

Further observations are in progress as to the effect of the cortical hormone on normal animals, and an attempt is being made to determine the rôle of the thyroid gland in the experiments described above.

5504

Solubility of Human Gall Stones in Dog Bile.

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That human gall stones dissolve in gall bladder bile of the dog has aroused considerable interest over a period of years. The reason for this phenomenon has never been accurately determined. Recently Walsh and Ivy[1] showed that the unsaponifiable fraction of dog bile which includes cholesterol, is smaller than that of human bile, while the saponifiable matter, which contains bile salts and soaps, is considerably larger. No quantitative estimation of the individual bile constituents was made.

The concentration of cholesterol in gall bladder bile of the human, beef and dog was determined by the gravimetric method of Windaus, *before* and *after* saturation with finely powdered cholesterol. This sterol is easily the most important constituent of human gall stones from the quantitative aspect. The figures in Table I indicate that while dog and ox bile contain little cholesterol they are capable of dissolving considerable quantities of this substance; this, we believe, is the chief cause for the solubility of human gall stones in gall bladder bile of the dog.

[1] Walsh, E. L., and Ivy, A. C., *Ann. Int. Med.*, 1930, **4**, 134.

TABLE I.
Analytical data of gall bladder bile.

Spec. No.	Solid Matter %	Cholest. mg. %	Cholest. / Solids %	Cholest. after saturation mg. %	Increase in Cholest. %
		Human Bile			
608	4.95	112	2.26	133	18.7
612	15.0	364	2.42	408	9.3
613	18.0	610	3.38	800	31.0
614*	4.75	86	1.85	103	20.0
		Dog Bile			
63	24.79	70	.28	180	157.0
64	25.02	130	.52	320	146.0
56	22.0	8	.03	134	1675.0
57	15.0	8	.05	96	1200.0
58	22.8	2	.01	288	14400.0
59	16.7	2	.01	428	21400.0
72†	21.28	2	.01	415	20750.0
73	18.92	20	.10	70	350.0
75	23.8	82	.34	208	253.0
84	16.47	44	.27	138	313.0
		Ox Bile			
74	10.76	43	.40	124	288.0

* Mixture of 30 autopsy biles diluted with water.
† Mixture of 2 specimens.

5505

Amino Acids as the Only Nitrogen Source During Growth and Differentiation.

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Experiments are in progress on forms lower than mammals to determine the value of isolated amino acids for protein synthesis and to ascertain which acids if any are essential for, or facilitate the growth of organisms of different phylogenetic levels, and which are of importance in the process of differentiation. An attempt has been made to bring tadpoles of *Rana sylvatica* to metamorphosis on a diet in which the only N available was the N of isolated amino acids. Carbohydrates, fats and vitamins were supplied in the form of a "Basal Diet". The following amino acids were used in concentrations of 1% and 5%, added to the water: glycine, alanine, leucine, aspartic, glutamic, arginine, lysine, cystine, phenyl-alanine, tyrosine, tryptophane, proline, diiodo-tyrosine. Single acids and bi-acid mixtures were used, each acid being combined with every other. Furthermore, a progressive series was arranged, one acid