and other details are summarised below in tabular form.

Diet (percentage of casein and fat given only)	Vitamin supplements per rat per day	Special supplements: Choline mg. per rat per day	Special supplements: Methionine mg. per rat per day	No. of rats	Average initial weight in g.	Duration of experiment Days
(*a*) 6% casein 50% fat	Thiamin 20 μg Riboflavin 25 μg Pyridoxine 20 μg Calcium pantothenate 100 μg	..	..	12	102	33–110
(*b*) do	do	4	..	12	98	32–124
(*c*) do	do	..	20	12	96	91–162
(*d*) 6% casein 30% fat	do	..	..	12	98	42–145
(*e*) do	do	8	..	12	97	63–168

Results: (*a*) Livers on macroscopic examination of most of the animals on 50% fat diet alone showed varying degrees of enlargement and were highly fatty. On microscopic examination, severe fatty infiltration was found in the liver in almost all the animals. Animals killed between 55 to 97 days showed diffuse hepatic fibrosis and, in some, typical cirrhosis with ceroid pigmentation was found. None of the animals, however, showed massive hepatic necrosis.

(*b*) In animals receiving 50% fat diet with 4 mg. of choline daily, the livers were fairly normal in size. The fatty change in the liver was much less marked in this group of rats as compared to the controls. Similarly, the fibrosis was also less marked and there was no ceroid pigment. It appears that daily supplement of 4 mg. of choline is not sufficient to completely prevent the fatty change and the subsequent liver injury.

(*c*) In animals receiving 20 mg. of methionine daily along with 50% fat diet, there was moderate fatty change in the liver with slight accumulation of ceroid pigment. Slight fibrosis around the central veins was also observed in a few animals.

(*d*) In animals receiving 30% fat diet without choline, the livers were enlarged, pale and fatty. Histological examination of the liver showed typical heavy fatty infiltration, particularly around the central veins. Although ceroid pigment was occasionally noticed, no fibrosis was present.

(*e*) In animals receiving 8 mg. of choline supplement daily along with 30% fat diet, the livers were normal in size. On microscopic examination, fatty infiltration of the liver was not found in any of the animals of this group. There was no trace of ceroid pigment or fibrosis in any of the animals. Thus 8 mg. of choline supplement daily resulted in almost normal livers when the fat content of the diet was 30%.

The detailed results will be published elsewhere.

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FLUORESCENT INDICATORS FOR ACID-BASE TITRATIONS—PART II

The remarkable fluorescence of the coumarins has been frequently noted[1] but only a few have been used as fluorescent indicarost.[2,3,4,5] A large number of coumarins synthesised by Seshadri, *et al.* were available to us and since these had not been examined previously, the present authors investigated their fluorescence changes with change in pH under filtered, U.V. light from the "Technico" U.V. Analytical Lamp supplied by Messrs. Gallenkamp, London. Buffer solutions of known pH were prepared using Universal Buffer Mixture supplied by Messrs.