been obtained. The F_{α_2} is identified with acetate fraction 5, which is located in the same acetate band as fraction 6, but forms the more anterior portion of the band. Fractions 6 and 9 are interpreted as haptoglobulins, but this still remains subject to question. Fraction 9 might also be interpreted as an α_2 - β type globulin, similar to that described by Poulik and Smithies⁵, for human serum. Fraction 2, which has the same mobility as the main albumin band, is identified as an α_1 -globulin. The fact that it has exactly the same mobility as the albumin would suggest it to be similar in nature to the α_1 -globulin B of Poulik and Smithies.

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Effect of Linoleic Acid on the Deposition of Dietary-saturated Fatty Acids in Chicken Tissues and Eggs

KAUNITZ *et al.* have postulated that linoleate functions in the regulation of fatty acid composition of depot fat by facilitating the laying down of depot fat more representative of the diet¹. In confirmation of their report, we have observed that the depot fat of chickens fed a diet with 5 per cent laurate and 4 per cent myristate contained higher proportions of these fatty acids when linoleate was added to the diet². However, we could not adequately measure the effect of linoleate on the proportion of laurate and myristate in other, non-adipose tissues. In the work described here 12 per cent methyl laurate was included in a purified diet (diet C-21, Table 1) with and without a source of linoleate. The diets were fed to 7-day-old chicks maintained previously on a low fat diet. At several time-intervals the chickens were fasted overnight, killed, and the liver and heart analysed for fatty acids using gas chromatography³.

Table 1. EXPERIMENTAL DIETS

Ingredient	C-21 (%)	C-20-G-5 (%)
Casein (vitamin-free)	21.0	20.0
Gelatin	—	5.0
Mineral mixture*	5.4	5.4
Limestone	—	2.5
Cellulose	1.0	5.0
L-Glutamic acid	5.0	—
L-Arginine-HCl	0.6	—
Methionine hydroxy analogue (MHA)†	0.2	—
Vitamin mixture‡	0.5	0.5
Vitamin A concentrate (50,000 I.U./g)	0.05	0.05
Vitamin D concentrate (7,500 I.U./g)	0.02	0.10
Choline chloride	0.20	0.25
Procaine penicillin (50%)	0.002	—
d- α -Tocopherol acetate	—	0.004
Santoquin§	0.015	0.015
Glucose (cerelease)	to 100	to 100

* See Fisher and Johnson (ref. 4) for composition.

† Registered trade-mark of the Monsanto Chemical Co. for calcium *d,l*-2-hydroxy, methyl thiobutyrate.

‡ See Machlin and Gordon (ref. 5) for composition.

§ Registered trade-mark of the Monsanto Chemical Co. for 6-ethoxy, 1,2-dehydro, 2,2,4-trimethylquinoline (an anti-oxidant).

In a second experiment, White Leghorn hens were fed a purified basal diet (diet C-20-G-5, Table 1). Two levels of methyl myristate were added with and without a source of linoleic acid. Eggs were collected after 112 days on this régime and analysed for fatty acids. Five or six replicates per analysis were conducted.

The results given in Table 2 demonstrate that the liver and heart of chickens fed diets containing linoleic acid contained a higher proportion of laurate than chicks fed linoleate-free diets. Dietary linoleate resulted in an increased proportion of myristate in eggs laid by hens fed myristate. One would expect an increased proportion of

Table 2. EFFECT OF DIETARY LINOLEIC ACID ON THE DEPOSITION OF SHORT CHAIN FATTY ACIDS IN TISSUES

Tissue	Duration of feeding (days)	% of diet (C-21)	Dietary linoleic acid*	
			0%	1.5%
			Lauric acid % of tissue fat†	
Liver	4	11.4	0.3 ± 0.2	0.9 ± 0.5
Liver	39	11.4	1.2 ± 0.2	3.8 ± 0.8
Heart	12	11.4	2.0 ± 0.5	5.0 ± 1.9
			Myristic acid % of egg fat	
Egg	112	0.9	2.3 ± 0.3	5.1 ± 1.8
Egg	112	14.1	10.9 ± 0.5	26.0 ± 3.2

* 2.0 per cent safflower was the dietary source of linoleic acid, 12 per cent methyl laurate the source of lauric acid and 1.0 and 15.0 per cent methyl myristate the dietary source of myristic acid.

† Average $\pm$ S.D. The addition of linoleic acid resulted in a significant ($P < 0.01$ by *t* test) increase in deposition of lauric or myristic acid in all comparisons.

laurate and/or myristate in tissue lipids if addition of linoleic acid resulted in: (1) increased absorption of dietary laurate and myristate from the intestine; (2) decreased oxidation of these fatty acids; (3) altered membrane permeability in ovary, liver, or heart cells resulting in greater uptake of laurate and myristate from the blood.

Mead *et al.*⁶ have reported that essential fatty acid deficient mice oxidize stearate at a higher rate and incorporate less stearate in their tissue lipid than mice fed a source of essential fatty acids. More work is necessary before the biochemical mechanism underlying the change in saturated fatty acid composition following ingestion of linoleate can be defined.

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Distribution of Radioactive Sulphur after Oral Administration to the Rat of a Water-insoluble Fraction of Sulphur-35-labelled Thermal Amino-Acid Copolymer

THE preparation of amino-acid copolymer labelled with sulphur-35 by thermal polymerization of hydrolysates of yeast (*Torula utilis*) incubated with ³⁵SO₄ has already been described by us¹. The polymerization resulted in at least two different types of copolymers. One part of the preparation was absolutely insoluble in distilled water, while the other part could be dissolved in water. Both fractions showed protein-positive colour reactions and radioactivity.

By chromatography on ion exchange columns ³⁵S-activity could be observed at the positions of cysteine acid (sulphate) and methionine. The radioactivity of the cysteine peak was very low. Another radioactive component could be eluted from the 150 cm 'Dowex 50' column by 0.2 N sodium hydroxide. This component could also be detected in hydrolysates of ³⁵S-labelled *T. utilis*².

We ourselves have reported recently on a feeding trial using the soluble fraction of proteinoid. In further experiments the water-insoluble fraction of proteinoid was collected and administered to a rat. The male rat had a weight of 85 g at the beginning of the experiment. The animal was kept in an air-tight cage in which a separate collection of urine and faeces was possible. The air passed through the cage by suction was filtered through traps to remove gaseous metabolites from the air.

The rat received food and water *ad libitum*. The diet consisted of 86 per cent maize, 10 per cent skimmed milk