sumption that all of the GS_3 is tripalmitin and all other triglyceride molecules are triolein gives values for GS_3 found/GS_3 calculated $\times$ 100 which are much lower than those recorded. For instance, in Table II this value for the fat from rats fed the basal diet is 107%. When recalculated in terms of mol percentage the value is reduced to 93%. Although the actual difference may be less than this, it is very likely significant.

REFERENCES

1. Reiser, Raymond, and Dieckert, J. W., J. Am. Oil Chemists' Soc., *31*, 625–28 (1954).
2. Kartha, A. R. S., "Studies on Natural Fats" (published by the author, 1951, India), vol. I, pp. 8–110.
3. Kartha, A. R. S., J. Am. Oil Chemists' Soc., *30*, 326 (1953); *31*, 85 (1954).
4. Weber, H. H. R., and King, C. G., J. Biol. Chem., *108*, 131 (1935); Holwerda, K., Verkade, P. E., and de Willigen, A. H. A., Rec. trav. chim., *56*, 382 (1937); Artom, C., and Zummo, C., Enzymologia, *3*, 231 (1937); Mazza, E. P., and Malaguzzi Valeri, C., Arch. sci. biol. (Italy), *25*, 270 (1939); Hilditch, T. P., Banks, A., and Dean, H. K., J. Soc. Chem. Ind., *54*, 77T (1935).
5. Velluz, L., Bull. soc. chim. biol., *16*, 909 (1934); Ono, T., J. Agric. Chem. Soc. (Japan), *16*, 43, 147 (1940); Longenecker, H. E., and Haley, D. E., J. Am. Chem. Soc., *57*, 2019 (1935); Loury, M., and Becker, Y., Bull. matieres grasses inst. colonial Marseille, *29*, 5 (1945); Hilditch, T. P., and Jones, E. E., J. Soc. Chem. Ind., *53*, 171T (1931); Hilditch, T. P., and Murti, K. S., J. Soc. Chem. Ind., *58*, 310 (1939).
6. Cedrangolo, F., Enzymologia, *5*, 1 (1938); Quagliariello,, G., and Cedrangolo, F., Enzymologia, *4*, 73 (1937); Morel, L., and Terroine, E. F., Compt. rend., *149*, 236 (1909); Balls, A. K., and Matlack, M. B., J. Biol. Chem. *123*, 679 (1938).
7. Armstrong, H. E., and Gosney, H. W., Proc. Roy. Soc., London (B), *88*, 176 (1914); Terroine, E. F., Ann. Sci. Bot., *X*, *2*, 1 (1920).
8. For example: Ivanow, S., Botan. Centr. Beih. A, *28*, 159 (1912); Eyre, J. V., and Fisher, E. A., J. Agric. Sci., *7*, 120 (1915); Barker, M. F., J. Soc. Chem. Ind., *51*, 218T (1932); Lozinger, E. K., and Raskina, R. L., Masloboino Zhirovoe Delo, No. 2-3, 57 (1931); Sahasrabuddhe, D. L., Indian J. Agr. Sci., *3*, 57 (1933); Humphries, E. C., Ann. Botany, *7*, 45 (1943); Quagliariello, G., and Scoz, G., Boll. soc. Ital. Biol. Sper., *5*, 1117, 1119 (1930); Felix, K., and Eger, W., Dtsch. Arch. klin. Med., *182*, 623 (1938), *184*, 446 (1939); Mirski, A., Biochem. J., *36*, 232 (1942); Shapiro, B., and Wertheimer, E., J. Biol. Chem., *173*, 725 (1948).
9. Kartha, A. R. S., J. Sci. Ind. Res. (India), *12A*, 126, 243 (1953).
10. Spadola, J. M., and Ellis, N. R., J. Biol. Chem., *113*, 205 (1936); Channon, H. J., Jenkins, G. N., and Smith, J. A. B., Biochem J., *31*, 41 (1937); Ellis, N. R., Rothwell, C. S., and Pool, W. O., J. Biol. Chem., *92*, 389 (1931).

For A. R. S. KARTHA
by R. J. VANDER WAL

Letter to the Editor

Dr. Kartha has been kind enough to send me his response to Dr. Dieckert's and my paper on "The Influence of Dietary Fat on the Glyceride Structure of Animal Fats" and requested my comments.

We believe that the early part of his letter, with citations, confirms our statements, which he quotes, outlining his position on the lack of specificity of lipases. (The exceptional behavior of the lower fatty acids is not a factor since we were discussing animal depot fat.) Perhaps he meant to present these citations as further defense and elucidation of his position, rather than to correct our misrepresentation of it. His letter is not quite clear on this point.

One can find supporting evidence for almost any point of view by quotations from the literature, especially in this field. It was for that reason we felt that more experimental evidence, under controlled conditions, was required.

Kartha's criticism of our procedure can only be valid if it can be shown that the procedure is enough in error to affect the conclusions. He raises two objections.

a) Our isotope dilution procedure is faulty since we added tripalmitin as a carrier while natural saturated triglycerides contain some stearic acid.

Theoretically a carrier should be exactly the same substance as that being isolated. At the time we decided on the use of labeled tripalmitin as a carrier for total saturated triglycerides, the probable influence of the small amounts of tristearin and palmitostearins present was considered. We considered it a good risk that, under the conditions of precipitation we used and because of the very small amounts of stearins present, the method of determination was probably much better than any other available. Certainly it is below the limits of the other errors inherent in the experiment.

The values themselves refute Kartha's argument. As he points out, if the tripalmitin were more soluble than the tissue-saturated triglycerides, all the values would be slightly high. Yet the values for endogenous rat fat conform well with Kartha's random theory. and after fat ingestion the values are below those expected by the random theory. It is only the chick fat values that are high, and these are much too high to be accounted for by any possible solubility difference.

b) We were in error in presenting the data in weight percentage instead of mol percentage.

The use of weight instead of mol percentage was made advisedly. To use the mol percentage basis many assumptions and guesses would have to be made as to the fatty acid composition of the various glycerides. The figures would thus be only estimates. The weight percentages could, at least, be given with confidence. More important, the error involved would not be great enough to change any conclusions. The figure of 93% calculated by Kartha in his letter, on assumptions of glyceride fatty acid composition, as compared to our figure of 107%, still leads to the same conclusion that endogenous rat triglycerides are of the random type.

The same is true for the rest of the figures. By whatever method calculated the addition of any fat to a rat diet lowers the percentage of saturated triglycerides below that expected by random distribution.

In the case of chickens the percentage of saturated triglycerides is much greater than expected by random distribution, regardless if calculated on weight or mol percentage basis.

In summary, therefore, while Kartha is technically quite correct in his criticisms of our procedure, these procedures were used advisedly; they are within the limits of error of the experiment; and they are, in our opinion, too small to affect the final conclusions.

RAYMOND REISER
Department of Biochemistry and Nutrition
Texas Agricultural Experiment Station
College Station, Tex.

J. W. DIECKERT
Southern Regional Research Laboratory
New Orleans, La.

Letter to the Editor

May 12, 1956.

In a recent study of the component acids of salmon egg fat (from *Oncorhynchus gorbuscha*) by R. M. Kyte (1) the author employed fractional distillation of groups of esters segregated by crystallization from acetone. He remarks that the method employed resulted in low values for unsaturation and chain length of the constituent unsaturated fatty acids.

It is true that, unless due precautions are observed, loss of unsaturation in polyethenoid esters is liable