been, and is, intended as a factual description of the principles operative in the glyceride structure of the great majority of natural fats. The earlier generalizations based on results obtained by chemical oxidation and isolation of trisaturated glycerides have been amply borne out, albeit extended and amplified, by the more recent developments made with the aid of preliminary crystallization from solvents over a range of temperature down to —70°C. Use of the latter techniques has indeed emphasized that each acid behaves individually in its glyceride distribution—and that consequently the study of groups of acids (*e.g.*, saturated and unsaturated, to which the procedure of Kartha and our own former chemical methods must be confined) may not always lead to adequate knowledge of glyceride structure.

5. Apart from the validity or otherwise of Kartha's method of glyceride computation, there remains the fact that the figures for mixed saturated-unsaturated categories of glycerides obtained by his modification of the chemical (oxidation) procedure do *not* always accord with those obtained by use of the crystallization techniques. It is much to be desired that Kartha's procedure, and also the crystallization technique, should receive scrutiny and confirmation from other workers in this field.

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T. P. HILDITCH
Birkenhead, England

June 25, 1954

Letter to the Editor

The J.A.O.C.S. for June 1953 contains an article on "Iodine Number of Acidulated Coconut Oil Soapstocks" (1), and in the August issue there is a letter to the editor regarding the same problem (2). I discussed this subject about a year ago (3), but the conclusions reached were quite different from those of the foregoing.

To shed further light, it may be advisable to review the results of some work done in 1922. This was initiated by reclamations by the buyer of acidulated coconut oil soapstocks, who complained of the low saponification numbers and high iodine numbers. In the control of the factory work to check possible errors, such as mixing coconut oil soapstock with other soapstocks, it was noticed that only the soapstock fatty acids coming from refining very good kinds of oils gave fatty acids with irregular constants, especially when refined by precise alkali refining methods.

At this time the mill worked different oils of very fine quality, and it was possible to collect the following results of analyses of these special soapstock fatty acids:

Whole Oil		I.N.	Soapstock Fatty Acids		Oils from the brown rinds (5)
Kind	Acidity		Acidity	I.N.	I.N.
Coconut oil	0.50%	7.5	92.0%	25.1	30.1
Palm kernel oil	0.80%	14.0	85.0%	20.1	29.1
Babassu oil	0.65%	14.0	95.0%	35.0	36.0
Lykury fat	0.64%	8.5	80.0%	28.0	55.7

The reason for the difference between the I.N. and the S.N. of soapstock fatty acids lies in the difference between the compositions of the oils in the white meat of the kernels and the oil of the brown rinds (4, 5) of the kernels, also in the fact that the oils of the brown rinds of the kernels always have much higher acidities (5) than the oils of the white meat, also of the oils from the whole kernels.

Therefore, by refining very good quality oils, using precise refining methods, one will get only a very small quantity of fatty acids from the white meat of the kernels, but much more fatty acids from the oil of the brown rinds of the kernels.

Hence fatty acids separated from the soapstocks will have different constants from normal stopstock fatty acids, also when not mixed with other soapstocks. The claims of the buyers have been right about the composition of the fatty acids but wrong in suspecting adulterations. In the cases cited in the 1953 issues of the J.A.O.C.S. the same situation may exist.

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FRANZ WITTKA
Lungo Lago 71
Gardone Riviera

March 29, 1954

Letter to the Editor

In commenting on Mr. Wittka's letter, I shall explain that in our original paper we were mainly interested in showing that the high iodine values of some coconut soapstocks are not necessarily a matter of contamination, and that the better grades of crude oil actually give the poorer soapstocks in this respect.

Our dissertation as to the reasons was included merely to offer some sort of explanation for the very excellent correlation found between FFA of crude oil and iodine value spread of refined oil to soapstock.. Whether the reasons advanced by Jakobsen or Wittka are more nearly right, we do not have enough data to prove although we hope to be able to study this further at some future date.

However it is difficult to see how the chance inclusion of dust oil, or oil from rinds, could be consistent enough to account for the excellent correlation we have found. Differences in the tendency toward hydrolysis of different fatty acids, particularly those of different chain length, should follow definite rules and thereby account for the relation found in Figure 1 in our paper.

In this connection it is interesting to note that Dr. Mykola Zajcew apparently reached conclusions (1) similar to our own, based on his work in Europe.

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WALES NEWBY
Opelousas Oil Refinery
Opelousas, La.

May 27, 1954