

DR. SONNTAG: You are perfectly correct, and I may have inadvertently created the impression that inedible industrials are the only likely market. I certainly did not intend to give that impression at all. The illustration used demonstrated that the diversity of products necessitated multiple raw materials within the lauric acid family, but I must agree with you that lauric acid soap is a much more homogeneous market possibility. A very excellent point and I am in essential agreement with you. Part of the reason I think we will see SLA soon could be attributed to this very factor.

QUESTION: You mentioned the locations of several Russian plants in the western part of the country, primarily. Why are they there?

DR. SONNTAG: They are there for the same reason we will see our synthetic acid plants near the ethylene sources on our Gulf coast. The Russian plants are at or reasonably close to the desired paraffinic hydrocarbon supplies. There is also a report of a possible location in Siberia, but it is not confirmed.

QUESTION: Could not the Varrentrap reaction be used as efficient way to produce the desired American fatty acids? We have seen some new interest in this lately, and yields are even claimed in the upper 90% range.

DR. SONNTAG: The Varrentrap reaction is a fused caustic pyrolysis reaction not especially suited for industrial production. While there has been recent laboratory interest, it is true, and several new patents issued, I cannot see it as a real possibility. It is really not a synthesis at all; oleic acid fuses to yield palmitic acid with a loss of two carbon atoms. The yields may be 80%, but I rather think not all pure fatty acid at that. What would we use for feedstocks? I really could not agree that this is a means of producing fatty acids for the future.

QUESTION: Are these Russian fatty acids branched or straight-chain and are they suitable for the conversion into biodegradable detergents?

DR. SONNTAG: The Russian and east European syn-

thetic fatty acids produced by paraffinic oxidation are mixtures of straight-chain acids whose carbon composition is fixed and determined by the hydrocarbon feedstocks used to prepare them. Since they are not aromatic, not heterocyclic, and not branched-chain, they ought to be biodegradable after conversion to the various detergent products.

QUESTION: Do the Russians have water pollution problems at their synthetic fatty acid plants?

DR. SONNTAG: If they are having problems, and they may well be, they aren't discussing it broadly. But synthetic fatty acid plants, like many others, require copious quantities of water, and by-product and residue disposal is a problem just as it always is in natural fatty acid plants. The Russians and east Europeans have lakes and streams just as we do, and perhaps we will be hearing more about their problems and the solutions as time goes on.

QUESTION: Have you heard anything about edible synthetic protein production in Russia?

DR. SONNTAG: They are engaged in large scale programs on this subject just as we are in the U.S., in England and elsewhere. Of course they obviously are not using synthetic fatty acids as feedstocks, but, rather, they use the appropriate hydrocarbons as raw materials. Yes, it is a large and sustained effort, and both ammonia and urea are being examined as the nitrogen sources.

QUESTION: Is soap the only use for the various synthetic fatty acids from Russia?

DR. SONNTAG: It is a major use for the C<sub>10</sub>-C<sub>20</sub> fractions, but not the only use. Russian plans call for plasticizer, detergent and other product expansions, and I expect they will apply them eventually quite the way we use our acids of that composition. The big emphasis on industrial uses such as synthetic lubricants continues, but the Russian people also want toilet soap, plasticizers and products for the household, and they expect to get them.



## AOCs Institutes "Open Forum" at Fall Business Meeting

The last item on the agenda of the Monday Morning Business Session at the New York Fall Meeting was a special period set aside for discussion of AOCs policies and activities. A gratifying number of registrants took part, as the above photos show. G. S. DeBuff (left center) discusses publication policies. EMI's A. M. Gaven (center) comments on the value of the Society's Annual Expositions, and the new "Mini-Exhibit" introduced at the New York Fall Meeting. Past President C. E. Morris (right center) and Daniel Swern are seen giving their views on important AOCs functions. In the lower left photo, A. R. Baldwin, Director of Publications; R. C. Stillman, Chairman, Society Improvement Committee; and J. C. Cowan, AOCs President (all lower left) join Swedish Registrants Ulo Reiner and Ragnar Olson (upper center) in listening to New York City Mayor Lindsey's representative, G. M. Weisberg, welcome the 42nd Fall Meeting. Soon thereafter, Dr. Swern was introduced as the recipient of the 1969 Award in Lipid Chemistry. He is seen (upper left) thanking his colleagues.

(Continued from page 34A)

trophoresis and by chromatography on DEAE-cellulose. The carboxyl-terminal sequences -Thr-Gln and probably -Lys-Tyr-Lys-Asn-Leu-Thr were elucidated by the actions of carboxypeptidases A and B on the lipid-free protein moieties of two fractions (1.083-1.124 and 1.126-1.195 g/cc) of lipoproteins and on the peptides fractionated on DEAE-cellulose. Glutamic acid  $\lambda$ -hydrazide, indicative of C-terminal glutamine, in addition to threonine, was found among the products of hydrazinolysis of the protein. The protein contains approximately 2 moles of C-terminal glutamine plus threonine per 30,000 g of protein.

EFFECTS OF FOUR COMPONENTS OF THE POLYENE ANTIBIOTIC, FILIPIN, ON PHOSPHOLIPID SPHERULES (LIPOSOMES) AND ERYTHROCYTES. G. Sessa and G. Weissmann (Dept. of Med., New York Univ. School of Med., New York, N.Y. 10016). *J. Biol. Chem.* 243, 4364-71 (1968). Effects of a complex polyene antibiotic, filipin, and its four components were studied upon biological (erythrocyte) and artificial (liposome) membranes in order to test the "sterol receptor" hypothesis of polyene action. The hemolytic activity of filipin complex could be removed more effectively by liposomes in which cholesterol was incorporated (phosphatidyl choline (7 parts), diethylphosphate (2), cholesterol (1)) than by cholesterol-lacking spherules (phosphatidyl choline(7), diethylphosphate (2), cholesterol (0)). The order of hemolytic activity of filipin components was: filipin II  $\cong$  filipin III  $\gg$  filipin I  $>$  filipin IV and this order paralleled their biological action. Filipin II, which is the major (53%) component of the complex, preferentially disrupted liposomes prepared with cholesterol (judged by release of  $\text{CrO}_4^-$ ); filipin II (25% of the complex) indiscriminately disrupted liposomes whether or not cholesterol was present. Filipin I and filipin IV were far less disruptive to the artificial structures. Other phospholipids (sphingomyelin  $>$  cardiolipin  $>$  phosphatidyl ethanolamine) were also shown to interact with filipin components. The experiments resolve discrepancies reported with filipin complex, the interaction of which with artificial membranes prepared either with or without cholesterol depends upon the relative enrichment of the complex in one or another of its components and the subsequent polyene-lipid ratio. Consequently, although filipins clearly interact with phospholipids in model systems, no significant objections remain to the general sterol receptor hypothesis of polyene action upon biological membranes.

LIPID CLASS AND FATTY ACID COMPOSITION OF RAT LIVER PLASMA MEMBRANES ISOLATED BY ZONAL CENTRIFUGATION. R. C. Pfeleger, N. G. Anderson, and F. Snyder (Lovelace Found. for Medical Educ. and Res., Albuquerque, N. M. 87108). *Biochemistry* 7, 2826-33 (1968). Plasma membranes of rat liver were isolated by zonal centrifugation for analysis of lipid classes and fatty acid composition. The yield of plasma membranes by this technique was 880  $\mu\text{g}$  of protein and 390  $\mu\text{g}$  of total lipid per g of liver. Neutral lipids represented 27% of the total extractable lipids, and this was mainly cholesterol. Phosphatidylcholine accounted for almost 40% of the phospholipids in the plasma membranes of rat liver. Phosphatidylethanolamine and sphingomyelin amount to approximately 20 and 18%, respectively, of the total phospholipids. Phosphatidylserine and phosphatidylinositol were not resolved from each other; this mixed fraction contained approximately 13% of the total lipid phosphorus. Lysophosphatidylcholine and polyglycerolphosphatides plus phosphatidic acid were present as minor components of the membrane lipids.

CONVERSION OF  $\Delta^5,7$ -CHOLESTADIEN-3 $\beta$ -OL TO 3 $\alpha,7\alpha,12\alpha$ -TRIHYDROXY-5 $\beta$ -CHOLANOIC ACID IN THE BILE FISTULA RAT. P. P. Nair, Maureen Gordon, Shirley A. Tepper, and D. Kritchinsky (Biochem. Res. Div., Dept. of Med., Sinai Hosp. of Baltimore, Inc., Baltimore, Md. 21215). *J. Biol. Chem.* 243, 4034-7 (1968). The present study has shown that labeled cholic acid is a major metabolite formed when 7-dehydrocholesterol-4- $^{14}\text{C}$  is fed to bile fistula rats. Since biliary and hepatic cholesterol were essentially devoid of radioactivity, it has been postulated that the biogenesis of cholic acid under these conditions may proceed either through a pathway that excludes cholesterol as a metabolic intermediate or through a small pool of cholesterol which is being actively converted to bile acids. In intact rats, however, the efficient conversion of 7-dehydrocholesterol to cholesterol was shown. The results are discussed in the light of recent observations that naturally

(Continued on page 38A)

**TENOX®** Antioxidant **TIPS**

## Guidelines for effective rancidity control

The blessing of advanced technology often brings the unwelcome problem of complex variables. So it is with the food industry. When it comes to combating rancidity, we have touched upon many of these variables in previous columns.

We have mentioned the increasing number of oils available today to the food technologist . . . the increased consumer demand for improved rancidity control under a wide variety of conditions . . . and the large number of factors that complicates the selection of the proper TENOX® formulation.

The Eastman Food Laboratory staff has analyzed an impressive volume of data in order to help make your selection easier. This data is summarized in our Technical Bulletin No. G-157, which you may find helpful in many ways.

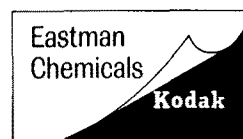
If improving the AOM stability of vegetable oils is your prime requirement, for example, the data shows that TENOX PG is generally the antioxidant to evaluate first. If you want maximum AOM stability, you will find that PG formulations such as TENOX S-1 may be your best bet.

The bulletin also sheds light on the attractions of TENOX BHA and BHT. While they do not greatly improve the AOM stability of the oils themselves, these antioxidants are noted for providing carry-through protection. When both good AOM stability and carry-through are needed in a vegetable oil, the data shows why you should consider TENOX 6. You will also see that the maximum permissible concentration of antioxidant generally gives the best results.

The bulletin includes charts which compare the effectiveness of various TENOX formulations when used in nine different vegetable oils under a variety of conditions. Another chart shows the degree of shelf-life protection of potato chips prepared in several different cooking oils. In addition, three basic methods of application — direct addition, antioxidant-fat concentrate addition, and the proportionate method — are described.

We will gladly supply a copy of Technical Bulletin G-157 upon request. And of course, we will be happy to help solve any unusual problems which you may encounter in your work.

Write to Chemicals Division, EASTMAN CHEMICAL PRODUCTS, INC., Kingsport, Tennessee 37662.



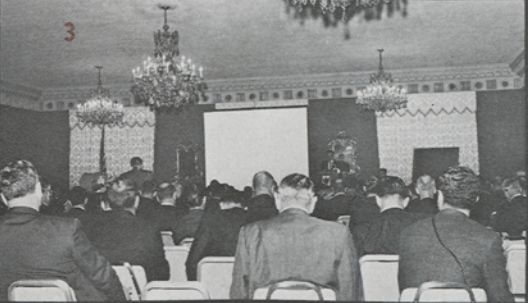
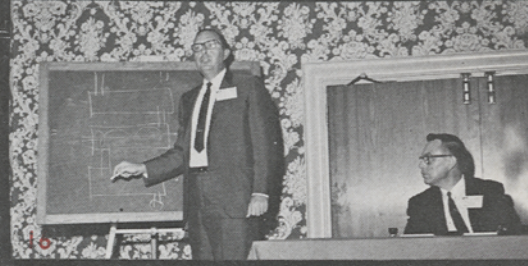
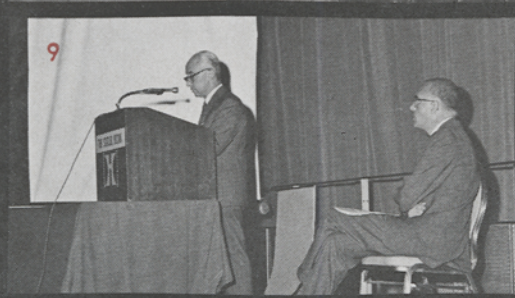


1969  
AOCS  
Awards

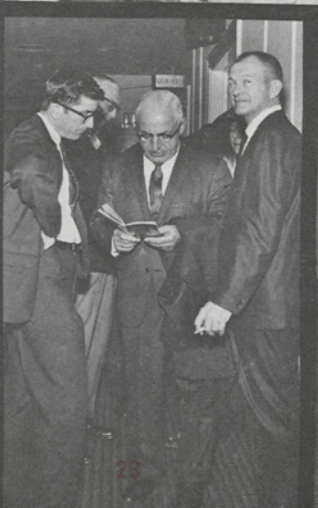
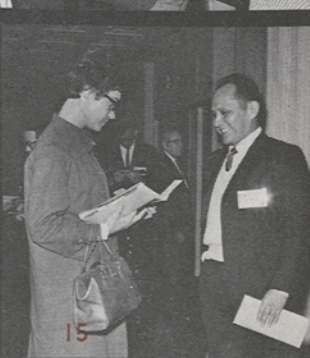
- Preparation
- Service
- Contribution
- Recognition













## 42nd Fall Ladies Events

An excellent Program awaited the ladies who attended the New York Fall Meeting. Ladies Headquarters hummed with activity throughout the meeting. The AOCs photographer recorded several happy groups during their leisure moments. All groups identified left to right.

1. Mmes. H. P. Molteni, S. B. Taylor, P. Kalustian talk with Fall Meeting Co-Chairman E. A. Lawrence.
2. Mmes. W. Patton, R. J. Hlavacek and P. Gibson.
3. Mmes. T. H. Applewhite, G. C. Cavanagh, L. A. Sweets, O. S. Privitt and J. C. Cowan.
4. Mrs. M. Young, Linda Lin and Mrs. N. D. Embree.
5. Mmes. J. R. Crafton, L. Chase, L. A. Sweets and W. Waller.
6. Mmes. H. G. Salomon, S. S. Chang and E. A. Lawrence.
7. Mmes. P. Kalustian, J. R. Chipault, D. H. Wheeler and L. A. Sweets.
8. Mmes. M. McEwan and T. H. Applewhite.
9. Mmes. W. Walker and J. Crafton.
10. Mmes. S. S. Chang and F. H. Fryer.

## Traditional Kentucky Breakfast

N. T. Joyner, Votator Vice-President, presenting the Commission of Kentucky Colonel to J. C. Cowan, AOCs President.





