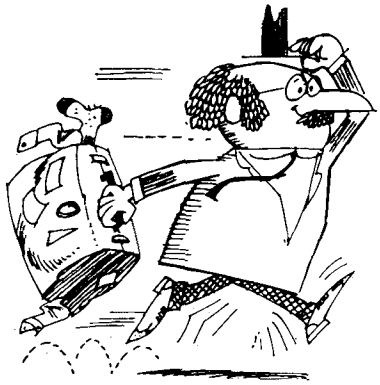

Meetings

AOCS National Meetings

1967—Chicago, Pick-Congress Hotel, Oct. 15–18

1968—Washington, D. C., Washington Hilton Hotel, March 31–April 5 (Joint with AACC); New York, Statler Hilton Hotel, Oct. 20–23.

1969—San Francisco, San Francisco Hilton, April 20–23. Minneapolis, Radisson Hotel, Oct. 5–8.

Other Organizations

Aug. 7–11, 1967—Instrument Society of America, Fourth Short Course on Gas Chromatography for Practicing Chromatographers, Colorado Woman's College, Denver, Colorado.

* Aug. 14–25, 1967—Modern Industrial Spectroscopy, Arizona State University, Tempe, Arizona

Sept. 3–Oct. 1, 1967—First International Soybean Exposition, in conjunction with 1967 Dairy Cattle Congress, Waterloo, Iowa.

Sept. 10, 1967—American Chemical Society and Instrument Society of America (at time of National Chemical Exposition) Chicago, Ill.

Sept. 11–14 1967—22nd Annual ISA Conference & Exhibit, Palmer House and International Amphitheatre Exposition Hall, Chicago, Ill.

Sept. 14–16, 1967—International Symposium on the Pharmacology of Hormonal Polypeptides: Metabolic and Molecular Aspects, University of Milan, Milan, Italy.

Sept. 19–23, 1967—International Symposium for the Chemistry and Technology of Rapeseed Oil and Other Cruciferae Oils, Gdánsk Technical University, Gdánsk, Poland.

* Sept. 24–27, 1967—Food and Bio-Engineering Symposia, joint meeting of AICHE and IMIQ, Mexico City.

Oct. 4–10, 1967—International Exhibition: Packaging, Handling and Processing of Foods, Milan Trade Fair Premises, Milan, Italy.

* Oct. 9–12, 1967—81st Annual Meeting, Association of Official Analytical Chemists, Marriott Motor Hotel, Twin Bridges, Washington, D.C.

* Oct. 12–15, 1967—Symposium on Fats and Oils Situation in Canada, Present and Projected," conducted by the National Research Council, 100 Sussex Drive, Ottawa, Canada.

Oct. 15–18, 1967—Federation of Societies for Paint Technology, 45th Annual Meeting, Municipal Convention Hall, Minneapolis, Minn.

Nov. 27–Dec. 1, 1967—Exposition of Chemical Industries, New York Coliseum, New York.

* April 1–4, 1968—Materials Engineering/Sciences Exposition and Conference (ME/SE), Sheraton Hotel, Philadelphia, Pa.

May, 1968—International Chemistry Exhibition and "Conference Internationale des Arts Chemiques," Paris, France.

* Additions to previous calendar

(Continued from page 319A)

THE INFLUENCE OF FATTY ACID COMPOSITION ON THE RATE OF BINDING OF LECITHIN BY EXTRACTED MITOCHONDRIA. G. G. DePury and F. D. Collins (R. Grimwade School of Biochem., Univ. of Melbourne, Parkville N.2, Victoria, Australia). *Chem. Phys. Lipids* 1, 1–19 (1966). A technique for measuring the rate of binding of lipid micelles by mitochondrial protein has been developed. After an initial rapid uptake, lecithin micelles were bound by mitochondrial protein at a steady rate. With increasing concentrations of lecithin in micellar solutions, this steady rate was increased towards a maximum rate. These results have been interpreted as indicating that the binding was a two-step process, in which the second step was rate limiting. The first step was considered to be the collision of micelles with protein particles and the second a re-arrangement of micelles so that the lecithins formed bonds with structural protein. Comparisons of the rates of binding of micelles of lecithins from normal and deficient rats has shown that fatty acid composition can influence this binding. Calculation from the experimental data showed that the maximum rate of binding of "deficient" lecithins was 2.5 to 3.0 times greater than that of "normal" lecithins. These results suggest that the hydrophobic bonds between phospholipids and structural protein are influenced by fatty acid composition and that phospholipids from normal rats are bound by structural protein more slowly than are those from deficient rats. It is suggested that structural protein has some special sites for hydrophobic bonding of arachidonic acid, in which phospholipids containing arachidonic acid are bound more slowly but also more firmly than other phospholipids. This could explain the reported fragility of lipoprotein membranes in animals deficient in essential fatty acids.

THE INFLUENCE OF FATTY ACID COMPOSITION ON THE RESTORATION OF SUCCINATE-CYTOCHROME C REDUCTASE ACTIVITY BY PHOSPHOLIPIDS IN EXTRACTED MITOCHONDRIA. G. G. Depury and F. D. Collins (R. Grimwade School of Biochem., Univ. of Melbourne, Parkville N.2, Victoria, Australia). *Chem. Phys. Lipids* 1, 20–32 (1966). The requirement of the electron transport chain for phospholipids, previously shown for beef heart mitochondria, has been confirmed for rat liver mitochondria. The succinate-cytochrome c reductase activity of mitochondria, whose lipids had been extracted with acetone, has been restored by incubating with micelles of phospholipids. Phospholipids that differ only in their fatty acid composition have been prepared from the livers of normal rats and rats deficient in essential fatty acids. Restoration of enzyme activity was, within limits, proportional to the amount of phospholipid bound by mitochondrial protein and, once bound, phospholipids from normal and deficient rats were equally effective. However, the rate of binding could be influenced by the fatty acid composition of the phospholipids. It is suggested that enzymes of the electron transport chain do not have any special requirement for phospholipids that contain essential fatty acids.

PENETRATION OF LIPID MONOLAYERS BY PSYCHOACTIVE DRUGS. R. A. Demel and L. L. M. VanDeenen (Lab. of Organic Chem., Dept. of Biochem., Univ. of Utrecht, Utrecht, The Netherlands). *Chem. Phys. Lipids* 1, 68–82 (1966). The ability of a number of psychoactive drugs to penetrate lipid monolayers of varying composition was examined, and the following observations were made: (1) The increase in surface pressure of a monomolecular film appeared to depend on the chemical nature of the lipid as well as on the initial film pressure. (2) Several psychoactive compounds showed a significant interaction with anionic lipid films at initial surface pressure above 18 dynes/cm. (3) The results support the view that coulombic attractions between cationic drugs and negatively charged lipids are involved. (4) Significant differences in the magnitude of the effect of different drugs on films of gangliosides are demonstrated.

THE SYNTHESIS OF 3-PHOSPHATIDYL-1'-GLYCEROL. P. P. M. Bonsen, G. H. DeHaas and L. L. M. VanDeenen (Dept. of Biochem., Lab. of Organic Chem., Univ. of Utrecht, Utrecht, The Netherlands). *Chem. Phys. Lipids* 1, 33–40 (1966). The synthesis of 1-oleoyl-2-palmitoyl glycerol-3-phosphoryl-1'-glycerol is described. By means of a reaction between a 1,2-diacylglycerol iodohydrin and the silver salt of 2,3-isopropylidene glycerol-1-(benzyl)-phosphate and removal of the protecting groups, phosphatidyl glycerol was obtained in the same stereochemical configuration as the naturally occurring substance. Confirmation of the structure of the synthesized compound was achieved with the aid of different enzymes and analytical procedures.

SYNTHESIS AND METABOLISM OF CHOLEST-5-ENE-3β,7α,12α-TRIOL. O. Berseus, H. Danielsson, and K. Einarsson (Dept. of Chem., Karolinska Inst., Stockholm, Sweden). *J. Biol. Chem.* 242, 1211–19 (1967). The synthesis of unlabeled and tritium-labeled cholest-5-ene-3β,7α,12α-triol is described. The formation of cholest-5-ene-3β,7α,12α-triol was shown in incubations of cholesterol and cholest-5-ene-3β,7α-diol with the 20,000 × g supernatant fluid of rat liver homogenates and of cholest-5-ene-3β,7α-diol with the microsomal fraction fortified by addition of reduced nicotinamide adenine dinucleotide phosphate. Cholest-5-ene-3β,7α,12α-triol was found to be converted to 7β,12β-dihydroxycholest-4-en-3-one in the presence of mitochondrial or microsomal fraction fortified with NAD or NADP. The microsomal fraction was more active than the mitochondrial fraction and NAD was several times more active than NADP.

SYNTHETIC STUDIES ON SPHINGOLIPIDS. XI. SYNTHESIS OF CYTOLIPIN H AND ANALOGOUS LACTOSIDES. D. Shapiro, E. S. Rachaman, Y. Rabinson and A. Diver-Haber (D. Sieff Res. Inst., Weizmann Inst. Science, Rehovoth, Israel). *Chem. Phys. Lipids* 1, 54–62 (1966). We report the synthesis of natural cytolipin H and its saturated analogues. The procedure involves condensation of 3-0-substituted ceramides with heptaacetyl lactosyl bromide in the presence of mercuric cyanide. The analogues include: (a) ceramide lactosides with a homologous series of fatty acids from C_{13} to C_2; (b) lactosides derived from allo-threoninol, threoninol and serinol. Synthesis of lactosyl sphingosine and its saturated diastereoisomer is also described.

ETHANOLAMINE PHOSPHOGLYCERIDES: EFFECT ON THE PROPERTIES OF MYELINOID WATER SYSTEMS. P. G. Fast (Insect Pathol. Res. Inst., Sault Ste. Marie, Ontario, Canada). *Science* 155, 1680–81 (1967). The amount of swelling solution trapped when mixtures of ethanolamine and choline phosphoglycerides were dispersed in 0.145M glucose-^{14}C is dependent on, but not linearly related to, the amount of ethanolamine phosphoglyceride in the mixture. The leakage of swelling solution out of such myelinoid lipid-water dispersions was, however, linearly related to the proportion of ethanolamine phosphoglyceride.

VITAMIN E CONTENT OF INFANT FORMULAS AND CEREALS. Martha W. Dicks-Bushnell and Karen C. Davis (Div. of Biochem., Univ. of Wyoming, Laramie, Wyoming). *Am. J. Clin. Nutr.* 20, 262–269 (1967). A method employing extraction into ethanol, saponification in the presence of ascorbic acid, reextraction into Skellysolve B, chromatography through columns of Florisil, 2-dimensional paper chromatography, and colorimetric reading with ferric chloride-dipyridyl was used for analyzing infant formulas and cereals for the tocopherols. Some variability in degree of recovery by the various procedures was observed among the different tocopherols. Certain of the procedures were studied and discussed. The 6 infant formulas and 10 infant cereals analyzed were found to contain 0.08–3.86 and 0.03–1.80 mg/100 g total tocopherol, respectively, and 0.08–1.06 and 0.03–0.49 mg/100 g alpha-tocopherol, respectively. The low levels of total and alpha-tocopherols in the infant cereals of one brand indicated much destruction of tocopherol during processing of cereals for infant consumption. These infant formulas and cereals had such low levels of alpha-tocopherol that they might be unsatisfactory sources of tocopherol for infant consumption. Supplementation of all infant formulas with alpha-tocopherol is indicated.

CANTHAXANTHIN, A POTENTIAL NEW FOOD COLOR. R. H. Bunnell and B. Borenstein (Food and Agr. Products Dev., Hoffmann-LaRoche Inc., Nutley, N.J.). *Food Tech.* 21, 13A–16A (1967). The synthesis of canthaxanthin, 4,4'-diketo-β-carotene, stimulated investigation of colorant applications and of mar-

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ket forms suitable for food use. The history and natural occurrence of canthaxathin are reviewed. It has unusually high tinctorial potency and is a useful food colorant in the red range at concentrations of 5–60 ppm. A water-dispersible market form has been developed which can be used in aqueous and emulsion foods. It has particular promise in tomato products, fruit drinks, dressings, and simulated meat products. Stability data in canned foods, baked goods, dressings, and processed cheese are presented.

COMPOSITION AND PALATABILITY CHARACTERISTICS OF MILD-CURED HAMS IN RELATION TO HEATING, COVER-FAT AND MARBLING. Olive M. Batcher, Elizabeth W. Murphy, Elsie H. Dawson, Anne C. Marsh, Susie N. Hagan and Patricia A. Deary (Human Nutr. Res. Div., Agr. Res. Service, U.S. Dept. Agr., Beltsville, Md. 20705). *Food Technol.* 21, 156A–159A (1967). Twenty-four pairs of hams, selected to represent high, medium, and low levels of cover-fat thickness and high and low levels of marbling of the lean, were cured and heated with smoke to 68C, and then one of each pair was analyzed unbaked, and one baked. Percentages of lean were higher and percentages of subcutaneous fat were lower in baked than in unbaked hams. Percentages of intermuscular fat, bone, skin, and waste in baked hams were not significantly different from the percentages in unbaked hams. The percentages of most nutrients, particularly protein and ash, in the separable components, and consequently in the whole ham, were higher in the baked than in the unbaked "fully cooked" hams. Few differences in the physical and proximate composition of unbaked and baked hams were found that were attributable to cover fat or marbling. Lean from unbaked hams was more juicy than lean from baked. Palatibility characteristics of unbaked or baked hams were not associated with cover fat or marbling.

COMPOSITION AND STRUCTURE OF TRIGLYCERIDES OF LYMPH AND INTESTINAL MUCOSA OF RATS AFTER INGESTION OF DIETS CONTAINING ELAIDIC ACID. COMPARATIVE STUDY ON THE BEHAVIOR OF CIS AND TRANS ACIDS BY MEANS OF TRITIATED OLEIC ACID. G. Lavouc and J. Clement (Lab. of Animal Phys., Fac. of Sci., Dijon, Fr.). *Rev. Franc. Corps Gras* 13, 529–534 (1966). Rats were fed diets containing elaidic acid as free acid (alone or in mixture with other free fatty acids), or as mixed triglycerides. Composition of the lipids from intestinal mucosa and lymph was determined by gas-liquid chromatography on capillary columns. Triglyceride structure was established by means of enzymatic methods. Results show a marked tendency for elaidic acid to be located in external position of the glyceride molecule. The authors have compared the behavior of elaidic and tritiated oleic acids in triglyceride molecules.

FATTY ACID UPTAKE AND ESTERIFICATION BY FISH MUSCLE. M. Hamosh, R. Atia and B. Shapiro (Dept. Biochem., Hebrew Univ., Haddassah Med. School, Jerusalem, Israel). *J. Food Sci.* 31(2), 146–50 (1966). Fresh carp muscles were shown capable of taking up fatty acids from a solution of bovine serum albumin-fatty acid complex. Highest uptake was with the longer-chain acids (C_{16}–C_{18}), with no marked difference due to unsaturation. Polyunsaturated and short-chain acids (caprylic) are adsorbed to fish muscle proteins so strongly that they cannot be extracted with acidic isopropanol-heptane.

RELATION OF PECTIC AND FATTY ACID CHANGES TO RESPIRATION RATE DURING RIPENING OF AVOCADO FRUITS. A. L. Dolendo, B. S. Luh and H. K. Pratt (Dept. of Food Sci. and Technol. and Veg. Crops, Univ. of Calif., Davis, Calif. 95616). *J. Food Sci.* 31(3), 332–36 (1966). The ripening of hard mature avocado fruits at 15C was followed by measuring respiration rate and softening. Eight fatty acids were identified in the oil, but the oil composition did not change significantly, suggesting that the storage oil of the tissue has no major metabolic role in fruit ripening.

EFFECTS OF OXIDIZED FISH OILS AND ADDED ETHOXYQUIN ON THE CULTURE OF RAINBOW TROUT. Tetsuo Honjoh, Hisashi Kumazawa, Masakatsu Oosaki, Takeshi Yonemura and Genzoh Kashiwa. *Yukagaku* 16, 135–6 (1967). Effects of feeding two types of oxidized oil with and without ethoxyquin were tested for culturing of rainbow trout. One of the oxidized oils was highly peroxidized cod-liver oil and the other was peroxide-decomposed oil prepared by heating of the former. Feeding of both oxidized oils without ethoxyquin diet resulted in high rate of death (70%) but in the case of ethoxyquin, it was controlled at the low level (24%). The lipid contents in the internal organs of fish fed with oxidized oils containing no ethoxyquin were higher than that of feeding same oils with ethoxyquin and oxidized lipid appeared in the former but not detected in the latter.

EFFECT OF PROLONGED GLUTEN FEEDING ON HEALTHY SUBJECTS. I. SERUM LIPIDS AND FATTY ACID PATTERN. A Gormican, M. A. Ohlson and M. Osborn (Univ. of Iowa, Iowa City). *J. Am. Dietetic Assoc.* 50, 122–5 (1967). Total serum lipids and fatty acids were determined in two healthy men kept on a high-gluten diet in a metabolic ward for five months. Fasting and post-test meal serums were analyzed for total lipids and fatty acids. Serum lipids were analyzed monthly for lipid patterns at 1,3,5 and 7 hrs. after ingestion of fat tolerance meals. In both subjects, post-test meal serum lipids increased during the study. High serum lipids were sustained 7 hrs. after the test meal as the study progressed. Considerable variation was seen in the saturated and unsaturated acids. One subject showed a marked increase in palmitic acid with a lower relative increase in oleic acid. As the experiment progressed, the monthly fat meal induced more intense and more prolonged lipemia.

II. FATTY ACIDS IN FECAL LIPIDS. *Ibid.*, 126–9. Fecal fatty acids excreted by two healthy subjects over five months during which they were fed a high-gluten diet in a controlled environment were extracted and analyzed for total fatty acids, free fatty acids and sterol ester fatty acids. In both subjects, palmitic acid excretion increased as the study progressed. One subject excreted increasing amounts of stearic acid while the other showed some increase in oleic acid excretion. Interpretation of changes in fecal lipids is difficult, because fecal lipids can originate from a variety of sources. However, the increase in saturated fatty acids may indicate poorer absorption of saturated acids as the study progressed, or be due to microorganisms and other environmental influences in the intestinal contents capable of hydrogenating unsaturated substances.

SERUM LIPIDS AND CERTAIN DIETARY FACTORS IN YOUNG MEN WITH CORONARY HEART DISEASE. A. I. Fleischman, T. Hayton and M. L. Bierenbaum (St. Vincent's Hospital, Montclair, N.J.). *J. Am. Dietetic Assoc.* 50, 112–5 (1967). Serum cholesterol and serum triglyceride levels were compared as possible predictive factors for coronary heart disease on a group of 83 male patients between the ages of 30 and 50 years who had all suffered one or more substantiated myocardial infarctions. Serum triglycerides were found to be the more reliable predictor if a maximum allowable level of cholesterol of 260 mg. per 100 ml. was used. Serum triglycerides could be readily reduced by weight loss, although the degree of reduction was independent of the degree of weight loss, and they were found to be poorly related to absolute weight and degree of obesity. The degree of saturation of the fat in the 30% fat diet utilized did not influence the serum triglyceride level in this group of young men with coronary heart disease.

A PEPTOLIPID FRACTION ARISING FROM MITOCHONDRIAL PHOSPHOLIPIDS, AND ITS EFFECT ON OXIDATIVE PHOSPHORYLATION. C. R. Rossi et al. (Univ. of Padua, Padua, Italy). *Arch. Biochem. Biophys.* 118, 210–8 (1967). Incubation of mitochondria in the presence of phospholipase A resulted in the hydrolysis of phospholipids to give, together with the corresponding lyso-compounds, a protein- and lipid-containing material, tentatively designated as "mitochondrial peptolipid." The amino acid and fatty acid compositions of this fraction have been established. This peptolipid, when added to freshly isolated mitochondria, released the respiration from its dependence on the presence of phosphate acceptor system, but did not affect the respiration in the presence of phosphate and ADP; nor did it modify the ADP:O ratio.

ESSENTIAL FATTY ACIDS CONVEY HIGHLY IMPORTANT BIOCHEMICAL PRINCIPLES. G. Buogo. *Olearia* 19, 227–9 (1965). Theories and experimental work are reviewed concerning the biochemical importance of essential fatty acids.

ANTIBIOTIC-CONTAINING ANIMAL FEED. L. E. Loveless (248 Rosemont, St. Louis, Mo.). *U.S. 3,304,237.* A method of augmenting animal blood concentration of antibiotics consists es-

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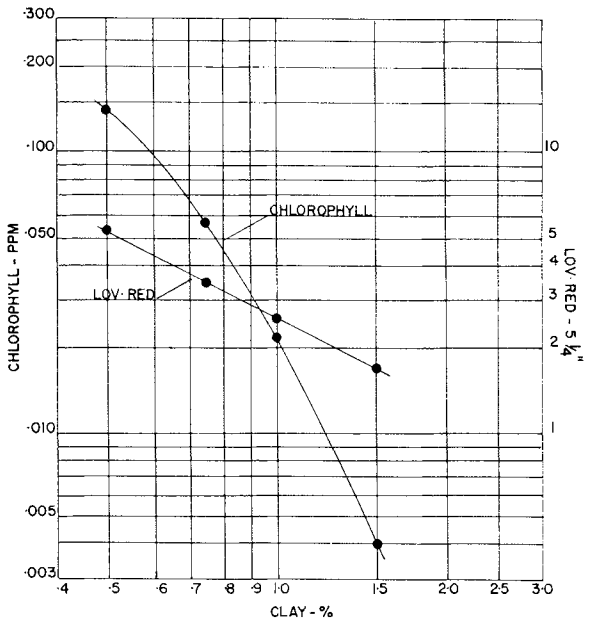

FIG. 1. Chlorophyll and Lovibond red *vs.* % activated clay-refined soybean oil.

is filtered in a closed-type press and cooled; the vacuum is broken.

Batch bleaching is preferable to continuous when a variety of oils is handled, each of which is of relatively small volume. But if only a few oils are treated, continuous bleaching is better because large volumes can be processed without frequent shutting down to refill the bleach tank. Also the bleached color can be regulated as the operation progresses. Since the system is almost automatic, the operators can employ part of their time elsewhere.

Both batch and continuous vacuum possess a number of advantages over batch atmospheric bleaching. Under vacuum, color can be obtained on vegetable oil with less activated clay. Also the bleached oil's keeping quality is

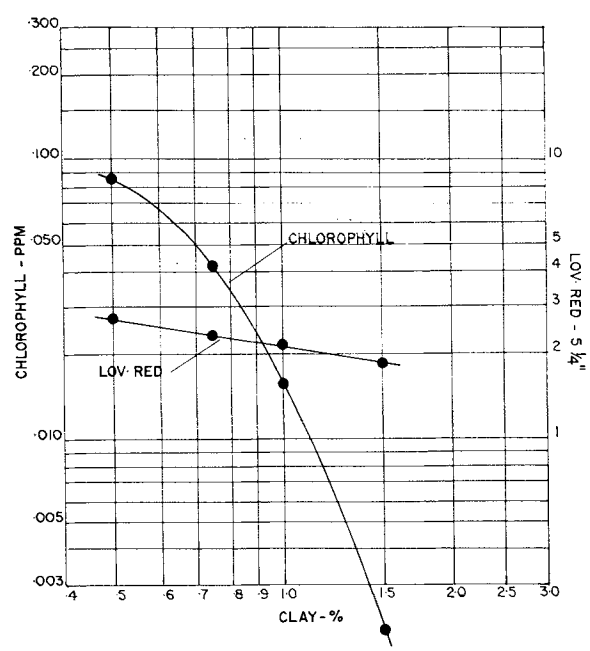

FIG. 2. Chlorophyll and Lovibond red *vs.* % activated clay-refined cottonseed oil.

TABLE II

Enhanced Reduction of Lovibond Red and Chlorophyll by Clay Acidity on Refined Soybean Oil

Clay	Clay %	Lovibond Red 5¼ in.	Chlorophyll ppm
(Refined oil)	....	10.0	.800
Neutral natural clay	1.2	4.7	.123
Same acidified	1.2	3.1	.071

superior because of minimized exposure to oxidation, FFA increase is lower because moisture is removed more rapidly and hydrolysis is reduced, the operation is cleaner. Most vegetable oil bleach plants built domestically in recent years have been vacuum, and a number of them are continuous.

Effect of Oil Quality

Oil quality more than any other factor governs bleaching performance. Differences between clays on a given oil, or between bleach methods, are of minor magnitude compared with those of bleaching two oils of different quality when the same clay and bleaching method are used. A clay activated to the highest adsorptive capacity possible, using the most effective bleaching conditions, gives poor results on an under-refined or oxidized oil. Among the oil quality categories the one most vital to bleaching performance is organic impurities (O.I.) in the oil; next is the oil's oxidative state.

Response of Different Color Pigments to Bleaching. The green color in soybean and cottonseed oils is chiefly chlorophyll, either chlorophyll A ($C_{55}N_{72}MgN_4O_5$), chlorophyll B ($C_{55}H_{70}MgN_4O_6$), or both. The red-yellow color consists of *alpha* or *beta* carotene (both $C_{40}H_{56}$) and xanthophyll ($C_{40}H_{56}O_2$). Cottonseed oil also contains the gossypol pigments. All these pigments are complex organic compounds, containing a number of double bonds, so they can be attacked by oxygen. Hereafter green color will be designated as "chlorophyll."

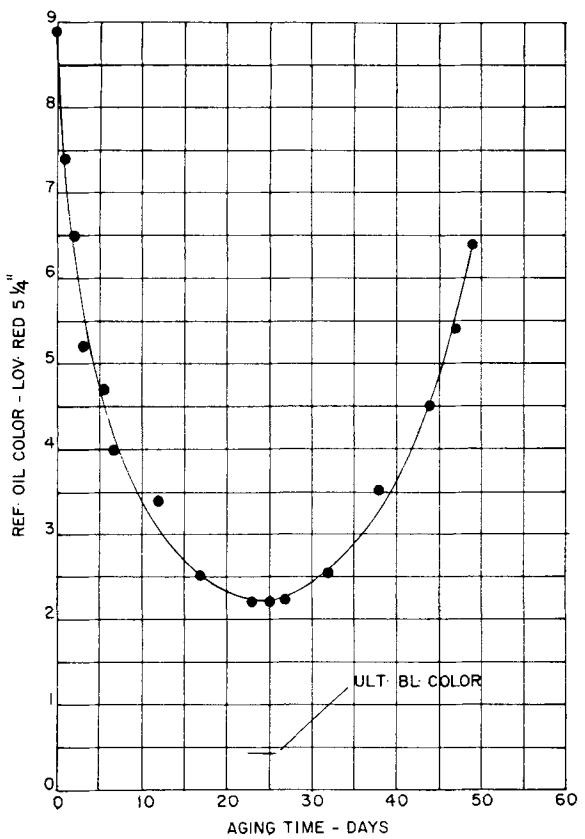

FIG. 3. Effect of aging refined soybean oil at 240F on its color.

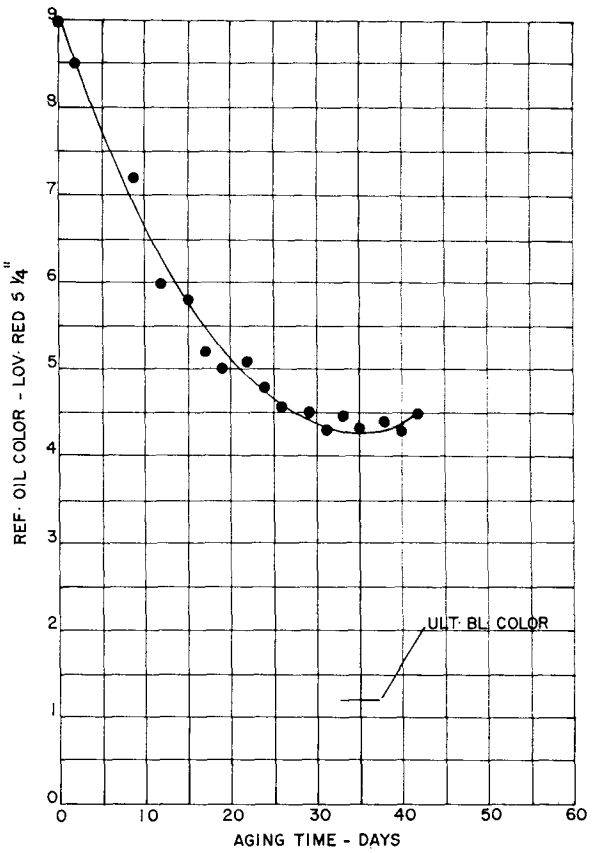

FIG. 4. Effect of aging refined cottonseed oil at 240F on its color.

On oils low in O.I. the color pigments are adsorbed readily by bleaching clay, and the effect is enhanced if the clay is slightly acidic. Table II shows the reduction in Lovibond red and chlorophyll on soybean oil with a neutral natural clay, and the enhanced reduction in both types of color when the same clay was made acidic.

Figures 1 and 2 illustrate the typical inverse log-log relationship between Lovibond red and chlorophyll *vs.* % activated clay on refined soybean oil and cottonseed oil respectively. A zero red color is never attained even with massive dosages of clay; however it is interesting to note that the chlorophyll decreased practically to zero with only 1½% clay.

Effect of Moisture in the Oil. Moisture in oils as high as 1% appears to have no detrimental effect upon the bleach or filter rate.

Effect of Free Fatty Acid in the Oil. FFA in an oil indicates that under-refining or hydrolysis has occurred, but there is no known effect of FFA *per se* upon the bleach. Fatty acids themselves respond well to bleaching unless they have reached an advanced stage of oxidation and revert in color.

Effect of Oxidation in the Oil. Oxidation has an imporportant bearing on bleaching performance and is one reason why bleaching frequently is complex and unpredictable. As noted under vacuum *vs.* atmospheric bleaching, color adsorption often is accompanied by two oxidative side-effects, color fading and formation respectively. The extent of these effects depends upon the nature of the color pigments in the oil and its oxidative state, and they are promoted by the clay as an oxidation catalyst.

Such phenomena as hard-to-bleach oils and color reversion, as well as the superiority of vacuum or atmospheric bleaching, are other manifestations of color formation. Fading of the carotenoid color pigments by oxidation is a familar phenomenon in heat bleaching. Color formation is believed to be the result of red color development by the oxidation of colorless precursors in the oil, *e.g.*, the red chroman 5,6 quinones from tocopherol (1), which does not respond to adsorption.

Effect of Organic Impurities in the Oil. The O.I. are the most vital factor influencing bleaching performance and perhaps the least understood. Included are phospholipids, degraded proteins, carbohydrates, and soap. They may be present in the oil in the form of colloidal dispersions rather than true solutions although perfectly clear oil can contain a substantial amount. Usually they are a brown color but are less pigmented than the color pigments, which also are O.I. but herein are not so classified.

Refining removes both color pigments and O.I.; whatever remains must be adsorbed by clay to the desired level. Thus, aside from neutralizing FFA, bleaching also refines oil in the role of a final scavenger. If an oil is under-refined, the residual O.I. are high, and an abnormal clay dosage is necessary to attain normal color.

For example, an under-refined cottonseed oil required 7.80% activated clay to bleach to 3.0 red. When the oil was moderately re-refined, only 0.86% was needed. An inedible tallow was bleached to 6.4 red with 3% activated clay. When the crude tallow was filtered with diatomaceous earth, a bleached color of 3.9 red was obtained. Evidently suspended O.I. were removed by the treatment.

A possible clue to the mechanism of the O.I. effect lies in the artificial aging of refined vegetable oil by heat. The refined oil color at first fades with time, then darkens (Figures 3 and 4). It appears that the rate of fading is slower on high O.I. oil, also that the spread between the low point of the color-time curve and the ultimate bleached color of the oil is greater than on low O.I. oil. ("Ultimate bleached color" is the lightest to which it can be bleached and is obtained by bleaching with a heavy excess of clay.)

If the facts were fully known regarding the relation of O.I. to adsorption and color fading, also regarding the clay characteristics most effective in removing color pigments in the presence of O.I., the art of bleaching would be much closer to a science than it is now.

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• *Industry Items*

ROSE, DOWNS & THOMPSON LIMITED will install a 31-foot diameter Rotocel Extractor for Cargill Soja Industrie N. V., Holland. Capacity of the extractor will be 1,500 tons of soybeans per day. The extractor is believed to be the largest single extraction unit in Europe.

DESOTO CHEMICAL COATINGS, INC., has changed its corporate name to DeSoto, Inc., it was announced by S. U. Greenberg (1943), Chairman of the Board and Chief Executive Officer. At the same time, Greenberg also announced the name change of DeSoto's coatings division from Paint and Resin Division to Chemical Coatings Division.