REFERENCES

1. Archibald, P. B., J. Am. Oil Chemists' Soc., *26*, No. 12, p. 32 (1949).
2. Chisholm, M. J., and Hopkins, C. Y., Can. J. Chem., *31*, 1173–80 (1953).
3. Colson, R., Oleagineux, *5*, 701 (1950).
4. Eckey, E. W., "Vegetable Fats and Oils," Reinhold Publishing Corporation, New York, 1954.
5. Kester, E. B., J. Am. Oil Chemists' Soc., *26*, 74 (1949).
6. N. and H. Zeit. fur angew. Chemie., *29*, I, 337–8 (1916).

[Received March 18, 1957]

ABSTRACTS . . . R. A. REINERS, Editor

ABSTRACTORS: Lenore Petschaft Africk, S. S. Chang, Sini'tiro Kawamura,
F. A. Kummerow, Joseph McLaughlin Jr., and Dorothy M. Rathmann

• Oils and Fats

Detection of soybean oil by determination of its delta-tocopherol content. K. W. Biefer and H. Hadorn(Lab. VSK, Basel, Switz.). *Mitt. Gebiete Lebensm. u. Hyg.* **47**, 445–55(1956). *Alpha-*, *beta-*, *gamma-*, and *delta*-tocopherol occur only in soybean and mustard-seed oils. The paper chromatographic method developed permits the detection of 10% soybean oil in any mixture of edible vegetable oils. A second paper chromatographic test is carried out for erucic acid, the presence of which would indicate mustard-seed oil. (*C. A.* **51**, 8315)

Isoöleic acids in vanaspati and the factors affecting their formation. C. R. Das and Sushil Kumar(D. C. M. Chem. Works, Delhi). *J. Sci. Ind. Research(India)* **15B**, 654–6(1956). The isoöleic acid content of vanaspati(partially hydrogenated oils) and the factors favoring its formation were investigated. In the hydrogenation of peanut oil with 5 different nickel catalysts, the isoöleic acid formed varied from 26 to 40%. By increasing the temperature of hydrogenation from 275–380°F. to 300–420°F., isoöleic acid formed increased from 22 to 39%, while increasing catalyst concentration from 0.031 to 0.062% on weight of oil caused an increase from 35 to 40% in amount of isoöleic acid. (*C. A.* **51**, 8315)

Glyceryl monostearate in food. S. Cressey. *Food Manuf.* **32**, 165–8, 175(1957). Review with 23 references. (*C. A.* **51**, 8313)

Application of the thiobarbituric acid test as a quantitative measure of deterioration in cooked oysters. M. G. Schwartz and Betty M. Watts(Dept. of Food and Nutrition, Florida State Univ., Tallahassee, Florida). *Food Res.* **22**, 76–82(1957). A simple modification of the 2-thiobarbituric acid test for oxidative rancidity has been adapted to oysters. The test may be performed directly on oyster tissue without previous extraction of the fat. As measured by this test, refrigerated cooked oysters have a definite induction period during which the TBA values do not increase over those for freshly cooked samples. At the end of the induction period there is a very rapid increase in the TBA values which corresponds closely with the development of "rancid fish" odors. Uncooked refrigerated oysters do not show consistent increases in TBA values nor do they develop rancid odors. The "rancid fish" odor and elevated TBA values, typical of oysters cooked enough to inactivate catalase, have been retarded by the addition of an antioxidant preparation.

Solvent extraction of high iodine number oil fractions for skin applications. P. Rovesti(Inst. ricerche deriv. vegetali, Milan). *Riv. ital. essenze profumi, piante offic., oli vegetali saponi* **38**, 547–51(1956). Furfural extraction of raw linseed, turtle, cod-liver, avocado, nut, and sweet almond oils, at 25° yield unsaturated fractions with iodine numbers of 222, 224, 238, 156, 195 and 119(iodine numbers of original oil 186, 93, 162, 85, 146 and 72.3) and a yield of 55, 25, 42, 16, 52 and 48%, respectively. The same process also yields oils with a high vitamin content. Skin absorption tests show that the isolated fractions leave absorption residues 2/3 lower than that of the corresponding raw oil. (*C. A.* **51**, 8584)

Separation, determination, and identification of C_2 to C_6 saturated fatty acids by partition chromatography. E. Vioque (Inst. Fats and Derivatives, Seville). *Grasas y Aceites(Spain)* **7**, 234–8(1956). Saturated fatty acids were separated on a silica column with water as the immobile phase and 94% carbon tetrachloride plus 6% water saturated butanol as the mobile phase. Bromocresol green was used to develop the zones. Saturated fatty acids were identified by the melting point of the phenylphenyl acyl bromide derivatives. For mg. amounts, the error was 10% or less. (*C. A.* **51**, 8543)

Azelaoglyceride number and calculation of the glyceride structure of natural fats. A. R. S. Kartha(Indian Agr. Res. Inst., New Delhi). *J. Sci. Ind. Res.(India)* **15B**, 724–5(1956). The method for determining the proportions of GS_2U in natural fats by estimating the amounts of GS_2A found after acid-acetone-permanganate oxidation of the fat is lengthy and has other disadvantages. A new method which consists in calculating the total GS_3 plus GS_2A plus GSA_2 obtainable from 100 parts of the triglycerides in the fat, from the results of the azelaoglyceride separation is presented. From the azelaoglyceride number, GS_3, and saturated acid contents of the fat, and the mean molecular weight of the latter, the proportions of GS_2A and GSA_2 are readily calculated. (*C. A.* **51**, 8453)

Pharmaceutical studies of fats and oils. IV. Colorimetric determination of rancidity of fats and oils, an its application to quantitative analysis. Ju Nogami, Yoshio Iwasaki, and Sumiko Kashiwagi(Univ. Tokyo). *Yakuzaigaku* **16**, 7–9(1956). A simple method for the determination of rancidity of fats and oils was developed. Dissolve 0.1 g. sample in 20 cc. solvent (chloroform:ethanol:acetic acid, 11:5:4), add 1 cc. 50% potassium iodide solution, and hold for 30 minutes in a dark room. Determine absorbancy at 450 mμ colorimetrically to measure rancidity. (*C. A.* **51**, 8454)

Possibility of replacing the iodine number determination by a simple optical measurement. K. H. Lüdde(Löwen-Apoth., Weimar, Ger.). *Pharmazie* **9**, 911–12(1954). The drum number (reading on compensator adjustment drum of refractometer) (Abbe number) is inversely proportional to the iodine number for the six fatty oils studied. By substracting drum number of the oil from that of water, and multiplying the difference by 88.7, a figure which is quite close to that of the iodine number of the oil is obtained. (*C. A.* **51**, 8454)

Bleaching properties of "decalcinated chalk" deposits. A. Waksmundzki and J. Barcicki(Zaklad Chem. Fiz. Wydzialu Mat.-Fiz.-Chem. U.M.C.S., Lublin). *Ann. Univ. Mariae Curie-Sklodowska, Lublin-Polonia, Sect. AA*, **8**, 1–8(1953). Decalcinated chalk deposits, found in Lublin province, were found to contain SiO_3 87.7, Al_2O_3 2.6, Fe_2O_3 0.8, CaO 0.54, MgO 0.78 and bound water 1.6%. It decolorized crude rape oil 88.4% when 6.6 g. was used per 100 ml. oil (*C. A.* **51**, 8454)

Relation between the development of rancidity of oils and the time of their exposure to air. Tomomasa Oikawa. *Kagaku to Sosa* **9**, 15–9(1956). The change of some physical and chemical properties such as peroxide number, iodine number, acid number, saponification number, and absorption spectrum of cuttlefish, rice, and sesame oil when exposed to air were studied. The amount of sesamol and sesamolin were found to remain unchanged after standing for 50 days. (*C. A.* **51**, 8454)

New oil plants. K. Moldenhawer(Univ. Pozana, Poland). *Prezemysl Spozymczy* **7**, 58–62(1953). The physiochemical and technological properties of the oil from a number of plants in Poland were evaluated as sources of vegetable oils. (*C. A.* **51**, 8455)

Preparation of cottonseed meats and the effects on the quality of the products. A. C. Wamble and Wm. B. Harris(Texas A. & M. College, College Station). *Oil Mill Gaz.* **61**(10), 11-5(1957). Adding moisture prior to rolling cottonseed meats significantly reduced the amount of gossypol contained in the expressed oil. Addition of water also resulted in increased refining loss and oil color. No significant effects of flake thickness, moisture, or type of rolling equipment used were evident with regard to extraction efficiency or amount of free gossypol left in pressed meals, except that a "Flake All" machine induced lower gossypol content in flakes and final meals. (*C. A.* **51**, 8455)

Lorentz-Lorenz expression as a new analytical constant for fats (ghee) and oils. I. Mustard oil. A. C. Chatterji and Umesh Chandra(Lucknow Univ.). *Z. Anal. Chem.* **153**, 418–23(1956). Molecular refraction is used to detect adulteration of mustard oil with peanut, sesame, safflower, linseed or argemone oils. (*C. A.* **51**, 8455)

Examination of the fixed oil of Ipomoea palmata seeds. K. L. Handa, Vishwa Paul, and Vasudev(Drug Research Lab., Jammu). *J. Sci. Ind. Research(India)* **15B**, 727–8(1956). Petroleum ether extraction of the seeds yields 11.5% clear pale-yellow oil. The fatty acids composition of the oil is: palmitic 8.29, stearic 11.43, arachidic 2.95, behenic 0.81, oleic 24.5, linoleic 32.66, and linolenic 4.8%. *Beta*-sitosterol is present. (*C. A.* **51**, 8455)

Examination of the fixed oil of Lepidium sativum seeds. Vasudev, Ishwar Chandra and K. L. Handa(Drug Research Lab., Jammu). *J. Sci. Ind. Research (India)* **15B**, 725–6 (1956). Petroleum ether extraction of the seeds yields 25.5% clear yellowish brown oil. The fatty acid composition of the oil is: palmitic 1,27, stearic 6.01, arachidic 1.54, behenic 1.73, lignoceric 0.2, oleic 61.25, and linolenic 28.0%. Erucic and linoleic acids are absent. *Beta*-sitosterol is present. (*C. A.* **51**, 8455)

Glyceride structure of Myristica canarica seed fat. A. R. S. Kartha(Indian Agr. Research Inst., New Delhi). *J. Sci. Ind. Research(India)* **15B**, 722–4(1956). The glyceride structure of the oil from the dry kernels of *M. canarica* was studied. (*C. A.* **51**, 8455)

Examination of the fixed oil of Portulaca oleracea seeds. K. L. Handa, Vasudev, Vishwa Paul, and S. S. Choudhari(Drug Research Lab., Jammu). *J. Sci. Ind. Research(India)* **15B**, 726–7 (1956). Petroleum ether extract of the seeds yields 17.4% light green oil. The fatty acid composition of the oil is: palmitic 10.89, stearic 3.71, behenic 1.28, oleic 28.69, linoleic 38.9, and linolenic 9.9%. *Beta*-sitosterol is present. (*C. A.* **51**, 8456)

Effect of overheating seed of Ricinus comunis on acidity of the derived oil. D. Augustowska. *Acta Polon. Pharm.* **13**, 483–6(1956). Heating castor oil seed 24 hours at 85° lowers the acidity index of the oil by 60%. This treatment can be used to upgrade seed which normally would be used for production of technical oil only. (*C. A.* **51**, 8457)

Oils of wild plants of the Appennine zone of Mt. Pollino (Italy). G. L. Variati(Ist. richerche deriv. vegetali, Milan). *Riv. ital. essenze, profumi, piante offic., oli vegetali, saponi* **38**, 501–2(1956). Physical constants of three oils were given. (*C. A.* **51**, 8457)

Air absorption of some liquids. G. L. De and P. C. Mahanti. *Indian J. Phys.* **28**, 441–7(1954). *Sci. Abstr.* **58A**, 450(1955). In highly refined samples of transformer, linseed, peanut, and sesame oils and in distilled water, the absorption per cc. in time *t* minutes is $\alpha \cong \alpha_0\ (1 - e^{-t/\lambda})$, where α_0 is the maximum absorption and λ a constant, characteristic of each liquid. The absorption decreases with increasing polarity of the liquids. (*C. A.* **51**, 7790)

Urea adducts with fatty compounds. XI. Urea adducts with aliphatic diesters. J. M. Martínez Moreno, A. V. Roncero, C. Janer del Valle, F. Mazuelos, J. R. Cruz and M. L. delValle (Inst. Fats and Derivatives, Seville). *Grasas y aceites(Seville, Spain)* **7**, 285–93(1956). The relation of the number of urea molecules in urea adducts of diglyceride to the number of carbon atoms is studied by the equation $L_u = a\,(1.85R) + b$, where L_u is the length of the molecule in *A* and *R* is the number of urea molecules in the adduct. The value of the constant *a* is near unity and *b* is less than 4 for fatty acids, aliphatic alcohols, monoglycerides, etc. For diglycerides the value of *a* is about half the usual value and *b* is more than twice as large as normal. A theory of chain folding is advanced to explain the discrepancy. Supporting x-ray data are reported. (*C. A.* **51**, 7805)

Diffusion of associated molecules. Katsumasa Kaneko, Kazuo Kitamura and Yukio Hosokawa(Kanazawa Univ.). *Nippon Kagaku Zasshi.* **77**, 1023–6(1956). The diffusion constants of camellia oil in acetone were determined at 20° up to the concentration 30%, and the dependence of the diffusion constants on concentration is discussed in the light of molecular association. (*C. A.* **51**, 7805)

Castor oil. A. J. Krajkeman(Soflor Ltd., Zurich, Switz.). *Perfumery Essent. Oil Record* **48**, 23–9(1957). Production of the seeds, composition of the seeds and oil, reactions of the oil, and perfumery products from the oil are discussed (*C. A.* **51**, 8379)

Report on fish and other marine products. M. D. Voth(Food & Drug Admin., Dept. Health, Educ. & Welfare, Seattle 4, Wash.). *J. Assoc. Official Agr. Chemists* **40**, 342(1957). It is recommended that the Babcock method for fat in canned salmon be studied collaboratively and extended to other types of fish.

Report on total solids and ether extract in fish and other marine products. H. M. Risley(Food & Drug Admin., Dept. Health, Educ. & Welfare, Seattle 4, Wash.). *J. Assoc. Official Agr. Chemists* **40**, 343–5(1957). A modified Babcock method for the rapid determination of fat in canned salmon is described. Although results tended to be slightly lower than those by the Official method, they were more consistent and precise in the range of fat contents between 2.5 and 15.5%.

Report on crude fat in feeds. H. H. Hoffman(Florida Dept. Agr., Tallahassee, Fla.). *J. Assoc. Official Agr. Chemists* **40**, 358–61(1957). A collaborative study was made to compare values for crude fat in feeds as determined with and without a preliminary extraction of the sample with water. This extraction was found to give low crude fat values (as determined by ether extraction) even when molasses was not present in the feeds. No suitable criterion was found for deciding which samples should be extracted with water. It is recommended that this step be deleted from Official method 22.26.

Report on decomposition in cream and butter. Chromatographic method for simultaneous determination of volatile acids and WIA in cream and butter. H. C. Van Dame(Food & Drug Admin., Dept. Health, Educ. & Welfare, Kansas City 6, Mo.). *J. Assoc. Official Agr. Chemists* **40**, 407–14(1957). The partition chromatographic method of Keeney [*J.A.O.A.C.* **39**, 214 (1956)] for the simultaneous estimation of volatile acids and WIA in butter and cream was studied. Elution of the acids took place in the following order: WIA, valeric, butyric, propionic. Comparisons of this method and the Official method showed good agreement only with butter. Possible explanations for discrepancies with cream are discussed and require further study. It is recommended that the chromatographic method be adopted as first action for butter and that a mean molecular weight of 270 be used to calculate WIA.

Report on oils, fats and waxes. G. Kirsten(Food & Drug Admin., Dept. Health, Educ. & Welfare, New York 14, N. Y.). *J. Assoc. Official Agr. Chemists* **40**, 486–7(1957). It is recommended that work be continued on spectrophotometric methods for polyunsaturated acids in fats and oils, on peanut oil, and on antioxidants, but that work on color in oleomargarine be temporarily suspended.

Report on spectrophotometric methods for fats and oils. D. Firestone(Food & Drug Admin., Dept. Health, Educ. & Welfare, Washington 25, D.C.). *J. Assoc. Official Agr. Chemists* **40**, 487–91(1957). A collaborative study of the A.O.C.S. Tentative Method Cd 7–48(revised May 1953) for polyunsaturated acids was conducted on samples of cottonseed, soybean, corn and olive oils. A household deep-fat fryer was used as the isomerization bath without loss of accuracy. Because the A.O.C.S. method is undergoing revision, the referees recommend that further collaborative studies be made to insure an A.O.A.C. method equivalent to that of the A.O.C.S.

Report on dairy products. W. Horwitz(Food & Drug Admin., Dept. Health, Educ. & Welfare, Washington 25, D.C.). *J. Assoc. Official Agr. Chemists* **40**, 491–5(1957). The report includes summaries of studies on cryoscopy of milk, phosphatase test, foreign fats in dairy products, and the determination of fat. With respect to fats, it is recommended that (a) further work be done on the mechanical shaking procedure for the preparation of butter samples, (b) search for substitutes for sulfuric acid in the Babcock test be delayed temporarily, (c) further study be made of the sterol acetate, bound sterol, and tocopherol methods, (d) Official methods for Reichert-Meissl and Polenske values be revised, and (e) methods for separation of fat from ice cream be adopted as first action.

Report on fat in milk by the detergent method. Comparison of detergent method for milk and ice cream with the Babcock and Mojonnier methods. E. O. Herreid(Illinois Agr. Expt. Station, Urbana, Ill.). *J. Assoc. Official Agr. Chemists* **40**, 499–508(1957). Results are reported of collaborative study of the Dairy Products Section (DPS) detergent test, and Babcock and Mojonnier methods for fat in milk and ice cream. Babcock values differed from Mojonnier by −0.10 to +0.16%; differences between Mojonnier and DPS tests varied between −0.01 and +0.07%. Considering the inherent variability among technicians in estimating the meniscus, the DPS test can be expected to give about the same accuracy as the Babcock test. Exclusion of the meniscus in volumetric tests (by the use of mineral oil, glymol) may be desirable. These tests should be restandardized with the ether extraction method as reference.

Report on foreign fats in dairy products. Reichert-Meissl and Polenske determinations. T. J. Klayder and S. D. Fine(Food & Drug Admin., Dept. Health, Educ. & Welfare, Denver 2, Colo.). *J. Assoc. Official Agr. Chemists* **40**, 509–16(1957). Results are reported graphically for the effects of the following variables on the Reichert-Meissl and Polenske values of butterfat, palm kernel oil and coconut oil: amount of water, weight of sample, and number of pieces of carborundum. A revised statement of the Official method 26.27 is suggested. A collaborative study was made of fat separation from ice creams by ether extract before determination of the constants. It is suggesetd that the extraction be adopted as first action.

Report on foreign fats in dairy products. Sterol acetate test. J. H. Cannon (Food & Drug Admin., Dept. Health, Educ. & Welfare, St. Louis 1, Mo.). *J. Assoc. Official Agr. Chemists* **40**, 517–22 (1957). Mixtures were prepared from pure samples of cholesterol acetate and phytosterol acetate. As the phytosterol acetate content was increased from 6.25 to 50%, the melting point increased from 2° to 18°C. above that of pure cholesterol acetate. In analyzing for vegetable fat in butter by the sterol acetate test, both the amount and the kind of phytosterols must be considered. Addition of certain phytosterols to cholesterol produces a steeply sloping melting point curve whereas other phytosterols have ilttle effect. In this respect, there is little difference between the behaviors of soybean oil and cottonseed oil in the sterol acetate test. The present study led to a modified procedure for the detection of coconut oil in butter which depends on the fact that in animal fats the sterols occur in the free form whereas in vegetable fats the sterols are largely esterified. Thus, treatment of the unhydrolyzed fat mixture with digitonin precipitates most of the cholesterol with a resultant increase in the phytosterol to cholesterol ratio. Details of this "bound sterol method" are described and recommended for further study.

Report on foreign fats in dairy products. Tocopherol test. E. S. Windham (Div. Veterinary Med., Walter Reed Army Inst. of Research, Washington, D.C.). *J. Assoc. Official Agr. Chemists* **40**, 522–31 (1957). A collaborative study was made of procedures for the determination of tocopherol and carotenes in dairy products. Since vegetable fats are usually rich sources of tocopherol, determination of this compound may provide a good index of adulteration of animal fats. Details of the procedure are reported. All collaborators were unable to obtain reproducible results but the procedure looks promising enough to merit further study.

Report on chromatographic procedures for foreign fats in dairy products. Determination of the mole percent of butyric acid in fat. J. H. Mahon (Food & Drug Directorate, Dept. Natl. Health & Welfare, Ottawa, Canada). *J. Assoc. Official Agr. Chemists* **40**, 531–4 (1957). With minor modifications, the silicic acid chromatographic method for estimating the mole percent of butyric acid in fat is recommended for adoption as an official method.

Composition for preventing the adhesion of baked goods to baking containers. C. J. Haas. *U. S. 2,793,123.* Sticking of baked goods to baking containers is prevented by a glaze prepared from 15 to 85 parts of edible oils and fats, 85 to 15 parts of dispersing agents such as carbohydrates and starches, and 0.25 to 2 parts of inverting agents such as nontoxic polycarboxylic acids and their salts.

Drilling fluid emulsifiers. A. G. Schuessler (Swift & Co. and Mud Control Labs., Inc.). *U. S. 2,793,189.* A well drilling and completion fluid consisting of a water-in-oil emulsion is stabilized by the addition of a polyvalent metal salt of sulfated sperm oil and lecithin in proportions between 19:1 and 4:1.

Means for sensing and recording the temperature of the contents of lard renderers. L. J. Pircon (trustees of American Meat Institute Foundation). *U. S. 2,795,139.* A temperature recording system for lard rendering kettles is described.

Icing mix. B. R. Dunshee and H. M. Keller (General Mills, Inc.). *U. S. 2,795,503.* An icing is prepared from shortening and reducing sugar stabilized with a compound of the ene-diol type.

Production of hard, elastic waxes with low shrinkage. E. Finck and G. Hummel (Badische Anilin- & Soda-Fabrik Akt.). *U. S. 2,795,505.* A precision casting wax is prepared by fusing together a montan wax, an ester of glycerine, butane triol, trimethylol propane or pentaerythritol, a resin such as colophony or its esters with polyhydric alcohols, a mononuclear arylene or alkylene diisocyanate, and a fatty acid amide.

Removal of copper and nickel from fatty acids. J. W. Opie (General Mills, Inc.). *U. S. 2,795,543.* Nickel and copper are removed from saturated fatty acids by treating the molten acids with 0.1 to 1% by wt. of a concentrated strong mineral acid in the presence of bleaching earth.

Method for bleaching vegetable oils. A. A. Elston (E. I. du Pont de Nemours & Co.). *U. S. 2,795,595.* Soybean oil is bleached by agitating for 0.5 to 2 hrs. at 90° to 210°F. with 0.05 to 2 parts of chromium trioxide, adding 0.05 to 5 parts of hydrogen peroxide and continuing heating for 0.5 to 2 hrs., adding 0.02 to 10 parts of caustic soda and continuing the heating for 0.5 to 2 hrs., and finally separating the oil.

Food product. F. P. Colten and H. R. Di Pietro (General Foods Corp.). *U. S. 2,796,348.* A confectioners coating is prepared from a vegetable fat containing a high proportion of lauryl glycerides, cocoa powder, and a stabilizer such as sorbic acid, its salts or aliphatic esters.

Food product. F. P. Colten and H. R. Di Pietro (General Foods Corp.). *U. S. 2,796,349.* A confectioners coating is prepared from a vegetable fat containing a high proportion of lauryl glycerides, cocoa powder and a stabilizer such as an alkali N-lauroyl sarcosinate.

Coating cooking vessels. M. J. Lalone. *U. S. 2,796,363.* The cooking surface is coated with a mixture containing at least 10% lecithin.

Repository vegetable oil, ethyl cellulose, tetracycline-type antibiotic composition. W. R. Borst (American Cyanamid Co.). *U. S. 2,796,381.* The composition is prepared by dispersing the tetracycline-antibiotic in a gel obtained by dissolving ethyl cellulose in a vegetable oil at 180° to 205°C.

FATTY ACID DERIVATIVES

Addition of maleic anhydride to nonconjugated unsaturated fatty acids and the utilization of these adducts. Yoshihiro Shigeno and Saburo Komori. *Technol. Repts. Osaka Univ.* **6**, 179–93 (1956). Maleinated oleic acid was prepared, esterified with methanol and hydrogenated with a nickel-kieselguhr catalyst. The product was as effective as dioctyl phthalate as a plasticizer for poly(vinyl chloride). Maleinated esters of the fatty acids of sperm oil, beef tallow, neat-knee oil, rapeseed oil and erucic acid were prepared. All these esters were nontoxic, very heat stable and were good plasticizers for poly(vinyl chloride). *(C. A.* **51**, 8453)

Oil base drilling fluid. J. L. Lummus (Pan American Petroleum Corp.). *U. S. 2,793,996.* A liquid concentrate suitable for mixing with oil to form a well-servicing fluid is prepared from 100 to 200 parts of fatty acid residue, 0.5 to 2 parts of alkali metal base, 3 to 5 parts of a strong oxidizing agent, sufficient water to cause reaction between these components, and sufficient oil to decrease the viscosity for convenient handling.

Emulsifiable oil composition. P. M. Ruedrich (Nopco Chemical Co.). *U. S. 2,794,000.* An emulsifier is prepared by reacting at 300° to 375°F. a mixture of fatty acid, ethylenediamine tetraacetic acid and a dialkanolamine.

Paper sized with a condensation product of a fatty amine and hexahydro-1,3,5-triacrylyl-s-triazine. L. A. Lundberg and W. F. Reynolds Jr. (American Cyamamid Co.). *U. S. 2,794,737.* The paper is sized with 0.1 to 5% of its dry weight of a condensation product from 1 to 2 mols of a C_{16} to C_{22} saturated fatty amine and 1 mol of hexahydro-1,3,5-triacrylyl-*s*-triazine.

Preparation of lipoproteins. E. F. Cavanaugh (Armour & Co.). *U. S. 2,794,796.* A lipoprotein is prepared by the reaction of a protein with a fatty acid halide in an alkaline medium.

Non-foaming wax. F. J. Higgins (Continental Oil Co.). *U. S. 2,796,355.* The antifoaming agent for a molten paraffin wax consists of a mixture of an alkali metal soap and an ester formed by the reaction of a C_{11} to C_{20} fatty acid with a C_2 to C_{18} polyhydric alcohol.

Lubricating compositions. G. H. Thornley (C. C. Wakefield & Co., Ltd.). *U. S. 2,796,400.* The lubricating composition is prepared from castor oil, mineral oil and a mutual solvent. This solvent consists of one or more aliphatic and cycloaliphatic alcohol esters of C_4 to C_{10} dicarboxylic acids.

• Biology and Nutrition

Fat splitting enzymes in blood. G. A. Overbeek (Pharmacol. Research Lab., N. V. Organon, Oss. Neth.). *Clin. Chim. Acta.* **2**, 1–8 (1957). Review with 40 references. *(C. A.* **51**, 8156)

The biosynthesis of the fatty acids of the plasma of man. I. The formation of certain chromatographically-separated higher fatty acids of the major lipide complexes from acetate-1-C. S. R. Lipsky, A. Haavik, C. L. Hopper, R. W. McDivitt and B. M. Mossberg (Yale Univ.). *J. Clin. Invest.* **36**, 233–44 (1957). Certain specific saturated and unsaturated fatty acids associated with the major lipide complexes of the plasma of man were isolated and measured by chromatographic method. The predominant fatty acid components of the sterol esters, the phospholipides and the triglycerides were linoleic, oleic, palmitic, and stearic acids. The largest quantity of unsaturated fatty acids was in the sterol ester fraction. The most of the saturated fatty acid were present in the triglycerides. The absence of demonstrable activity in the isolated linoleic fractions signified the lack of endogenous formation of the polyunsaturated fatty acid in man. (*C. A.* **51**, 8244)

The effects of different food fats on serum cholesterol concentration in man. J. T. Anderson, A. Keys, and F. Grande (Lab. of Physiological Hygiene, Univ. of Minnesota, Minneapolis, Minn.). *J. Nutrition* **62**, 421–444 (1957). The serum cholesterol responses to the various fats corresponded roughly to the principle that saturated fats promote higher cholesterol levels than polyunsaturated fats but neither degree of saturation (iodine value) nor content of linoleic acid fully explained the results. Coconut oil is less cholesterol-promoting than would be predicted from the theories that degree of saturation or the content of essential fatty acids is the controlling factor. Sardine oil is considerably less cholesterol-depressing than would be expected if degree of unsaturation is the major factor. And corn oil caused greater depression of serum cholesterol than would be expected from either the essential fatty acid or the degree of unsaturation theories.

Studies to determine the nature of the damage to the nutritive value of menhaden oil from heat treatment. R. H. Common, E. W. Crampton, Florence Farmer and A. S. W. DeFreitas (Dept. of Nutrition and Chemistry, Macdonald College, McGill Univ., Province of Quebec, Canada). *J. Nutrition* **62**, 341–347 (1957). The non-adduct-forming fraction (NAFD) of the distillable esters from heated menhaden oil was toxic to rats to a degree comparable with the toxicity of the similar fraction from heated linseed oil. The adduct-forming fraction (AFD) of the distillable esters from the heated oil was nutritionally innocuous. The results provide some additional evidence for an association between the toxicity of the NAFD fraction and the presence of polyene acids in the original oil.

Changes induced by autoclaving a solvent-extracted cottonseed meal. Edith J. Conkerton, Wilda H. Martinez, G. E. Mann, and V. L. Frampton (Southern Regional Research Lab., U. S. Dept. of Agriculture, New Orleans, La.). *J. Ag. and Food Chem.* **5**, 460–463 (1957). The effect of autoclaving a prime-quality solvent-extracted meal upon its soluble protein fractions was studied to determine chemical differences between cottonseed meals of known and varied nutritive value. Portions of both the original and the autoclaved meal were fractionated, by successive extractions, with water, saline, and dilute alkali. Autoclaving modified the solubility behavior of the cottonseed proteins and reduced the sugar, lysine, and arginine contents of the meal. Results showed that simple measurement of the solubility of nitrogen in the meal, commonly used to indicate the degree of heat damage to a meal, does not reflect the complete change induced in cottonseed protein by heat.

Electrophoretic studies on model particles. I. Mobility, pH and ionic strength relations for droplets having protein, lipid or polysaccharide surfaces and for certain complexes. H. W. Douglas and D. J. Shaw (Dept. Iorg. and Phys. Chem., Univ. Liverpool, Liverpool 3). *Trans. Faraday Soc.* **53**, 512–22 (1957). Graphs are shown relating electrophoretic mobilities to pH of hydrocarbon (Nujol) emulsions in aqueous buffers stabilized with protein, lipid, polysaccharide, nucleic acid, protamine, or certain bacterial extracts. The lipids included lecithin, cephalin, cholesterol and bacterial lipopolysaccharides and lipoproteins. Data are discussed in terms of the possible nature of bacterial surfaces.

Some observations on a cell-free lipid synthesizing system from Saccharomyces cerevisiae. H. P. Klein (Dept. Biol., Brandeis Univ., Waltham, Mass.). *J. Bacteriol.* **73**, 530–7 (1957). Homogenates of *Saccharomyces cerevisiae* were prepared by grinding the cell paste with a mixture of dry ice and glass beads, suspending the mass in phosphate buffer and centrifuging. The extract was capable of incorporating acetate-1-C^{14} into fatty acids, ergosterol, lecithin, hydrocarbons and, probably, neutral fat. Less acetate was incorporated into the fatty acids in an atmosphere of carbon dioxide than in air; simultaneously, higher counts appeared in the nonsaponifiable lipids. The small-particle fraction of the homogenate was more active in lipogenesis than was the large-particle fraction. However, the latter was necessary for maximal respiration and appeared to contain cytochrome pigments and cytochrome oxidase. Compositions (as % dry wt.) of the small and large particle fractions were, respectively: protein, 60.0, 71.00; ribonucleic acid (RNA) 7.10, 4.40; deoxyribonucleic acid, 0.05, 0.20; phospholipid (PL), 4.20, 13.30; polysaccharide, 0.60, 2.00; ergosterol, 0.60, 1.70; protein/RNA, 8.40, 16.20; protein/PL, 14.30, 5.30.

Report on gossypol in feeds. Investigation of extraction conditions. C. L. Hoffpauir and W. A. Pons, Jr. (Southern Regional Research Lab., New Orleans, La.). *J. Assoc. Official Agr. Chemists* **40**, 363–9 (1957). Recovery of free gossypol from cottonseed meal in mixtures with broiler feeds was incomplete when methyl ethyl ketone containing water was used in either a single or two-stage equilibrium extraction. Incorporation of metal chelating agents or gossypol complexing agents did not significantly improve the yield. Similar results were obtained when pure gossypol was added to commercial broiler feed. These results suggest that continuous extraction will probably be required for complete recovery of gossypol from mixed feeds.

Report on color in eggs. R. H. Forsythe (Henningsen, Inc., P. O. Box 2327, National Station, Springfield, Mo.). *J. Assoc. Official Agr. Chemists* **40**, 535–43 (1957). Color was determined on acetone extracts of eighteen samples of frozen and dried egg yolks by the photoelectric method. Close correlation between laboratories was obtained only if the recommended procedure was followed exactly and only if the Cenco-Sheard-Sanford instrument was used. Crystalline β-carotene was found to be a more satisfactory primary standard than was potassium dichromate. Acidified potassium dichromate was a better secondary standard than was aqueous potassium chromate.

Process to convert bixin to a food color. A. J. Buzas, J. M. Dusinski, and R. T. E. Schenck (Keystone Chemurgic Corp.). *U. S. 2,793,124.* Bixin is converted to a yellow coloring material by reaction with a lower aliphatic monocarboxylic acid in the presence of the acid anhydride and the absence of air.

Repository penicillin products. B. K. Souler (Bristol Labs., Inc.). *U. S. 2,793,156.* The product consists of an aqueous suspension of lecithin-coated procaine penicillin containing 1 to 2% of polyvinyl pyrrolidone.

Employment of peroxide formation inhibitor in nutrient media containing triglyceride oil. S. A. Szumski (American Cyanamid Co.). *U. S. 2,793,165.* Fermentation of a medium containing oil by *Streptomyces* is improved by the addition of 0.05 to 0.5% of a peroxide inhibitor to the triglyceride.

Emulsification of fats for animal feeds. F. N. Rawlings. *U. S. 2,793,952.* A stable emulsion that is palatable to livestock is prepared by melting fats and greases, adding a nontoxic wetting agent, stirring the mixture into warm water so as to form an unstable emulsion, and then into about 10 times its weight of molasses calculated at 80 Brix.

Method of making a sustained release pharmaceutical tablet. E. V. Svedres (Smith, Kline & French Labs.). *U. S. 2,793,979.* The medicament is dispersed in a solid fatty material and a carrying matrix of dried syrup solids.

Process of producing ergosterol and cerebrin. O. Hummel (Zellstofffabrik Waldhof).) *U. S. 2,794,035.* Ergosterol is recovered from an alcoholic lipid extract by alkaline saponification and crystallization.

Preparation of fat-soluble vitamin compositions. H. P. Maietta (Sterling Drug, Inc.). *U. S. 2,796,380.* A free-flowing, fat-soluble vitamin preparation is obtained by stirring a molten C_{16} to C_{18} alkanol solution of the vitamin into at least two volumes of warm water and allowing the mixture to cool with stirring so that solid spheroidal particles separate.

• Drying Oils and Paints

Some aspects of conjugation in drying oils. J. D. v. Mikusch (Unilever N. V., Hamburg-Harburg, Ger.). *Offic. Dig., Federation Paint & Varnish Production Clubs* **28**, 44–69 (1956). A review of the chemical reactions involving conjugated double bonds in drying oils, and their correlation with paint properties. (*C. A.* **51**, 8451)

Alcoholysis of fatty oils. F. Mort (Taubmans Inds. Ltd., St. Peter's, N. S. Wales). *J. Oil & Colour Chem. Assoc.* **39**, 253–61 (1956). The alcoholysis of fatty oils: Comment. L. R. Seaborne (24 Welwyndale Rd., Sutton Coldfield, Engl.). *Ibid.* 262–4. Reply F. Mort. *Ibid.* 265–6. The methanol-tolerance test is not completely effective for judging the completeness of the alcoholysis reaction in alkyd resin manufacture. The amount of monoglyceride formed is better checked by an electric conductance method. This method depends on the wide difference in conductance between glycerol and linseed oil. The gradual disappearance of glycerol can be detected as the reaction proceeds. The apparatus is described. (*C. A.* **51**, 8450)

Anhydride curing agents for epoxy resins. H. K. Weiss (National Aniline Division Allied Chemical and Dye Corp., Buffalo, N. Y.). *Ind. Eng. Chem.* **49**, 1089–1090 (1957). Anhydrides have been used as hardeners for epoxy resins for some years. Because of high melting points, they have poor compatibility with epoxy resins at room temperature, and epoxy-anhydride blends have relatively short working or pot life. Three recently developed anhydrides—dodecenylsuccinic, methylbicyclo-2.2.1-hept-5-ene-2,3-dicarboxylic, and *cis*-1,2-cyclohexanedicarboxylic (melting point 35–6°C.) anhydrides—are effective curing agents for liquid epoxy resins. They are compatible with liquid resins, such as Epon 828 and Araldite 6020, at room temperature, produce light-colored cured resins, have long pot life, and may be used where heat distortion temperatures from 78° to 143°C. are required.

Defunctionalizing techniquue for producing epoxy resin-phthalic alkyds. G. R. Somerville and D. S. Herr (Shell Chemical Corp., Union, N. J.). *Ind. Eng. Chem.* **49**, 1080–1084 (1957). Oil-modified phthalic alkyd resins, while providing low-cost nonyellowing finishes, have less physical and chemical resistance than epoxy resin esters. Because of high functionality characteristics, previous attempts to combine useful properties of epoxy resins and phthalic anhydride resulted in gelation before low acid values were obtained. To reduce the functionality of epoxy resin to produce epoxy resin-phthalic alkyds on a practical scale, a partial ester of the resin with the fatty acid is formed, through epoxide linkages and hydroxy groups of the resin; the product has a hydroxyl functionality between 1 and 4. The ester is introduced as a polyhydric alcohol to make phthalic alkyd resins.

Reaction of polyamide resins with epoxy resins. D. E. Peerman, W. Tolberg and D. E. Floyd (General Mills Research Lab., Minneapolis, Minn.). *Ind. Eng. Chem.* **49**, 1091–1095 (1957). Rates and degree of reaction for mixtures of polyamide and epoxy resins have been studied by infrared spectroscopy. Samples containing a constant polyamide-epoxy ratio were cured at room temperature and at 200°, 300°, and 400°F.; 300°F. gave the most rapid curing. There was no detectable oxirane oxygen in the cured optimum polyamide-epoxy resin blends, but amine-cured epoxy resins invariably contained residual epoxy groups after curing at 300°F. Rates of reaction were determined from rate of change of the intensity of the oxirane oxygen band. Heat distortion was more clearly associated with degree of cure than flexural strength, hardness, or compressive strength.

Film curing by simultaneous esterification and olefin polymerization. S. O. Greenlee, J. W. Pearce, and J. Kawa (S. C. Johnson and Son, Inc., Racine, Wis.). *Ind. Eng. Chem.* **49**, 1085–1088 (1957). Heat-converting varnishes are formulated from mixtures of long-chain aliphatic acids, polyepoxides, and organic solvents. Conversion to infusible films involves esterification of the acids and polymerization of olefin groups present in the acid chain and/or in the polyepoxide. Sufficient reaction occurs during a normal varnish baking schedule to give products having excellent resistance to water and alkali.

Epoxy resin esters containing tung oil fatty acids. L. A. Goldblatt, L. L. Hopper, Jr., and D. L. Wood (Southern Regional Research Lab., New Orleans, La.). *Ind. Eng. Chem.* **49**, 1099–1102 (1957). Epoxy resin esters in which tung oil fatty acids are incorporated retain about half of the conjugated triene in the tung oil derivatives. Products show the outstanding adhesion, chemical resistance, flexibility, and hardness associated with esters of epoxy resins and long-chain fatty acids. They dry more rapidly and require less drier, and films are harder and more resistant to water and strong organic solvents, although after baking at higher temperatures they are somewhat less flexible and darker. Zinc resinate catalyst reduces time of esterification, and hence danger of gelation, and improves wetting properties and resistance of films to aqueous alkali. Titanium dioxide, melamine, and flush colors provide films of unusual adhesion, gloss, mar resistance, and color depth. Potentially fungicidal acids such as propionic or undecylenic may be incorporated in the esters.

Calculation of composition of epoxy resin esters. K. A. Earhart and L. G. Montague (Jones-Dabney Co., Division of Devoe and Raynolds Co., Inc., Louisville, Ky.). *Ind. Eng. Chem.* **49**, 1095–1098 (1957). As epoxy resin esters are becoming increasingly popular synthetic coatings, for both air drying and baking finishes, it is important to eliminate confusion in nomenclature. Five terminologies are suggested for discussing these esters. In calculating composition three reactions should be considered: (1) acid groups with epoxy groups with no liberation of water (preferential,) (2) acid groups with hydroxy groups with liberation of water, and (3) epoxy groups with hydroxy groups with no liberation of water. The method ignoring the epoxy-hydroxy side reaction is accurate enough over practical ester composition ranges.

Improvement of drying oils. I. Reaction of 2,6-dimethylol-*p*-cresol with unsaturated fatty oils, and some properties of the product. Akira Misonou, Tsutomu Kuwata, and Ikuei Ogata (Univ. Tokyo). *J. Japan Oil Chemists' Soc.* **5**, 275–81 (1956). Commercial *p*-cresol (containing 21.8% *m*-cresol) (332 g.) with 752 g. NaOH and 659 g. 35% formalin gave 270 g. 2,6-dimethylol-*p*-cresol (1). This was reacted with unsaturated oil such as cuttle-fish oil and Theragra cod oil at 240°. Cuttle-fish oil combined with 8% 1 showed superior drying properties to linseed oil. The combination was assumed to be of chroman type.

Process of dimerizing monounsaturated fatty acids. F. O. Barrett, C. G. Goebel, and R. M. Peters (Emery Industries, Inc.). *U. S. 2,793,219.* Commercial oleic acid is dimerized by heating at 180° to 300° for 1 to 6 hr. in the presence of 1 to 20% of a crystalline clay mineral having a pH of 2 to 7 and about 1 to 5% water.

Method of making polymeric acids. F. O. Barrett, C. G. Goebel, and R. M. Peters (Emery Industries, Inc.). *U. S. 2,793,220.* Polyunsaturated fatty acids are polymerized by stirring and heating between 180° and 260° in the presence of 1 to 5% water and 1 to 20% of a crystalline clay mineral having a pH of 2 to 7. Reaction is continued until the neutralization equivalent of the polymerized product is no more than 25 units higher than the saponification equivalent.

Method of processing tall oil. R. C. Palmer, M. E. Hannah, Jr., and A. F. Wicke, Jr. (Heyden Newport Chemical Corp.). *U. S. 2,794,017.* By this process, a rapidly drying composition is prepared from tall oil containing rosin acids and linoleic acid in its non-conjugated form. The linoleic acid is first isomerized by heating the oil in the presence of sulfur, sulfur dioxide or iodine. The resulting mass is steamed and then heated until the desired degree of polymerization has occurred. A relatively non-volatile product is isolated by distillation.

Printing ink vehicle containing a conjunct copolymer drying oil. H. S. Bloch (Universal Oil Products Co.). *U. S. 2,794,747.* The drying oil vehicle for a printing ink is prepared by the conjunct catalytic copolymerization of an unsaturated non-aromatic hydrocarbon with an unsaturated fatty acid ester drying oil.

Odorless coating composition. H. Low (Shell Development Co.). *U. S. 2,795,563.* An odorless paint is prepared by dissolving an esterified C_{12} to C_{22} unsaturated fatty acid having an iodine number greater than 110 in an isoparaffinic hydrocarbon solvent containing 0.3 to 8% by wt. of a non-ionic surface active agent.

• Detergents

Waterless hand cleaners. W. J. Beach (Sugar Beet Products Co., Saginaw, Mich.). *Soap & Chem. Specialties* **33**(6), 43–6, 109 (1957). The preparation and uses of waterless hand cleaners are reviewed. These products may be classified in terms of the solvent or oil used as a base, e.g. Class I: products of the kerosene or Stoddard solvent base, Class II: products of mineral oil base, Class III: products based on the non-petroleum oil type such as glycols, ketones, esters, etc., and Class IV: products based entirely on mixtures of surface-active agents. Various chemical, application and toxicity tests are listed, as new developments have resulted in formulation of more efficient and less toxic products.

Continuous fat splitting, fatty-acid distillation, saponification, and soap milling. M. Fock. *Parfums, cosmet., savons* No. 132, 25–36 (1957). The Mazzoni process is described. (*C. A.* **51**, 10093)

Nonionic surface-active substances from products of the chemical treatment of oils and tars from coal and shale. N. D. Gadaskina, D. M. Rudkovskii and E. Ya. Yarzhemskaya. *Zhur. Priklad. Khim.* **30**, 148–54 (1957). Surface-active substances were prepared by condensation of ethylene oxide with (a) alkylated and nonalkylated technical phenols, (b) acids, and

(c) primary alcohols of the type $C_mH_{2m+1}OH$ where $m = 7–18$. The interfacial surface tension (air and H_2O), the contact angle (on paraffin), foam formation, and foam stability of the products were determined. The products of (a) were as good as the standard commercial surface-active substances, OP-7 or OP-8. Those of (b) were not foam forming and those of (c) with m between 10 and 14 were good wetting agents. (*C. A.* **51**, 10095)

Evaluation of tallows for soap making. (Iodine color value.) M. Loury (Inst. tech. etudes recherches corps gras, Paris). *Rev. franc. corps gras* **4**, 206–9 (1957). The color of the liquid soap obtained from a sample of the fat by saponification with KOH, in excess, is compared with an aqueous iodine solution. Ten g. of tallow, 10 ml. 1:1 KOH, and 50 ml. EtOH are refluxed for 10 minutes, and sufficient glycerol or glycol is added to obtain a total weight of 100 g. Part of the solution is poured into a test tube and the color evaluated by the volume (in tenth of ml. from a microburet) of an iodine solution containing 4 g. I_2, 10 KI, and 1000 g. H_2O, which was added to 15 ml. of H_2O contained in an identical test tube until the 2 tubes match the color. The tabulated results of many tests indicated a certain correlation of this new test with the content of oxyacids of the samples. (*C. A.* **51**, 10096)

Protection of toilet soap against darkening. S. A. Moldavskaya, E. S. Dmitrieva, G. A. Borodina, and L. M. Donetskaya (Factory "Svoboda," Moscow). *Masloboino-Zhirovaya Prom* **23** (3), 22–5 (1957). Toilet soap made of lard and beef-tallow developed dark spots over the surface area during storage when contaminated with metal particles from the die or manufacturing machinery, whereas soap, made from 75% hydrogenated fat soap stock, did not develop dark spots in storage. Spot development was not retarded by 2–5% rosin, and was enhanced by 1% of a dodorant compound. Spot formation was inhibited by the addition of 0.1% of water glass to soap after the graining operation. Inhibition of oxidative deterioration in soap during storage prevented spotting around metal nucleuses, especially that deposited on the surface of the soap from bronze. (*C. A.* **51**, 10096)

New developments in industrial detergents. J. Morrisroe (Pilot California Co., Los Angeles, Calif.). *Soap & Chem. Specialties* **33** (5), 47–51, 135, 137 (1957). The development of new active detergent materials calls for new compounding with inorganic agents. Special use problems that arise intensify the need for more developments in active ingredients. It is believed that the move toward petroleum in the industrial detergent field is about one-third complete. The goals of industrial detergents in the future must lie in less costly active ingredients, less need for special combinations of fillers, a greater control of foam built into the molecule and simpler processing requirements.

The stability of liquid detergents at low temperatures. R. W. Noad (Shell Petroleum Co., Ltd., Thornton Research Centre, England). *Soap, Perfumery, Cosmetics* **30**, 705–8, 732 (1957). The physical stability of liquid anionic detergents is discussed in terms of the clear point of the system, i.e., the minimum temperature at which the product is stable indefinitely. For a given system, e.g., sodium secondary alkyl sulfates/sodium sulfate/water, three types of clear point, the active material, the inorganic salt and the ice clear point are possible, depending on which component constitutes the solid phase just below the clear point. Factors influencing the active material and inorganic salt clear points are discussed and various means of reducing them are suggested.

Influence of thickness and concentration of soap on the tear of soap membranes. A. Sheludko and R. Polikarova. *Godishnik Sofiiskiya Univ. Fiz. Mat. Fak.* **49**, Kniga 2-Khim., 15–24 (1956). Critical thicknesses of soap membrane at different concentrations of Na oleate are measured and found to be considerably scattered around a most probable value. The experimental data show that the product of concentration and most probable thickness is a constant value, related to the surface-layer soap concentration. It is concluded that tear in soap membranes occurs when the surface-layer soap concentration falls below a critical value (0.6×10^{-9} mole/sq.cm.) and is independent of the membrane thickness within the accuracy of the experimental method. No effect of increased viscosity, obtained by addition of up to 50% glycerol, was noted. (*C. A.* **51**, 10096)

The changing scene in surface-active agents. R. L. Smith (Norman Evans and Rais Ltd., England). *Manuf. Chemist* **28**, 281–4 (1957). The manufacture and uses of surface-active agents are surveyed. Conclusions to be drawn include the fact that the bulk products are likely to continue to be the alkyl aryl sulfonate of a type similar to the present dodecyl benzene, where the dodecyl chain is propylene tetramer together with the sulfated olefin and the octyl phenol condensate. For specialty products of the nonionic type, an ester linked structure such as the polyethylene glycol esters is likely to remain convenient, while the sulfosuccinate and diethanolamine condensate types of wetting agent should remain valuable. The ampholytic type of wetting agent should develop commercial significance in the near future.

Polymeric nonionic surfactants. W. G. Stanton (Wyandotte Chemicals Corps., Wyandotte, Mich.). *Soap & Chem. Specialties* **33** (6), 47–9 (1957). The "block polymer" type nonionic surface active agent formed by sequential addition of propylene and ethylene oxides on a suitable nucleus such as propylene glycol or ethylene diamine, produces a class of nonionics having a controlled range of chemical structure and a range of properties not found in other nonionic types. The chemical structure can be plotted graphically and the properties of the series can then be related to the graph as trends or areas of maximum performance, the performance being a function of hydrophobic-hydrophilic balances and molecular weight.

The essentials of skin cleansing. R. R. Suskind (Univ. of Cincinnati, Cincinnati, Ohio.). *Drug & Cosmetic Ind.* **80**, 602–3, 668, 674, 676 (1957). The action of detergents, their effect on normal skin, use in skin diseases, effect of various additives and clinical aspects of skin cleansing are reviewed from a medical point of view.

Detergent compositions for laundering textile fabrics, containing a copolymer of a lower N-alkyl acrylamide and vinyl alcohol. G. P. Touey and J. R. Caldwell (Eastman Kodak Co.). *U. S. 2,798,047.* It has been found that the addition of copolymers of lower N-alkylacrylamides and vinyl alcohol to anionic or non-ionic detergents prevents redeposition of soil on textile fabrics.

Improvements in surface-active agents. Universal Oil Products Co. *Brit. 752,554.* A novel class of surface-active amines is prepared by the condensation of a cyclic hydrocarbon amine with an oxyalkylene compound. These amines may be characterized as N,N-di-(*omega*-hydroxyethyl-polyoxyethylene) cyclic hydrocarbon amines and their corresponding ammonium salt derivatives containing one hydrocarbon substituent attached to the amino nitrogen atom as a hydrophobic group and also containing two polyoxyalkylene chains attached to the same nitrogen atom as the hydrophilic part of the compound.

Preparation of soap tablets. M. Pietranara. *Brit. 763,889.* A tablet of soap is made with a bore extending through it in the middle of which there is fitted a washer of inert material of internal diameter corresponding to the diameter of the hole to enable soap to be hung from a rod so its external surface is completely free to dry after use, and also to provide a gripping point for one finger when the soap is in use.

Aqueous surface-active agent compositions. Air Reduction Co. *Brit. 771,626.* It has been found that the symmetrical tertiary acetylenic glycols possess excellent wetting and surface tension lowering properties and, at the same time, have unexpectedly low foaming properties. The longer the main chain and the heavier the glycol molecule, the greater the wetting action.

Improvements in treatment of soap. L. Coetzer and E. A. Wainwright (Unilever Ltd.). *Brit. 773,995.* An improved soap bar is prepared by hardening a bar of at least 20% moisture content soap obtained by extruding the soap at a temperature not exceeding 35°C. and then heating the bar by means of alternating current to a temperature of at least 40°C. but below that at which the soap becomes no longer form-retaining due to melting, and then allowing the bar to cool.