phosphoric acid in the lecithin molecule, or the beta-glucoside could be attached in a salt formation, being united by a carboxyl of its dibasic acid with the free hydroxyl of the choline group of the lecithin molecule.

The hydrolysis of the lecithin-beta-glucoside by cadmium chloride in an alcoholic solution at ordinary temperatures would indicate that the second assumption is probably correct, particularly as it would not be expected that an ester would be split under these conditions.

A weighed quantity of this lecithin complex was dissolved in neutral ethyl alcohol and titrated with a tenth normal alkali solution in the usual manner. Only one acid group reacted, and that slowly, with the alkali and this must belong to the phosphoric acid; otherwise the treatment with cadmium chloride, as previously mentioned would not have resulted in the hydrolysis of the lecithin-beta-glucoside combination. Also, it appears that the second carboxyl of the dibasic acid is linked with the second hydroxyl in a lactone formation.

Summary

The fractionation of the hot ethyl alcohol extract of the oil-free soybean meal yielded: (a) nonprotein nitrogenous compounds containing no phosphorus; (b) monoamino-diphosphorus compounds; (c) diamino-monophosphorus compounds; (d) monoamino-monophosphorus compounds containing only half as much nitrogen and phosphorus as lecithin and cephalin.

These monoamino-monophosphorus compounds, which are insoluble in acetone, were fractionated into: (a) a compound insoluble in cold ethyl alcohol, about 50% of which is probably cephalin; (b) a compound soluble in cold ethyl alcohol, which seems to be a lecithin-betaside appears to consist of a monosaccharide in combination with a dibasic dihydroxy acid.

It is suggested that the use of cadmium chloride in the separation of vegetable lecithin may result in the formation of a cadmium chloride salt of lecithin rather than an addition compound as formerly believed.

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Application

Application for Referee Certificate. Mr. Vincent S. Skinner of Shilstone Testing Laboratory, Houston, Texas, has applied for a Referee Certificate reading on the analysis of all cottonseed products.

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Pigments associated with the fatty tissues of plants and animals. I. M. Heilbron and A. E. Gillam. *Nature* **139**, 612-5, 657-60 (1937). A review.

An important source of fat: the fat of grape pomace. J. Maille de Girves. *Bull. assoc. chim.* **54**, 140-6 (1937).—Grape pomace contains on the av. 8.45% of fatty material in the form of oil from the seeds and solid fats from the stems and pulp. It is green in color, has a distinct odor, d. 0.917, m. p. 51°, n_D 1.4691, acid no. 26.80, sapon. no. 182, I no. 118, acetyl no. 28.6. It contains about 5% unsaponifiable matter. The mech. sepn. of the seeds from the pomace is difficult and costly, but a simple machine has been designed for removing the stems, the fat content of which is very low. Soap prepd. from the fat retains the green color, and may prove useful in the natural silk industry. In the case of a fat scarcity grape pomace may become an important raw material in wine-producing countries. (*Chem. Abs.*)

The field of fats. XXIX. Thiocyanogen iodine and its addition to unsaturated fat acids. H. P. Kaufmann and G. H. Oetringhaus. *Ber.* **69B**, 2670-6 (1936). I(SCN) was prepd. and its existence substantiated. The I(SCN) addn. product of elaidic acid was prepd. This when refluxed with alc. $NaHCO_3$, the I splits off to yield thiocyanostearic acid. Alc. KOH, removed the (SCN) group also and gave 10-oxostearic acid. Oleic acid reacted similarly but gave poor yields. Similar reactions occurred with erucic acid.

XXX. Diene syntheses in the field of fats. .2. Composition of Chinese wood oil. H. P. Kaufmann and J. Baltes. *Ibid.* 2676-9. The compn. of the oil could not be detd. from diene, I and (SCN) nos.

XXXI. 3. Oiticica oil. *Ibid.* 2679-83. The oil had a diene no. of 60.8, SCN no. 75.3; it contd. 70.0% α-licanic acid, 15.2% unsatd. nonconjugated acids, 9.9% satd. acids, 0.4% unsapon. 4.5% glycerol residue. (*Chem. Abs.*)

Bromine value of some fatty oils. Eiichi Yamaguchi, Takashi Matsumura and Tomo-o Takagi. *Waseda Applied Chem. Soc. Bull.* **13**, No. 4 (29), 7-11 (Abstracts (in English) 61) (1936).—In detn. of Br value by the method of P. Becker a ground-glass disk with rounded and turned-up edges was substituted for the glass plate in order to effect an even coating of oil film. Br values of olive, Tsubaki, peanut, rapeseed, Shoshi, tallow, lard, whale, sardine and liver oils agreed well with Wijs I values. Sesame, soy, linseed, whale, blubber and hydrogenated soy oils varied 2 to 6 units from the Wijs value, castor oil 7 to 8, polymerized sardine oil, 20, and Japanese and Chinese wood oils more than 40 to 70 units. (*Chem. Abs.*)

The oxidation of butterfat. I. The catalytic effect of light. V. C. Stebnitz and H. H. Sommer. *J. Dairy Sci.* **20**, 181-196 (1937). The authors' results

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definitely show that a tallowy flavor will develop in butterfat as a result of oxidation by air and heat in the absence of light. The presence of light, however, greatly hastens the development of a tallowy flavor. The tallowy flavor does not appear at any definite peroxide value but seems to vary with the different samples of butterfat. However, a positive peroxide test was always obtained before a tallowy flavor was evident, except when butter had been exposed to the quartz mercury-vapor lamp. Fresh butterfat contains no peroxides.

On the naturally occurring linolic acid in cottonseed and soya bean oils and the regenerated linolic acid from alpha linolic acid tetrabromide of these oils. D. M. Birosel. *J. Amer. Chem. Soc.* **59**, 689-692 (1937). Only one solid tetrabromide, α-linolic acid tetrabromide (m.p. 114°) is obtainable from the direct bromination of the free fatty acids of soya bean and cottonseed oils or of the regenerated linolic acid from the α-linolic acid tetrabromide (m.p. 114°) of soya bean oil. Only two tetrahydroxystearic acid, α-sativic acid (m.p. 163°) and β-sativic acid (m.p. 174°) are obtainable from the free fatty acids of soya bean and of cottonseed oils or from the oxidation with cold alkaline permanganate solution of the regenerated linolic acid from the α-linolic acid tetrabromide prepared from soya bean and cottonseed oils.

Fishiness in butter and its control. W. Ritter. *Schweiz. Milchztg.* **62**, 529-30, 538, 541-2, 543-4 (1936). The flavor defect known as "fishiness" is due to the presence of trimethylamine. It may originate in the reduction of trymethylamine oxide, in the decompn. of betaine which occurs in root crops, and especially in the decompn. of choline, which occurs in the lecithin mol. The latter change results from hydrolysis followed by oxidation, and is accelerated by the presence of acid and traces of Fe and Cu. Fishiness may be controlled by selection of feeds, by using only fresh, sweet cream, and by careful pasteurization at 90°. (*Chem. Abs.*)

Fat feeding and cholesterol absorption. R. P. Cook. *Biochem. J.* **31**, 410-415, (1937). Growing rats were fed on diets contg. 15, 20 and 30% fat with and without 2% cholesterol. The food intakes, growth of the animals and excretion of cholesterol in the feces over various periods of the growth curve have been measured. Cholesterol has a deleterious effect on the growth rate, which is most marked with the 15% fat diet. This effect is probably due partly to a lessened food intake during the first 3 weeks; thereafter the rats appear to adapt themselves to the diet. The absorption is not increased by raising the fat concn. in the diet. The animals were analysed; the cholesterol appears to be concentrated in the livers. The "fatty" liver appears to be slightly more marked on the high-fat diet. On constructing a balance sheet approximately 30% of the cholesterol fed remains unaccounted for by the unsaponifiable fractions found in the feces and in the animals' bodies. This discrepancy is greatest on the 15% fat diet.

Direct determination of eleostearic acid in tung oil. P. S. Ku. *Ind. & Eng. Chem. Anal. Ed.* **9**, 103-106, (1937). From the studies of solubilities of the fatty acids of tung oil, a method based upon the separation of eleostearic acid in 76% alcohol at 0° C. has been developed for its direct determination in tung oil. Details of method are presented. The method has been found satisfactory with commercial samples on the market as well as with genuine and pure samples. The percentages of eleostearic acid are generally consistent with the important analytical constants which usually serve to indicate the quality of this oil.

Character, properties and experience with "Tekaol." R. Rossmann. *Angew. Chem.* **50**, 246-8 (1937). "Tekaol" is the name for an oil product which is prepd. by bodying an oil and removing the non-polymerized constituents. The literature on the subject is reviewed with special emphasis on the work of A. Eibner.

Drying oils and resins. Mechanism of the "drying" phenomenon. T. F. Bradley. *Ind. & Eng. Chem.* **29**, 440-445 (1937). While primarily physical, the drying of these oils and resins can be definitely related to chemical reactions which, in their more usual form, involve oxidation. The specific nature of these reactions is, however, indicated to be of lesser importance than the functionality equivalents of the reactants. Drying under the influence of chemical reactions is determined by these functionality equivalents and requires the transformation of a linear monomer or its polymeride to a three-dimensional polymeric form. The functionality concepts are revised and extended in order to permit of their valid application in later work. Active functionality has been differentiated from potential functionality, and the influence of ring closures, whether by mono- or bimolecular reactions, has for the first time received consideration.

Change of oil acidity during seed drying. F. Gogolev. *Masloboïno Zhirovoe Delo* **12**, 492-3 (1936).—Expts. in drying sunflower seeds and castor beans at 50-350° for 10 min. and at 18° showed that the acidity of oil changes with the changes of moisture content in seeds regardless of the methods of hydration and dehydration. The acid no. increases with the increasing moisture content and decreases to a definite min. regardless of the degree of drying. Drying sunflower seeds contg. 13.1% H_2O, at 150° to 7.96% moisture content, reduced the acid no. from 1.51 to 0.86. Increasing the moisture of the dried seeds to 13.8% restored the acid no. to 1.3. The moistening to 25% H_2O and molding increased the acidity of the resulting oil from 1.3 to 29.6. Dehydration of the seeds to 7.6% H_2O resulted in a slight decrease of oil acidity to 23.7. Evidently, microbiol. changes produce oils of const. acidity. Simi-

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lar results were obtained with castor beans. The oil extd. from dried seeds is more stable than that from moist seeds. It is postulated that in the process of dehydration the free OH groups of glycerol react with the free mols. of fatty acids, forming di- and triglycerides with the resulting decrease of the acidity, and, conversely, at an increased H_2O concn. in the seeds (moistening) the hydrolysis of oil takes place, increasing the acidity. Contrary to Zhdan-Pushkin and Sokolova no free glycerol is necessary according to the mechanism of this bimol. reaction. In contrast to this variable acidity, microbiol. processes cause a complete decompn. of the mols. into free acids and glycerol, forming so-called permanent acidity. It is suggested that moist seeds should be air dried before storage and not immediately before processing.—(*Chem. Abs.*).

Miscibility of treated castor oil with mineral oils. Yung Kwei. *Chiao-Tung Univ. Research Inst. Ann. Rept. Bur. Chem.* 3, 77-9 (1936).—Crude Chinese castor oil is purified by first heating to 50° and then treating the filtered oil at 50-60° for 2 hrs. with 5-10% NaOH soln. After settling and washing, the oil is decolorized twice with 1% Norite A at 110°. The crude oil, as well as the purified sample, is heated to various temps. with catalyst (anhyd. Al_2O_3) with or without stirring, the volatile products of decompn. being removed by blowing in a current of CO_2. After standing for several days, the supernatant layer of the treated oil is freed from suspended matter by filtration after addn. of an equal amt. of petr. ether to reduce its viscosity. The clear oil obtained after distg. off petroleum ether is then tested for miscibility with an equal vol. of spindle oil. From the authors' expts. it is found that the amt. of catalyst used has little effect on the rate of decompn. of castor oil and the crude oil seems to decomp. more rapidly than the refined sample. The rate of decompn. is much higher at 260° than at 250°. Untreated castor oil is not miscible with mineral oil. The partial decompn. resulting from heating with catalyst as described above imparts to it the ability to mix with mineral oil.—(*Chem. Abs.*).

High-pressure hydrogenation of castor oil. I. Reduction of hydroxy groups. Yuichi Shinozaki and Sanroku Kagawa. *J. Agr. Chem. Soc. Japan* **13**, 12-17 (1937).—The castor oil was hydrogenated under a pressure of 100 kg. per sq. cm. with Cu as the catalyst. The reduction of hydroxy groups could not be observed at the reaction temp., under 260°. Hydroxystearic acid was isolated from the reaction product by sapon. It was also proved in the hydrogenation at 250° with various other catalysts. When the castor oil was hydrogenated at 250° under a pressure of 80 kg. per sq. cm. or heated at 250° for over 40 min. under a pressure of 110 kg. per sq. cm., reduction of the hydroxy group of the oil was observed. The hydroxy group of ricinolic acid and its ester could not be reduced in the hydrogenation under certain conditions. **II. Formation of 1,12-octadecanediol and the properties of sodium salt of octadecanediol bis(acid sulfate).** Yuichi Shinozaki and Hiraki Kubo. *Ibid.* 18-22.—The castor oil was hydrogenated at 220-35° under 100 kg. per sq. cm. with Co as the catalyst. Octadecanediol m. 65-7° was isolated from the reaction product. The m. p. increased to 71.2° by recrystn. from alc. The Na salt of octadecanediol bis(acid sulfate) m. 127° was prepd. from octadecanediol by treating with chlorosulfonic acid and then NaOH alc. soln. It crystd. out as a plate from dil. aq. soln. The soly., the viscosity and the surface tension of this compd. were estd. It was unsuitable as a permeating agent.—(*Chem. Abs.*).

Aging of castor oil. Madeleine Roy. *Pub. sci. tech. ministère air* (France) No. **40**, 60 pp. (1934).—Castor oil (**I**) heated in the presence of air and Cu or steel (to reproduce conditions present in airplane engines) increased in acidity, d., *n*, viscosity, expansion coeff., mol. wt., spreading coeff. and work of adhesion. The first 4, especially acidity, were found suitable for estn. of the deterioration of castor oil. A very accurate measure of the acidity, checking with the ordinary acid no., was found by detg. the vol. of 50 drops of 0.002 *N* Na_2CO_3 soln. passing through a capillary into a PhH soln. of **I**. I no., capillary rise in filter paper and surface tension against H_2O and salt solns. decreased with aging. The surface tension of fresh oil against dil. acids is the same as against H_2O but higher against salt solns. and lower against Na_2CO_3 soln. Surface tension against air showed a definite but slight increase on aging. Capillary rise and mol. wt. detns. are much affected by H_2O. The latter is best detd. in PhAc rather than PhH. I prepd. from 5 sources showed no appreciable differences in any phys. properties. Emulsions made by pouring EtOH solns. of **I** into H_2O decreased in optical density as the aging of the oil was increased, i. e., particle size decreased with surface tension. The particles were negatively charged. Light, steel and Cu greatly accelerated aging by heat. Property changes are believed to be only partly due to polymerization, addn. of O to double bonds and consequent formation of aldehydes and acids being important. Of the antioxidants studied, only thymol and naphthylamine prevented alteration of **I** at 100° in presence of air. The latter darkened. The final product of heating without an antioxidant was a gel insol. in most solvents for **I** but sol. in paraffin oil, which is therefore suggested as an *antigumming agent.*—(*Chem. Abs.*).

Study of the products which give to vegetable oils their characteristic taste and odor; the presence of saturated and nonsatured hydrocarbons (in olive oil and peanut oil). H. Marcelet. *J. pharm. chim.* **24**, 213-25 (1936)—In large-scale distns. of olive oil and peanut oil with superheated steam to deodorize these oils (Nice, France), 1000 kg. of oils yield, resp., 1 kg. of distillate from olive oil and 4.5 kg. from peanut oil. The olive oil product is a brown, fatty semiliquid mass of strong odor; unsapond. matter (*A*) (extd. with petr. ether) is unusually high, 3.97-7.65%; phytosterol 0.08-0.09%. *A* is an aromatic liquid, d_{15} 0.8755; n^{16}/D 1.4910; I no. (Hanus) 173 mol. wt. (cryoscopy) 289. By repeated fractionation and crystn., the following 8 hydrocarbons, responsible for the odor

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and taste, were isolated: Liquids: $C_{13}H_{24}$, $C_{16}H_{30}$, $C_{19}H_{36}$, $C_{23}H_{42}$, $C_{28}H_{50}$, $C_{36}H_{68}$, $b_{5mm.}$ resp. 83-85°, 133°, 155°, 205°, 210°, (residue) 225° +; b_{18} 0.8552, 0.8609, 0.8640, 0.8710, 0.8736, —; *n* ^{16}/D 1.4686, 1.4785, 1.4810, 1.4910, 1.5020, —; I no. (Hanus) 98, 96, 69, 92, 264, 126. Solids: Obtained from fractions $b_{5mm.}$ 163-200° and 200-225°; $C_{24}H_{50}$, m. 45-46° and $C_{26}H_{54}$, m. 51.5; I no. 0. Similarly, the hydrocarbons $C_{15}H_{30}$ and $C_{19}H_{38}$ were obtained from peanut oil. Olive oil yields per kg. only 0.07 g., peanut oil but 0.0018 g. of the hydrocarbons, which in concd. form are both of acrid, nauseous taste.—(*Chem. Abs.*).

Intermittent cracking of rapeseed oil. Eugene C. Koo and Shiu-Ming Cheng. *J. Chem. Eng.* (China) 3, 348-53 (1936)—Intermittent heating has a beneficial effect on the liquid-phase cracking of rapeseed oil to produce *motor fuel.* The yield is increased and the product is of lower sp. gr., lighter color and lower acid value. Oxides of alkali and alk. earths are efficient catalysts, CaO and MgO being the most economical catalysts. Activated adsorbents (such as active charcoal and silica gel) are not particularly active. Distg. residues from the cracking process are quite active catalysts for the reaction, especially when CaO or MgO was used as the cracking catalyst in the first place.—(*Chem. Abs.*).

Production of linseed oil by the Skipin method. A. I. Skipin, A. A. Grashin and A. I. Zarobyan. *Masloboino Zhirovoe Delo* 12, 473-4 (1936)—A yield of 30-8% linseed oil of lower acidity, and greater clarity and I no. resulted from a meal contg. only 25.1% hulls by roasting at 47-51° (forepan). The meal was obtained by double crushing and sifting. The hulls are mixed with the partly extd. meal for further roasting and extn.—(*Chem. Abs.*).

Volatile products formed in the oxidation of linseed oil. Kh. Lyutenberg. *Masloboino Zhirovoe Delo* 12, 491-2 (1936).—The condensate, obtained by oxidation of linseed oil in the presence of Mn and Ca linoleates at 143-7° for 12 hrs., contained 0.37% acids and 0.62% aldehydes, on the wt. of the oil, which were not identified.—(*Chem. Abs.*).

PATENTS

Rendering and refining fats. C. B. Upton. U. S. 2,075,070. The apparatus is so designed that the rendering occurs in one chamber and the rendered fat drains to a separate part of the chamber where it is refined. The fat, cracklings and refining agent can be separately removed from the app.

Continuous fatty acid distillation. Procter and Gamble Co. Brit. 457,624. Fat acids are heated under pressure to a temp. sufficient to cause substantially instantaneous vaporization of the fat acids without additional heat when introduced into a vacuum chamber. They are continuously introduced into the suitable chamber wherein the pressure is maintained at about 3 in. of Hg; thus causing most of the fat acids to vaporize and these are condensed. App. is described.

Stabilized fats and oils. S. Musher (to Musher Foundation Inc., New York). U. S. 2,069,265. Fats and oils are stabilized against rancidity by carrying a small percentage of a direct infusion of an oil contg. seed including anti-rancidity constituents sufficient to inhibit substantial rancidity in said fats or oils, the fats and oil being substantially free from seed fibers.

Method for stabilizing fatty oils against oxidation. W. F. Douglass (to Cudahy Packing Co.). U. S. 2,071,457. Fats and oils are stabilized by addns. of lipin-contg. animal organs (brain, parts of nervous system) or an ext. of the same.

Manufacture of glycerides of fatty acids. T. P. Hilditch and J. G. Rigg (to Imp. Chem. Indus.). U. S. 2,073,797. The process of producing esters contg. a high proportion of monoglycerides comprises esterifying glycerol with one or more fatty acids in a solvent medium composed of one or more monohydric mononuclear phenols.

Process of purifying polyglycerol esters. R. Furness (to Lever Bros. Ltd.) U. S. 2,071,459. Fat acid esters of polyglycerols contg. free OH groups are purified by mixing the crude esters contg. polyglycerol residue with an aqueous soln. of Na_2SO_4, agitating the mixture to cause the polyglycerol residue to dissolve in the aqueous soln. and separating the latter from the undissolved ester.

Emulsion stabilizer. C. H. Lundsgaard. Brit. 455,540. An oil is oxidized, saponified, the acids are isolated and the fat acids are reesterified with an excess of glycerin. The products have emulsifying, wetting, hydrophilic and detergent properties.

Method of oxidizing oil. R. D. Bonney and W. S. Egge (Congoleum-Nairn Inc.). U. S. 2,072,151. Example: 3 pts. of linseed oil and 1 pt. ester gum resin are dissolved. The temp. is lowered to about 80°C. and .5% of maleic acid added. Maleic acid may be added in the form of an acetone soln.; a drier, 0.4% cobalt linoleate may be added. The batch is aerated at a temp. approx. 80°C. for 25 to 30 hrs. until it becomes viscous. When a tested sample just fails to completely dissolve in ethyl ether, the oxidation is discontinued.

Synthetic resin compositions suitable for making varnishes. Sydney L. M. Saunders. U. S. 2,071,312, Feb. 16. For prepg. a synthetic resin compn. sol. in vegetable oils, a drying oil such as wood oil or linseed

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oil which has been previously heat-treated is mixed with a monoglyceride of a drying oil acid such as linoleic or eleostearic acid and with phthalic anhydride, and the mixt. is heated (suitably to about 250° for 15 min. or longer).—(*Chem. Abs.*).

Synthetic resins. Israel Rosenblum. Brit. 457,494, Nov. 30, 1936. Addn. to 444,021. Oil-sol. resin are prepd. by causing glycerol, phthalic acid (**I**), a polybasic aliphatic acid being in amt. more than 15% but not more than in equimol. proportion based on the amt. of **I**, and the amt. of fatty acid being in excess of 1 mol. for each mol. of dibasic acid. Suitable polybasic aliphatic acids include malic, maleic, fumaric and succinic. The resins are sol. in C_6H_6, PhMe, solvent naphtha, petroleum distillates, Me_2CO and alc. and miscible with oils, resin varnishes, natural and synthetic resins and nitrocellulose. To blend the product with China wood oil, the resin is desirably produced in the precence of the oil. In examples, soybean-oil fatty acids, phthalic anhydride, maleic acid and glycerol are used.—(*Chem. Abs.*).

Synthetic resins. The Resinous Products & Chemical Co. Ger. 637,602, Oct. 31, 1936 (Cl. 12_o. 26.02). A mixt. of castor oil and a half ester of maleic acid and a monohydric alc., or a polyhydric alc. etherified by an alkyl residue contg. onyl one OH group, is heated to 150-250° to give a resin. Several examples are given.—(*Chem. Abs.*).

ABSTRACTS

Soaps

Edited by **M. L. SHEELY**

New Uses for Fatty Acids. *Soap, Perfumery & Cosmetics* 10, 215 (1937). It is difficult to saponify the last traces of oil in the manufacture of shampoos. An excess of potash lye or mixed potash and soda lyes can be deliberately added to ensure complete saponification of the oil or oils in the batch. When the reaction has gone to completion, coconut and/or olive fatty acid equivalent to the excess lye may be added. Since it is a contact reaction between the fatty acid and lye, a neutral or slightly alkaline product can be made as desired.

To develop a sheen in stearic acid creams, such as the vanishing and brushless shave type, a little oleic acid has long been employed. Coconut fatty acid will do the same job in most formulations and while it does have a slight characteristic odor, it is not difficult to cover as the finest oleic and it remains "sweet" indefinitely.

Much of the labor involved in making shaving cream can be eliminated by using the coconut and/or olive fatty acids in amounts equivalent to the corresponding oils in the formula. The procedure is quite simple. Melt half the stearic acid and all of the straight or mixed fatty acid. Add the glycerin to the warmed alkaline solution and run the latter into the former with agitation. Then run in the remaining melted stearic acid. This ensures that the excess acid present is stearic.

Soaps as Lubricants in the Rubber Industry. *Soap, Perfumery & Cosmetics* 10, 240 (1937). The main purpose of a lubricant in moulding rubber goods is to prevent the rubber attaching itself to the mould surface. Experiments with sodium and potassium stearate and oleate soaps in distilled water solution showed that the harder soaps were much more effective than the soft ones at low concentrations. Sugar solutions were only effective at relatively high concentrations. French Chalk, a well-known and widely used mould lubricant, suffers from the disadvantage of causing bad scaling and unevenness of mould surface.

One point which must be watched is the tendency of soap solution to gel on standing in cold solution. Strengths used in the rubber industry usually range between 1.5 and 3 per cent. Many soaps submitted as suitable lubricant types will gel at these concentrations on standing overnight at normal temperatures, say, 60° F. The trouble can be overcome by incorporation by the rubber manufacturer of a little cyclohexanol (about 0.5 per cent) in the solution.

Wetting and Detergency. *Soap, Perfumery & Cosmetics* 10, 220 (1937). A symposium devoted to the subject, "Scientific and Technical Aspects of Wetting and Detergency," was held on February 19 and 20 at the Huxley Building, Imperial College of Science and Technology, Kensington, S.W.7, under the auspices of the British Section of the International Society of Leather Trades' Chemists. Among the papers presented were the following:

Internal Solubility in Soap Micelles—A. S. C. Lawrence.

The Chemistry of Wetting-Out Agents—H. K. Dean.

Solvent Action of Detergent Solutions—G. S. Hartley.

Some Detergent Problems of the Woolen and Worsted Industries—H. Phillips.

Penetration of Fabrics by Detergent Solutions—J. Pewney.