in windshield cleaners, frost formation preventives, automobile liquid polishes, solid abrasives, gasoline-proof lubricating greases, rug cleaners and for other miscellaneous uses were presented by M. A. Lesser and G. Leffingwell [*Chem. Industries* **39**, 617-9; **40**, 59-60].

Fermentation of cane juice with molasses yeast, *Saccharomyces formonensis*, in presence of sodium sulfite according to Y. Iwata [*Rept. Govt. Sugar Expt. Sta. Tainan, Formosa, No.* **3**, 76-92) yield 27.47 per cent glycerine on the basis of the fermentable sugar.

The committee that assisted the chairman in preparing this paper by reviewing and submitting additions, suggestions and corrections is composed of:

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ABSTRACTS

Oils and Fats

Edited by
M. M. PISKUR and RUTH LINDAHL

Collaborative work of the D. G. F. 8 meeting: Work program of the 9th session of International Commission for study of fatty materials, Rome, 1938. General analytical methods. *Fette u. Seifen* **45**, 232-8 (1938).—The articles give reports on the commission's work on polybromide no., hydroxyl no. and detn. of rosin acids in soap. Reports on (1) oxy-acids, (2) ash, (3) org., inorg., and volatile org. impurities, (4) total fat acids and (5) free alkali, carbonate alkali and bound alkali in soap are continued.

The chemistry of butter and margarine. L. Erlandsen. *Fette u. Seifen* **45**, 215-9 (1938).—General information on the compn., characteristics and properties of butter and margarines are presented. For systematically testing for butter in margarine: (1) Compare luminescence test on sample with standards contg. 10, 20 and 30% butter. (2) Try some of the identifying reaction, i.e., methods of Kolle. (3) Carry out the butyric acid no. and residue no. tests and apply formula of Grossfeld: % butterfat = 5.12 × butyric acid no. — 0.12 × residue no. (4) Det. B. value and when necessary also A value. Systematic testing for margarine in butter: 1. Luminescence analysis and qual. tests for coco fat and hardened fats are run. (2) Positive phytosterine reaction indicates vegetable fats and oils; positive Tortelli-Jaffe reaction indicates hardened train oils. (3) Det. butyric acid no., lauric acid no. and residue no. and calc.; % coco-fat = 2.77 × residue no. — 2.63 × butyric acid no. or coco fat = 0.79 × (lauric acid no. — butyric acid no.). (3) Det. SCN no., partial I no. and amt. of iso-oleic acid.

Chemical microscopy of fats and waxes. IV. Cottonseed oil. L. W. Greene. *Cotton and Cotton Oil Press* **39**, No. 14, 3-4 (1938).—Investigation of 11 specimens of crude and refined cottonseed oil indicated that a satd. soln. of KOH in *n*-butyl alc. is suitable as a microreagent for differentiating between the two grades of oil. Refined oil gave characteristic cryst. rosettes with the reagent, while crude oil produced an amorphous soap. Satd. solns. of KOH in MeOH and EtOH formed cryst. soaps with cottonseed oil but these were not sp. Four sketches illustrate the cryst. reaction products. (*Chem. Abs.*)

Properties of mamey-oil. L. S. Malowan. *Seifensieder-Ztg.* **65**, 285 (1938).—The mamey tree is a tropical plant which grows to about 20 m. high. The fruit is 15 cm. dia. and has a peach-like taste. The characteristics of the seed oil are: sapon. no. 183-186, I no. 19.3-20.5, Pol. no. 0.7, R. M. no. 2.5, $D^{28}/_{15.5}$ 0.90981, n_D 1.4691. The oil is recommended for cosmetic uses.

The occurrence of traces of hexadecenoic (palmitoleic) acid in vegetable fats. T. P. Hilditch and H. Jasperson. *J. Soc. Chem. Ind.* **57**, 84-7 (1938).—Soybean, cottonseed and palm oil fat acids were fractionated. The compns. of the oils were tabulated. It was shown that hexadecenoic acid and possibly tetradecenoic acid were present in the oils. The small amounts present can have little influence on the general properties of the oils.

Hydrogenation of oils by the continuous process. I. Hydrogenation of groundnut oil by catalysts of nickel and its alloys. V. T. Athavale and S. K. K. Jatkar. *J. Indian Inst. Sci.* **20A**, 95-109 (1937).—The hydrogenation of groundnut oil by various catalysts prepd. from Ni wire and its alloys has been studied by the continuous flow method and it has been shown that the Ni wire catalyst is the easiest to be prepd. in a high state of activity. (*Chem. Abs.*)

Catalytic fat hydrogenation. II. Hydrogenation with copper-nickel catalyzers. H. F. Kaufmann and H. Pardun. *Fette u. Seifen* **45**, 223-8 (1938).—Cu catalyst is practically inactive. Mixts. of Cu and Ni give better results than Ni alone. Optimum results were obtained when the metallic catalyst was a mixt. of equal amts. of Ni and Cu. It is postulated that the catalyst forms a cubic crystal in which the position of the atoms on the face are an even distribution of Cu and Ni. This serves to make the Ni more active.

Equilibrium reaction of fat splitting. H. Sturm and J. Frei. *Fette u. Seifen* **45**, 219-23 (1938).—A mathematical study of fat splitting. The degree of splitting does not depend on the fat: water ratio, nor on the temp. or type of splitting agent. Temp. and splitting agent effect only the velocity of the splitting.

Corrosion characteristics in the distillation of fatty acids. F. C. Vilbrandt and L. E. Ward, Jr. *Trans. Electrochem. Soc.* **73**, 13 pp. (preprint) (1938).—Crude fatty acids corroded all alloys and metals to a very marked extent with the exception of stainless steels contg. not less than 20% Cr and not less than 9% Ni. The most suitable alloys of the stainless steel group for structural material for fatty acid stills seem to be the Fe alloys contg. a high Cr and Ni content, or those with a smaller percentage of Cr and Ni but alloyed with Mo. The most resistant alloy was an 18-8 Cr Ni with 3% Mo. (*Chem. Abs.*)

Polymerization of linseed oil in the presence of small quantities of sulphur or selenium. H. I. Waterman, C. van Vlodrop and F. Althuisius. *J. Soc. Chem. Ind.* **57**, 87-89 (1938).—Two groups of thick-

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ened oils were prepared from linseed oil; the first series was obtained in presence of a little S or Se at 290°, and the second series by thermal polymerization at 290° without any addn. of catalyst. The oils prepared from Bombay linseed oil with S or Se remain completely clear when kept at room temp. This is in contradiction with the behavior of normal stand oil prepared from the same linseed oil. The "sulphur" and "selenium" oils have normal saponification values; their acid value is relatively low. The observed effect of the S and Se must be ascribed to the unsatd. constituents of the glyceride molecules.

Drying of linseed oil paint. D. G. Nicholson and C. E. Holley, Jr. *Ind. Eng. Chem.* **30**, 563-6 (1938).—The effect of variations in artificial visible light intensity upon bodied linseed oil paint films pigmented with white lead, zinc oxide and titanium dioxide has been studied in some detail. Generally speaking, an intense light tends to cause these films to gain in wt. sooner than a less intense light. White lead shows the least effect, zinc oxide greater, and titanium dioxide the greatest differences in drying time as the light intensity is varied. It appears that the light is a catalyst favoring the removal of natural antioxidants present in the oil.

Dermatitic properties of tung oil. M. W. Swaney. *Ind. Eng. Chem.* **30**, 514-5 (1938).—This paper is the result of a severe case of dermatitis contracted by a worker in the varnish laboratories; this irritation was attributed to tung oil.

Fat absorption and metabolism. A. C. Frazer. *Analyst* **63**, 308-14 (1938).—According to the current hypothesis the fat is broken down, conveyed into the cell, re-synthesized, carried by a detour which avoids the liver, to which it must eventually pass for metabolic use and where it is once more broken down and perhaps rebuilt into phospholipid. The author suggested and produced evidence that a certain proportion passes straight to the liver in a form suitable for building phospholipids or for desaturation, and the remainder, avoiding the liver, passes direct to the fat depots in a suitably stable form as triglyceride. Further, the fatty acid is absorbed in aqueous soln. owing to the hydrotropic action of the paired bile acids, and it is reasonable, therefore, that it should pass by the same route as other water-sol. materials. He concluded should this hypothesis prove correct, we must then regard lipolysis not simply as a mechanism for breaking down the fat mol. prior to absorption, but as a factor which dets. what proportion of the ingested fat shall pass to the liver for immediate metabolic needs, and how much shall be diverted to the storehouse for use in the future.

The use of mammalian (whale) liver oils and concentrates in the preparation of artificial or "reinforced" halibut-liver oils. R. T. M. Haines and J. C. Drummond. *Analyst* **63**, 335-8.—Discussing the substance absorbing at 290 which was detected in mammolian liver oils, Pritchard et al. remarked, "It is not known whether the biological activity is associated with the constituent showing these characteristics, but if so, it has only 1/20th of the activity of vitamin A, and is not considered to be the cause of the major discrepancies encountered in fish-liver oil." It is unwise to accept estimates of vitamin A based on spectroscopic examination of samples containing appreciable amts. of this substance until the cause of the discrepancies, to which Pritchard and his co-investigators have drawn attn. has been more thoroughly studied. In our opinion the only acceptable assay of vitamin A potency of an oil showing a max. of 290-320mμ is one derived from a satisfactory biological test.

The alleged toxicity of free fatty acid and nitrogen in cod liver oil. H. D. Branion, A. F. Dawson, J. R. Cavers and I. Motzok. *Poultry Sci.* **17**, 213-23.—The results show that free fatty acids in cod liver oil are not toxic. The oxidation products which arise during the development of rancidity are also innocuous, since "blown" cod liver oil was not harmful. Although the results do not invalidate the conclusion of other investigators that the toxic effect of some cod liver oils is due to nitrogenous impurities, they indicate that there is some apparent difference in the relative toxicity of the nitrogen fraction.

PATENTS

Stabilization of oil. V. C. Mehlenbacher (to Indus. Pats. Corp.). U. S. 2,108,922.—The edible oil product contains 25 to 50% of hydrogenated kapok oil.

Stabilizing oils and fats. E. I. du Pont de Nemours. Brit. 470,573.—Sugar amines such as laurylglucamine, amylglucamine, methylfructamine, methylyglalactamine, methylglucamine stearate, etc., are used as stabilizers.

Continuous bleaching process. E. Franz. U. S. 2,110,649.—Continuous method for bleaching fats, oils and other material with H_2O_2 is described.

Refining of therapeutic oils. W. S. Jones (to E. R. Squibb & Sons). U. S. 2,113,942.—Therapeutic oils, *i. e.,* fish liver oils, are refined by dissolving them in a chlorinated hydrocarbon solvent, which does not dissolve soap; less than 5% of its volume of alc. is added and the mixture is caustic refined and bleached with earths or carbon. The solvent is sepd. from the oil by evapn.

Emulsion. B. R. Harris. U. S. 2,114,490.—High mol. wt. fatty acid esters of a sugar, said ester having at least one free sugar hydroxy group are used as emulsifiers for oleaginous materials and aq. materials.

Composition of matter and method of making the same. W. J. Koenig (to Sloane-Blabon Corp.) U. S. 2,108,893.—The manuf. of a resin product suitable for floor covering materials from oils, phthalic anhydride, phenols, etc., is described.

Blended oil. J. I. Wasson (to Standard Oil Develop. Co.). U. S. 2,115,355.—The blended oil compn. comprises mineral oil, a minor proportion of polymerized soy bean oil and about 2% isopropyl alc.