ABSTRACTS FROM OTHER JOURNALS

Glycerides of palm-kernel oil. A. Bomer and K. Schneider. *Z. Unters Nahr. Genussm.* **47,** 61–89(1924); through *J. S. C. I.* **43,** No. 23.—Five almost pure mixed glycerides were isolated from a sample of palm-kernel oil by repeated fractional crystallization from acetone. The fatty acids in these glycerides were separated and subjected to steam distillation in Polenske's apparatus. The nature of the volatile fatty acids was investigated by determining the neutralization number of a saturated aqueous solution of the acids and by the analysis of the silver salts of the acids. The solid saturated fatty acids were separated from the unsaturated acids by Farnsteiner's method, and were fractionally precipitated with barium acetate solution by Heintz's method, the acid value and molecular weight of the acid obtained from each fraction being determined. By these methods the five glycerides were identified as caprylo myristo-olien (saponif. value 243.2 m. p. 13.9°) myristodilaurin (saponif. value 253.1, m. p. 33.4°), laurodimyristin (saponif. value 242.5 m. p. 40.0°), palmitodimyristin (saponif. value 227.5, m. p. 45.2°), and myristodipalmitin (saponif. value 216.0, m. p. 51.4°). The first two of these glycerides were present in considerable amount, the third only in small amount, and the last two in very small amount, comprising the most difficultly soluble glycerides in the oil. It is very unlikely that stearic acid is present in the glycerides of palm-kernel oil and caproic acid was not present in the sample investigated. It is uncertain whether capric acid was present or not. The glycerides present in coconut and palm-kernel oils are compared with one another in an appendix. H. C. R.

Uncommon animal fats. W. N. Rae. *Analyst* **49,** 83–84(1924); through *J. S. C. I.* **43,** No. 14.—The analytical characters of fats from the following wild animals of Ceylon are given: leopard (Felis pardus), sambhur (Cervus unicor), and wild boar (Sus crustatus). H. C. R.

	d^{99} 15	Butyro-refractometer reading at 40°, of:		Acid value	Saponif. value	Iodine value (Wijs)	Unsaponifiable matter, %	Solidif. pt. of fatty acids	Neutralization value of fatty acids	Iodine val. (Wijs) of fatty acids
		Fat.	Fatty acids							
Leopard	0.8592	49.5	38.9	1.78	201.1	62.2	0.33	39°.2	210.3	60.9
Sambhur	.8610	45.7	31.6	4.37	210.6	22.4	.56	48°.2	213.1	21.4
Spotted deer	.8640	44.3	31.6	4.98	212.3	23.8	.52	47°.8	215.6	22.65
Peafowl	.8947	54.5	46.9	8.70	215.3	66.4	.34	36°.4	216.6	66.7
Wild boar	.8851	52.0	..	11.12	216.4	44.8	.40	...	...	..

Tung oil. A. Eibner, O. Merz and H. Munzert. *Chem. Umschau* **31,** 69–82 (1924); through *J. S. C. I.* **43,** No. 23.—A summary is given of the results of the more recent work on the constitution of tung oil, 75% of which is comprised of α-elaeostearic triglyceride, which changes under the influence of light into the isomeride, β-elaeostearic triglyceride. Both the α- and the β-triglycerides increase in weight at about the same rate when spread in thin films on glass plates and exposed to the air. After standing for 10 months in a closed brown glass bottle β-elaeostearic became insoluble in acetone and no longer melted, but charred at about 265°..........The conversion of the α- into the β-acid, therefore, seems to play very little part in the mechanism of the drying of tung oil. The clouding of films of tung oil on drying is not in any way connected with isomerism, but is due to the formation of microscopic folds in the film owing to the changes in volume which occur during drying. Tung oil shows a much slower increase in acid value on drying than either linseed or poppy seed oils, and is less influenced by the humidity of the atmosphere during drying than is linseed oil..........It is therefore considered that the drying of tung oil is to be looked upon rather as a colloidal phenomenon involving transformation from the sol to the gel form than as a case of molecular polymerization. H. C. R.

Determination of iodine values. I. Comparative investigations on the iodine values of fats. S. Schmidt-Nielsen and A. W. Owe. *Videnskapsselskapets Skrifter 1923, I., Mat. naturv. Klasse* (15) 77 pages; through *J. S. C. I.* **43,** No. 15.—Comparative investigations on non-drying, semi-drying and drying fats or oils were made to test the various methods for the determination of the iodine value. The experimental error in the tests did not exceed 0.05%. Where accurate results, which are reproducible and correspond to the true iodine value, are required, Hubl's method is the best, but the results must be corrected by means of the formula: $\frac{127f}{1=100i}.\ (b—a)—(a/b_t)^2(b—b_t)$, where I is the iodine value, f is the factor of the thiosulphate solution, a is the thiosulphate consumed in the test, and *b* and *bt* are the quantities of the thiosulphate consumed in blank tests made at the beginning and end respectively of the determination proper. Using an excess of halogen of 80% a reaction time of 12 hrs. is usually sufficient, but a reaction time of 24 hrs. is preferable. Waller's process is unsatisfactory. Wijs' method is inaccurate owing to substitution if there is any excess of chlorine present; a small excess of iodine is to be preferred. Comparative results can, however, be obtained if for 0.2 g. of fat with iodine value less than 160. The reaction mixture is allowed to stand for 2 hours, for higher iodine values a period of 6 hrs. is necessary. The results are within 1.5% of the true iodine value. The reagent is best prepared by passing chlorine into a solution of iodine in glacial acetic acid until the color changes from dark brown to pale brown, and then adding a few crystals of iodine. The Hanus method is rapid and gives consistent results when a constant weight of fat is used, and can be recommended for industrial use. The great volatility of bromine and the sensitiveness of the reaction to light detract from the value of Winkler's method, which, however, if carried out in a dark room in red light gives good results. T. S. W.

Discoloration in corn (Maize) oil soap and the possibility of preventing its development. E. G. R. ARDAGH, J. C. BELL, F. S. SPENSE AND A. MURRAY. *Canadian Chem. and Met.* **7,** 302–7(1923); **8,** 7–11(1924); through *J. S. C. I.* **43,** No. 12.—The discoloration that develops in time on the surface of soap made from maize oil is not due to the color of the oil nor to sunlight, but results entirely from atmospheric oxidation of the saponified unsaturated glycerides, *e. g.*, sodium oleate and linolate. It is impossible to make a soap from ordinary maize oil that will remain white for any length of time when exposed to the air. Even when made in an atmosphere of nitrogen the resulting soap will in time turn brown in air. Overheating of the soap during manufacture greatly aggravates the defect. Dry soap, *i. e.*, a well-grained soap or one that has been smoothed and then dried, does not become discolored so quickly as a smoothed or moist soap. The more rapid deterioration of wet samples appears to be due to the sodium hydroxide set free by hydrolysis, which acts as a catalyst of the oxidation. The presence of sodium chloride appears to delay the development of color, probably because it inhibits hydrolysis. Even first class white commercial soaps made from maize oil will turn brown in a few hours when moistened and heated at 110°. If maize oil is very carefully heated in an inert atmosphere so that no local heating above 285° occurs, the resulting oil, in its iodine value has been reduced to 113 or less, will give a soap that resists oxidation and will remain white much longer than soap made from unheated oil. Soap made with a weak lye (10° B., d. 1.074) retains its whiteness much longer than that made with a lye of 18° B. (d. 1.143). H. C. R.

A neglected chapter in chemistry; the fats. E. F. ARMSTRONG AND J. ALLAN. *J. S. C. I.* **43,** 207–11T.—This article constitutes a valuable summary of our present knowledge of fats. The author very sensibly uses the term "fats" as covering both solid fats and liquid oils. It avoids confusion often present in the lay mind, resulting from the use of the term "oil" for mineral and essential oils.

Die Glyceride des Schweinefettes. I. Analytischer Teil. II. Synthetischer Teil. CONRAD AMBERGER AND ADOLPH WIESEHAN. *Z. Untersuch. fur Nahr. u. Genuss.* **46,** No. 5, 276.—Four samples of lard were investigated. Fatty acids isolated were oleic, palmitic, and stearic only. No linolic, lauric, or myristic acids found. Quantitative separation of one sample gave, oleic acid 60.0%, palmitic acid 32.2%, and stearic acid 7.8%. The authors consider these present almost wholly as mixed glycerides. The following glycerides were found: palmito-di-stearin, stearo-di-palmitin, oleo-di-stearin, m. p. 42°, oleo-palmito-stearin, m. p. 41°, palmito-di-oelin, liquid at room temperature, tri-olein probably present. Glycerides were prepared synthetically and compared with those isolated. The following structure is assigned to the glycerides isolated from lard: palmito-di-stearin is β-palmito-α,α-di-stearin; stearo-di-palmitin is β-stearo-α,α-di-palmitin; oleo-di-stearin is α-oleo-α-β-di-stearin; palmito-di-olein is α-palmito-α-β-di-olein; palmito oleo-stearin is (evidently) β-oleo,α-palmito-α-stearin. R. H. KERR

Beitrage zur Kenntnis der Glyceride der Fette u. Ole XI Die Glyceride des Palmkemfettes. A. BÖMER AND K. SCHNEIDER. *Z. Untersuch. fur Nahr. u. Genuss.* **47,** Nos. 1 and 2, 61.—Glycerides of palm kernel oil were separated by fractional crystallization and identified. Fatty acids isolated and identified. Capryllic, lauric, myristic, palmitic, and oleic acids were isolated and identified. Caproic and stearic acids were found not to be present, while the presence of capric acid remains doubtful. Glycerides found were caprylo-myristo-olein, m. p. 13.9°, α-myristo-di-laurin, m. p. 33.4°, α-lauro-di-myristin, m. p. 40.0°, α-palmito-di-myristin, m. p. (impure) 45.2° and α-myristo-di-palmitin, m. p. 51.4°. The first of these was present in large, the second in considerable, and the last three in small quantities. R. H. KERR