ABSTRACTS

Oils and Fats

Edited by
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Soybean culture in u.s.a. P. Guerrini. *Oleagineux 2,* 539-45 (1947).

Karité butter. Chemical composition of the latex and fat. E. Andre. *Oleagineux 2,* 546-52 (1947).

Aspects and problems in sunflower culture. A. Crocioni. *Olearia 1,* 217-22 (1947).

Possibility of increasing the culture of oil plants in sicily. Flaxs. E. Zanini. *Olearia 1,* 234-4 (1947).

Effectiveness of fat in soy flour as a shortening agent. R. D. Frantz and J. I. Simpson (Univ. Illinois, Urbana). *Food Res. 12,* 461-67 (1947). Pastry wafers were prepared from wheat flour and from blends of wheat flour and each of 4 types of soy flour in turn: full-fat, high-fat, low-fat, and minimum-fat soy flour. The resulting breaking strengths of the wafers from each type of flour were analyzed statistically to determine whether the differences in the mean breaking strengths were significant. The mean breaking strength of the wafers made from wheat flour was significantly higher than the values for the wafers made from each blend of wheat and soy flour in turn. The mean breaking strengths of the wafers made from blends of wheat and full-fat soy flour and from wheat and high-fat soy flour were significantly lower than the mean breaking strengths of wafers made from the wheat and low-fat soy flour blend and the wheat and minimum-fat soy flour blend. The differences in the mean breaking strengths of the wafers made from the wheat- and soy-flour blends indicated that the use of full-fat and high-fat soy flour in pastry increased the shortness of the wafers.

Combined methods for determining small amounts of water in fats. M. Loury and J. Piquard. *Oleagineux 2,* 560-3 (1947). Among the various methods suggested for detecting small amounts of water in fats, the one which utilizes quantitative hydrolysis of acetylchloride has been retained. But this direct method is not easily applicable to very acid or highly colored oils such as palm oils, fish oils, saponification oleins, retrieved fats, etc. L. & P. propose to separate the water previously by azeotropic distillation. By thus combining these two processes, a convenient precision is obtained by a simple preparation and ordinary reactions.

The spectrophotometric determination of small proportions of linolenic acid in fats. T. P. Hilditch and R. K. Shrivastava (Univ. Liverpool). *Analyst 72,* 527-31 (1947). Although spectrophotometric analysis discloses small absorption at 268 mμ after isomerization of polyethenoid C_{18} acids by alkali, no evidence has been obtained of the presence of linolenic acid (as revealed by formation of ether- insoluble hexabromostearic acid, m.p. 180°) in unsaturated acid concentrates from cottonseed, groundnut, maize, sesame, and sunflower-seed oils. It is concluded that linolenic acid is present, if at all, only in minute traces in these fatty oils. It is recommended that small spectrophotometric values (after alkali isomerization) not exceeding $E^{1\%}_{1\,\text{cm.}}$ 10 at 268 mμ should not be calculated as linolenic acid in a fatty oil, unless confirmed by production of crystalline hexabromostearic acid from a concentrate of the unsaturated acids of the oil. Owing to extraneous absorption, linolenic acid proportions dependent upon small values of $E^{1\%}_{1\,\text{cm.}}$ at 268 mμ probably tend in any case to be somewhat higher than the true figures. In niger-seed oil, the procedure recommended in this paper has established the presence of small proportions of linolenic acid (probably of the order of 3-4% of the total fatty acids of niger-seed oil).

The estimation of small amounts of fatty acid in the presence of polyoxyethylene sorbitan partial fatty acid esters ("tween") and of serum proteins. B. D. Davis (Rockefeller Inst. Med. Res., New York). *Arch. Biochem. 15,* 351-8 (1947). The method is sensitive to 0.1 μM of fatty acid (28γ of oleic acid) and is suitable for extracting small amounts from large volumes of dilute solution. Sample is dehydrated with Na_2SO_4 and then solvent extracted. With this method it was shown that 3% of the oleic acid in the commercial product "Tween" 80 is unesterified. In the presence of serum proteins quantitative extraction of fatty acid is possible following the addition of Na dodecyl sulfate. Small amounts of free fatty acid (0.4 μM) were found in fresh normal human serum.

The preparation and stability of fatty acid-free polyoxyethylene sorbitan monooleate ("tween" 80). B. D. Davis (Rockefeller Inst. Med. Res., New York). *Arch. Biochem. 15,* 359-64 (1947). A method is described for eliminating the free fatty acid which forms 3% of the total fatty acid of the commercial product "Tween" 80, and which causes it to be bacteriostatic to tubercle bacilli. Analysis of the free and total fatty acid indicated a 70% yield, with elimination of approximately 90% of the impurity. The rate of hydrolysis of "Tween" 80 in aqueous solution is briefly described. The purified product may be stored in concentrated solution in the refrigerator for several weeks without exceeding 1% hydrolysis, and in the solid form for much longer periods.

Oxidation of saturated fatty acids. Oxidation by air of ethyl palmitate and caprate in the presence of the phthalocyanine nickel. F. de Goursac and M. C. Paquot. *Oleagineux 2,* 564-7 (1947). The subject of oxidation of saturated acids is reviewed. Ethyl palmitate and ethyl caprate were blown with air at 120° in the presence of 1% Ni phthalocyanine. The products lost a small amount of weight; the air entrained matter, mostly lower acids, amounted to about 5% of the original and the residues were decomposed into lower acids. The indices of refraction rose from 193 and 294 to 345 and 380, respectively, for the above esters. Analyses of the decomposition products are being made.

Crystalline lipoxidase. II. Lipoxidase activity. R. T. Holman (Medicinska Nobelinstitutet, Stockholm, Sweden). *Arch. Biochem. 15,* 403-13 (1947). The optimum pH for lipoxidase action lies near pH 9.4. Higher alkalinity does not markedly decrease the activity, but as neutrality is approached and emulsion systems are formed, the activity drops markedly. The optimum temperature for lipoxidase is near 30°C. The Q_{10} between —1.5°C. and 18.5°C. is about 1.6. Elaidolinolenic acid, 10,12-linoleic acid, oleic acid, and octanoic acid, arranged in decreasing order of competition, show affinity for the active center in lipoxidase. At low temperature, lipoxidase oxidation of linoleic acid in homogeneous substrate at pH 9 leads to the production of totally conjugated hydroperoxides of linoleic acid. Under the conditions of the assay, lipoxidase oxidizes 360 moles substrate/mole lipoxidase/second.

NUTRITIONAL STUDIES ON MILK FAT. III. THE EFFECT OF THE TREATMENT OF MILK FAT WITH CERTAIN SOLVENTS ON THE GROWTH OF YOUNG RATS. E. L. Jack and E. B. Hinshaw (Univ. California, Davis). *J. Nutr. 34,* 715-24 (1947). Experiments have shown that pentane (Skelly-Solve A) contains an impurity which lowers the growth-promoting value of milk fat. The oxidative stability is also lowered. The —53° filtrate milk-fat fraction prepared with purified pentane produced significantly greater growth in young rats than the original milk fat and also greater than the other milk fat fractions. Young rats fed a diet containing —53° filtrate milk-fat fraction used their feed more efficiently for growth than those fed diets containing the original milk fat and the other fractions.

PRODUCTION OF ESSENTIAL FATTY ACID DEFICIENCY SYMPTOMS IN THE MATURE RAT. V. H. Braki, H. Nath, E. B. Hart, and C. A. Elvehjem (Univ. Wisconsin, Madison). *Proc. Soc. Exper. Biol. & Med. 66,* 474-8 (1947). Mature rats were maintained on a fat free diet for relatively long periods without showing any deficiency symptoms except emaciation. Severe depletion followed by *ad libitum* feeding of the fat free diet precipitated in mature rats symptoms including those typical of essential fatty acid deficiency. This method is suggested for other types of experiments where a "strain" on body functions is desired. Either Et linoleate or corn oil prevented entirely or cured rapidly the symptoms of essential fatty acid deficiency when they appeared. When the rats, after depletion, were maintained on the fat free diet *ad libitum* for sufficiently long periods, spontaneous disappearance of all the symptoms were observed, for which the explanation of some synthesis of essential fatty acid is suggested.

THE LIPOTROPIC ACTIVITY OF CAFFEINE, THEOBROMINE AND THEOPHYLLINE. L. A. Heppel, V. T. Porterfield, and E. G. Peake (National Inst. Health, Bethesda, Md.). *Arch. Biochem. 15,* 439-43 (1947). All 3 compounds were found to be lipotropic.

PRODUCTION OF FATTY INFILTRATION OF LIVER IN RATS BY ALCOHOL IN SPITE OF ADEQUATE DIET. C. T. Ashworth (Southwest Med. Coll., Dallas, Texas). *Proc. Soc. Exper. Biol. & Med. 66,* 382-5 (1947). Fatty infiltration of the liver occurred in every animal receiving alcohol and low casein diet, alcohol and high casein diet, and in all those receiving low casein diet and no alcohol. None of the animals receiving the same volume of the high casein diet and no alcohol had fatty infiltration of the liver. It is therefore concluded that alcohol exerts an effect which permits accumulation of fat within the liver cells, and that this effect operates separately from that of extrinsic deficiency of lipotropic factors.

FURTHER EXPERIMENTS ON THE RELATION OF FAT TO ECONOMY OF FOOD UTILIZATION. III. LOW PROTEIN INTAKE. C. E. French, A. Black, and R. W. Swift (Pennsylvania State Coll., State College). *J. Nutr. 35,* 83-8 (1948). A comparison was made between 2 diets containing 2% and 30% of fat, respectively, so prepared and fed as to supply to each rat of a litter-pair and therefore to each group of 12 the same quantities of energy, protein and vitamins. Decreasing the protein intake from the former 22% level to 7% of the diet did not alter the previously reported superior energy utilization of high fat diets by the growing rat. In the present experiment an increased weight gain, increased body gains of fat and energy, and decreased heat production were associated with the high fat ration.

COMPARATIVE PHYSIOLOGICAL STUDY OF MOBILIZATION OF FAT FROM TWO TYPES OF ADIPOSE TISSUE DURING FASTING. G. Clement (Univ. Paris). *Compt. rend. soc. biol. 141,* 255 (1947). In fasting rats the white body fat is used up much faster than the brown interscapular fat. DIRECT DEMONSTRATION OF THE MOBILIZING ACTION OF HYPOPHYSIAL HORMONES ON FAT RESERVES; ROLE OF THE SYMPATHETIC NERVOUS SYSTEM. *Ibid.* 317-20. In fasting rats the injection of extract of either anterior or posterior hypophysis causes an increase in liver fat and an accelerated mobilization of depot fats. White perirenal fat is mobilized faster than brown interscapular fat. Section of the sympathetic nerves leading to the fat deposit areas seems to inhibit the effect of the hypophysial hormones. DEMONSTRATION OF THE MOBILIZING ACTION OF ADRENALINE ON RESERVE FATS; ROLE OF THE SYMPATHETIC NERVOUS SYSTEM. G. Clement and G. Schaeffer. *Ibid.* 320-2. Slow injection of large doses of adrenaline produces effects similar to those of hypophysis extracts. Since its action is diminished or abolished by section of the sympathetic nerves of the fat deposit areas, the action cannot be direct but must be exerted through the nervous system. (*Chem. Abs. 42,* 261-2.)

ON THE NATURE OF THE PHOSPHORUS-CONTAINING LIPIDES OF CABBAGE LEAVES AND THEIR RELATION TO A PHOSPHOLIPID-SPLITTING ENZYME CONTAINED IN THESE LEAVES. D. J. Hanahan and I. L. Chaikoff (Univ. California Med. School, Berkeley). *J. Biol. Chem. 172,* 191-8 (1948). The phosphorus-containing lipids isolated from raw and steam-treated cabbage leaves differed only in their nitrogen content; those isolated from raw cabbage leaves were characterized by a low nitrogen content and by an absence or low content of choline, while those isolated from steam-treated cabbage leaves were high in their nitrogen and choline content. A phospholipid-splitting enzyme capable of attacking only the nitrogeneous base-phosphoric acid linkage is shown to be present in fresh cabbage leaves.

PATENTS

SULFURIZED OILS. Bert H. Lincoln and Waldo L. Steiner. *U. S. 2,433,853.* A lubricant comprises in combination a major proportion of an oil of lubricating viscosity and a minor proportion, sufficient to increase the film strength of the oil, of halogenated sulfurized phenyl oleate.

GREASE COMPOSITION. George M. McNulty and John C. Zimmer. *U. S. 2,433,861.* An anhydrous high temperature reversible grease composition comprises a mineral lubricating oil and 15% by weight of the reaction product of hydrogenated fish oil and hydrated lime heated to a temperature of 400° to 500°F., and .3% CaCl.

Drying Oils

Edited by
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Total conjugation of linoleic acid in oxidation with lipoxidase. S. Bergstrom and R. T. Holman (Sweden). *Nature 161,* 55 (1948). Rapid oxidation of sodium linoleate at 0° in the presence of crystalline lipoxidase produced conjugation equivalent to the amount of hydroperoxide formed. At higher temperatures non-conjugated products containing hydroperoxide are formed.

The time required for the gelation of tung oil at different temperatures. F. C. Pack and R. L. Holmes (U. S. Dept. of Agr., New Orleans, La.) *Proc. Am. Tung Oil Assoc. 1947,* Pt. 1, 21-3. Gelation times for American tung oil heated with a steam coil at 80 lb. pressure/sq. in. and at 140 lb./sq. in. were 24 hrs. and 12 hrs. respectively. (*Chem. Abs. 42,* 386.)

The chemistry of alkyd resins. Z. W. Wicks (Interchemical Corporation, New York, N. Y.). *Interchem. Rev. 6,* 63-76 (1947). The chemistry of drying oils and alkyd resins is reviewed and the scientific approach to resin manufacture emphasized. The reactive functionality of polyhydric alcohols and of unconjugated and conjugated fatty acids largely determines the properties of resins made therefrom. The "azeotropic process" for preparing alkyds is an outstanding recent development. New difunctional reagents are used which react with free hydroxyl and carboxyl groups in the alkyd, at low temperatures, and thereby impart increased water and alkali resistance.

Drying oils and resins from petroleum sources. R. J. Lee, L. M. Adams, and E. E. McSweeney (Pan American Refining Corp., Texas City, Tex.). *Paint Oil Chem. Rev. 3,* No. 1, 16-25 (1948). Hydrocarbon drying oils with 2-3 double bonds per molecule, iodine value 180-250, Gardner color 15, mol. wt. 300+, and Gardner viscosity Q-U, when used to replace up to 50% of the linseed oil in paint and varnish formulations produced products of good drying speed, slight yellowing tendency, fair flexibility, and fair water and alkali resistance.

China's motor fuels from tung oil. C. Chang and C. Wan (China Vegetable Oil Corporation, Shanghai, China). *Ind. Eng. Chem. 39,* 1543-8 (1947). Oils such as tung oil, cottonseed oil, and rapeseed oil, were pyrolytically cracked in wartime China by three methods: liquid-phase cracking at 400°-450° without catalyst, at 300°-350° with catalyst, and distillation of calcium soaps. Acid value determinations indicate that free fatty acids are first split off and then decomposed to form hydrocarbons. One ton of oil yields 350 pounds of satisfactory gasoline and 1460 pounds of Diesel oil. Hydrocarbons from hexane to cylooctane were identified in the gasoline fraction.

Possible applications of isocyanates in the paint industry. J. Rinse. *Verfkroniek 20,* 166 (1947). Mono- and di-isocyanates (OCNRNCO), prepared by the reaction of CO_2, amine, and phosgene, reacts with alcohols, acids, and other compounds containing active hydrogen without the elimination of water. When reacted with drying oils to the extent of 5 to 10% at 100° the products are low viscosity oils having low reactivity with ZnO and solubility in a wide variety of solvents due to 0 groups in the molecule. The dry films possess a high gloss and outstanding water and alkali resistance. Aryl isocyanates give faster drying oils than their alkyl equivalents.

PATENTS

Polymer pigmentation. M. E. Hughes (Shell Development Company). *U. S. 2,433,992.* A dispersion of pigment in drying oil is dispersed in a resin-forming, heat-polymerizable, liquid unsaturated compound and the mixture heated to 60° to 300°C. to form a pigmented solid mass.

Resin treatment. L. Auer. *U. S. 2,433,832.* A varnish resin such as a polyhydric alcohol ester of rosin, a rosin-maleic-polyhydric alcohol resin, a rosin-phenol-formaldehyde resin, or a rosin-polyhydric alcohol-phenol-formaldehyde resin is modified by 0.1% to 10% of an aromatic di-primary amine at 100° to 350°C. and incorporated with a varnish oil.

Aqueous dispersions of vulcanized fatty oils. L. Auer. *U. S. 2,433,831.* A fatty oil is heat-bodied to gelation while water-soluble soaps of alkali metals, ammonium or organic amines are simultaneously formed in the oil. The vulcanized oil containing dispersed soaps is then dispersed in water.

Protein and drying oil emulsions. W. Paterck (Archer-Daniels-Midland Company). *U. S. 2,433,783.* An aqueous alkaline solution of protein, a fatty drying oil, a preservative for the protein and 8 to 20 parts of ammonium chloride per 100 parts of protein are emulsified together to form a water-reducible paint, the amount of protein being in excess of the amount of drying oil. Ammonium chloride increases wet abrasion resistance of the dried paint film.

Polylactylic acid resins and process for making them. P. D. Watson (U. S. Secretary of Agriculture). *U. S. 2,433,721.* A resinous material is prepared by heating between 20 and 50% fatty drying oils, between 35 and 70% polylactylic acids, and 5% of fumaric acid or maleic anhydride at polymerizing temperatures until partial polymerization is effected. Between 10 and 15% of an unmodified, oil-soluble alkyl phenol-formaldehyde resin of 4 to 6 carbon atoms in the alkyl group, or an unmodified, oil-soluble aryl phenol-formaldehyde resin where the aryl group is phenyl or naphthyl, is added and heating continued with removal of volatile products until a viscous, elastic, resinous product is formed.

Improving color, acid number, and drying properties of compounds containing organic acids having a plurality of double-bonds in the carbon chain. K. H. Magnusson and S. U. K. A. Richtet (Svenska Oljeslageriaktiebologet). *Swed. 118,422.* Compounds such as tall-oil acids or their esters with mono- or polyhydric alcohols are treated with air or a gas containing O, S, Se, or Te, or compounds thereof, at 200°-310°. An oxidation, dehydration, or polymer-preventing catalyst may be present. (*Chem. Abs. 42,* 388.)

Soap and Perfume

Edited by
LENORE PETCHAFT

Effect of centrifugal spinning on the syneresis of sodium oleate gels in pinene. G. S. Hattiangdi (Roy. Inst. Sci., Bombay). *Current Sci.* (India) *16,* 222 (1947). The relation between soap content and bound liquid is linear between 0.02 and 0.20 g. Na oleate in 10 ml. pinene. Water held in interfibrillary spaces is released at 30° at a speed of 2000 r.p.m. for 30 min.; only ⅓ as much water is released at 1250 r.p.m. for 25 min.; very high speeds might release some molecularly bound liquid. The percentage ratios of liquid exuded to total volume of the gel (Na oleate in 10 ml. pinene) at 2000 r.p.m. for 30 min. were: 0.05 g. Na oleate 73.5; 0.10 g. 64; 0.15 g. 52.5; 0.20 g. 41.5. (*Chem. Abs. 42,* 437.)

Synthetic bar detergents. C. V. Cardew. *Soap, Perfumery & Cosmetics 20,* 1205 (1947). The imperfections of several available synthetic bar detergents are reviewed. These bars contain a synthetic detergent usually of the sulphated fatty alcohol type, a filler such as china clay and a binding agent which also facilitates the slow dispersion in water of the tablet. The chief fault in these tablets is friability or tendency to crumble. Binders which may help to overcome this fault include cellulose esters, alginates, natural gums, and other hydrophilic colloids, and possibly synthetic resins and plastics. The polyglycols and casein should also be considered. The use of salts such as sodium chloride assist the binding action by increasing viscosity.

Free alkali in soap. Dr. T. Ruemele. *Soap Sanit. Chemicals 24,* No. 1, 42-3 (1947). The problems involved in determining and evaluating the effects of free alkali in soaps are varied. Factors to be considered are the use of the soap product, composition of the soap fats, concentration, temperature of solution, amount of drying which will absorb the alkali, the amount and type of added alkali, degree of hydrolysis and pH. Views on correct pH range also vary. The naturally acid pH of skin is changed to an alkaline reaction according to various types of soaps used. A hydrolyzing soap results in a higher pH than a nonhydrolyzing soap. It has also been found that small quantities of free alkali do not readily change the pH value of soaps, because soaps are strong buffers.

The chemistry and application of detergents. J. A. Hill (Brit. Launderers' Research Assocn., Hendon, London). *J. Soc. Dyers Colourists 63,* 319-22 (1947). Removal of soiling matter from a fabric can be divided roughly into 3 stages: (1) The solution must come into intimate contact with the fabric and penetrate between the fibers. (2) The oil, usually present, must be removed (this permits easy removal of the solid soiling matter). (3) The soiling matter, after removal must remain suspended in the solution and not be redeposited on the fabric. The molecule of the detergent should not be too soluble or too insoluble. Na alkyl sulfates and sulfonates are electrolytes and the main portion of the molecule is contained in the anion. Synthetic anion-active-, cation-active, and nonelectrolytic detergents are considered. Na alkyl sulfates have a temperature of maximum effectiveness, as the molecular weights increase. Cation-active compounds have greater bactericidal power than anion-active and nonelectrolytic compounds. Applications of the 3 types are indicated. (*Chem. Abs. 42,* 392.)

Detergency studies. William P. Utermohlen, Jr., and E. Louis Wallace (Inst. of Textile Tech. Charlottesville, Va.). *Textile Research J. 17,* 670-88 (1947). I. Soiling of cloth and determination of its extent. Methods and results of soiling cotton cloth with dispersions containing various concentrations of several pigments and constant quantities of a vegetable and a mineral oil are given. It was found that the reflectivity values of cloths soiled with different concentrations of a given pigment are related linearly not to the quantity of soil present as formerly believed, but to the logarithm of that quantity. II. Washing cloth of various degrees of initial soiling. It was thought that cloths of different degrees of initial soiling might all be capable of being washed to about the same degree of soil content. However, results of tests run in launderometer revealed that the most heavily soiled cloths would not be washable to the same high value of reflectance as were the most lightly soiled cloths. It was also found that multiple washing was much inferior to serial washing for the removal of pigment soil. III. Influence of the soiling mixture and of storage conditions on the ease of washing of soiled cloth. If cloth is to be stored for any length of time after soiling and before washing, it should be kept in an extremely dry atmosphere. If an oil-pigment is to be used, the oil should be a mixture of mineral oil and a nonoxidizing oil of a relatively low degree of unsaturation to prevent polymerizing oxidation upon standing.

The solubility of soaps and of some salts in mixtures of solvents, one of which is of glycolic type. Santi R. Palit (Indian Assoc. for the Cultivation of Science, Calcutta, India). *J. Am. Chem. Soc. 69,* 3120-9 (1947). Any mixture consisting of two solvents, one of the glycolic type (called G-solvent) and the other any organic solvent which can dissolve hydrocarbons, e.g. higher alcohols, chlorinated hydrocarbons, etc. (called H-solvent), has been found to have better solvent power for soaps than any of the pure solvents alone. Extensive study of the solvent property of various G-H mixtures has been made. The glycol forms hydrogen bonds with the –COO– end of the soap, and the alkyl group of the soap is dissolved by the H-solvent, and thus the mixture is more effective than the individual solvents. The cause of the hydrogen-bonding power of glycol in comparison with alcohols is ascribed to the effect of the interaction of one electronegative group on another, making the hydroxylic hydrogen atom of glycols more positive than it would otherwise be. The long known soap-dissolving power of phenols, cresols, methyl alcohol, etc., is also explained from this viewpoint. It has also been shown that inorganic salts having the group XOO–, where X is any non-metallic element, e.g. nitrites, hypophosphites, etc., have very high solubility in glycols owing to this glycolic interaction.

Surface tension and detergency. C. C. Addison (Univ. College, Nottingham, Eng.). *Nature 160,* 467 (1947). Theoretical evidence is presented that the change in equilibrium surface tension that occurs during change in area of a soluble film may be a significant factor in the detergent powers of diluted solutions of long chain compounds, in addition to surface tension and the time required for the establishment of diffusion equilibrium. Surface tension of a solution must now be considered subject to changes in area also. The following possible subdivision of types of air-water interface is presented:

dynamic stationary (1)→ equilibrium stationary (2)→ aged stationary (3)
dynamic expanding (4)
equilibrium expanding (5)
dynamic contracting (6)→ equilibrium contracting (7)

The term "dynamic" is restricted to surfaces at which the initial surface excess is in the process of accumulating. Arrows indicate types that pass from one to another with time. The fresh surfaces operative in detergent processes may fall into any one of several of the above types, except (3). Surface tensions corresponding to these types vary widely, and types of surface should be determined before successful correlation of surface tension with detergency is possible. (*Chem. Abs. 42,* 435.)

PATENTS

NON-GELLING DETERGENT. Marinus Buis and Dillwyn Morgan Samuel (Shell Development Company). *U. S. 2,434,683.* Surface active agents consisting of the alkali metal salts of sulphuric acid esters of primary, secondary, or tertiary alcohols are prevented from gelling when in low temperature solutions by the addition of a small amount of sulphates, chlorides, thiocyanates, nitrates, phosphates, citrates, carbonates or carbamates of ammonia, substituted ammonia or magnesium.

COMBINATION SOAP AND WASHCLOTH. Floyd Plemon Bowman. *U. S. 2,431,913.* A cake of soap has on one face a series of sockets in which are attached tufts of textile fibrous strands. These tufts are closely matted together to function as a washcloth.

BLEACHING SOAPS AND FATS AND OILS. Clifford A. Hampel (Mathieson Alkali Works, Inc.). *U. S. 2,430,674.* Soaps and fats and oils are bleached by subjection to the simultaneous action of an alkali metal chlorite and an aldehyde in the presence of water at a pH not less than 7. The function of the aldehyde seems to be that of activating the chlorite rather than a direct action upon the organic material itself.