Uniform Methods Committee of this Society, and is now up for consideration before the Chemists' Committee of the Inter-State Association, with the promise of action being taken at a meeting of this Committee to be held during the session of the Spring meeting of The American Chemical Society at Birmingham. Doubtless a supplementary report of the Uniform Methods Committee will make final disposition of this matter.

It is greatly to the regret of the Chairman of this Committee that it is necessary to pass the full program for co-operative analytical work on to the succeeding Committee. The present status of the work is as follows:

- I. Further study of the Edeler method of drying Fatty Acids from C. S. Soap-stock.
It was the consensus of opinion of the Committee that no advantage could be gained by the use of this method with C. S. Soap-stock.
- II. Study of methods for the determination of Total Fatty Acids in Soap-stocks from the Drying and Semi-drying Oils other than Cotton Oil.
Authentic samples of these Oils were not obtained until too late to send out for co-operative work, but preliminary work, under way in the writer's laboratory, indicates the necessity of work being done on this class of material, and points to the advisability of drying the Fatty Acids under CO₂ or other inert gas. (Edeler Method.)
- III. Study of methods for the determination of Neutral Oil in Soap-stock.
No progress has been made.
- IV. Study of method for obtaining a uniform sample from samples of Soap-stock which have separated free water.
No samples of this character were encountered by the writer this season, or brought to his attention, and attempts to produce this condition artificially were not satisfactory.

Further work to be done will depend largely upon the action taken by the Chemists' Committee of the Inter-State Association on the proposed new Soap-stock method. If it is adopted as official, doubtless there will be some points in connection with it which should be taken up for further consideration.

REFINING COTTONSEED OIL

By Mr. C. B. Cluff. The American Cotton Oil Co.,
New York City

I have read with much interest Mr. White's article: "Outline of the Forces entering Process of Refining Cotton Seed Oil" in the March COTTON OIL PRESS, and am glad to see in print an attempt to explain scientifically the Cotton Oil refining process. I hope this will start discussion and bring out further ideas regarding the little understood mechanism of this process.

One point that occurs to me as having a great influence on the refining process in addition to the action of caustic soda on the fatty acids, is the action of caustic soda on other organic matter present in the crude oil in varying amounts. Some of this matter is nitrogenous, in the nature of proteins, and some is apparently of a resinous nature. The latter combines with caustic soda to form a compound somewhat similar to soap and, I believe, has considerable influence on the formation of emulsions. It is not possible, however, to salt this compound out like soap. This material is particularly noticeable in the spent soap lyes obtained from saponifying Cotton Seed Foots and, of course, has its origin in the Crude Oil,—being removed in the refining process. The soap can be readily

salted out in the kettle, but the spent lye contains this resinous matter, which causes it to set to a more or less gelatinous mass on cooling.

The presence of ammonia and of organic acids, especially acetic, is easily proven in the soap stock, but we do not know in what form they occur in the crude oil. Probably they are split off from more complicated organic compounds by the action of caustic soda, thus using up some of the excess caustic above that required to neutralize the free fatty acids and to salt out the resulting soap.

Whether these various substances are actually combined chemically in some of the glyceride molecules or are merely dissolved in the oily glycerides has never been established as far as I am aware. If the latter is the case, it might be possible to dissolve them out if a suitable solvent could be found, and thus make it possible to refine the remaining oil with caustic soda with a greatly reduced refining loss.

I do not know that these substances found in the soap stock have ever been carefully investigated in a scientific manner, but believe that a thoroughly scientific study of them, their properties, and their origin would throw considerable light on the refining process.

CORRECTION

Separation and Determination of Saturated and Unsaturated Fatty Acids by Means of the Lead Salt-Ether Method

By Walter F. Baughman and George S. Jamieson
May, 1922, Chemists' Section, page 42.

On page 42, 2nd column, 5th paragraph, the formula should be expressed as follows:

$$\frac{\text{Iodine No. of Sat. Acids}}{\text{Iodine No. of Unsat. Acids}} \times 100 = A \text{ (percentage of unsaturated acids contaminating the saturated acid fraction).}$$

MANUFACTURE OF ARTIFICIAL PETROLEUM FROM SOYA BEAN OIL

From Consul M. D. Kirjassoff, Dairen, Manchuria,
February 20, 1922

Mr. M. Sato of the central laboratory of the South Manchuria Railway Company at Dairen, has an article in the February, 1922, number of the "Light of Manchuria" on the manufacture of artificial petroleum from soya bean oil which concludes as follows:

- (1) When calcium salt of bean oil fatty acid is dry distilled at about 500°C. distillation crude petroleum of 67 c.c. at the maximum, together with about 8 litres of dry distilled gas, will be obtained to 100 grammes of calcium salt. The calorific value of crude petroleum being 9965 calories on an average, it compares well with that of petroleum and heavy petroleum, and renders it available for sundry uses as liquid fuel. Again, the dry distillation gas resembles natural gas in having methane for its principal compound. Besides, it contains much essential constituents as bihydrocarbon and monoxide in a comparatively large quantity, the amount generally being close to the gas amount produced in the lower temperature dry distillation of coal, thus suggesting its availability as an article of fuel for domestic use and also as a source of light.
- (2) When distillation petroleum is fractionated, light oil (under 150°C.) is obtained to the amount of