Report of the International Commission for the Study of Fats, Municipal University, Amsterdam, September 5-10, 1949

President: Dr. Voermann.
Secretary: M. Vizern.
Vice Presidents: Dr. Sturm and Dr. Foster Dee Snell.
The following were present:
France: Professor Margaillan, M. M. Vizern and Wolff.
Great Britain: K. A. Williams, W. V. Lee, E. Lewkowitsch. (G. F. Robertshaw, P. N. Williams, observers.)
Holland: Drs. Voermann, Bertram, Boekenoogen. (Drs. Hoeke, van der Steur, Raede, observers.)
Italy: Professors Balestrini, Anselmi, Begoni. (Professor Fachini, observer.)
Switzerland: Drs. Sturm and Weder.
United States: The United States delegate, Dr. Snell, was unable to be present, but he had met the members of the British Commission in July in London, and they were acquainted with the American views. Professors Perry and Murray Luck were present as observers at different times.
Denmark: No delegate—apologies for absence.
Czechoslovakia: No delegate—apologies for absence.

THE election of Spain to the membership of the Commission was proposed and passed unanimously, and M. Miro, the Spanish delegate, was welcomed by the president. The secretary then reviewed the composition of the Commission.

The present British delegates are:

K. A. Williams, chairman of the British National Committee of the International Commission, organized by the British Standards Institution.

E. Lewkowitsch and W. V. Lee, members of the British National Committee. Mr. Lee also represents the International Association of Seed Crushers.

On the proposal of M. Vizern, the secretary, Dr. Williams was elected president of the Commission, Dr. Voermann under the rules having to retire after the meeting. Dr. Sturm and Dr. Snell were re-elected vice presidents. The agenda before the meeting was as follows:

1. Minutes of previous meeting
2. Examination and discussion of results obtained by the different National Commissions
   a) Determination of free caustic and carbonate in soaps
   b) Qualitative method for rosin in small quantities
   c) Reichert-Polenske-Kirschner method for determination of soluble and insoluble volatile fatty acids
   d) Characterization of sterols
   e) Thiocyanogen value
   f) Peroxide value
   g) Determination of neutral oil in admixture with free fatty acids
3. Adoption of any of the above methods which were unanimously approved
4. Preparation of the program of work for 1949-1950
5. Nomination of the composition of the Commission to the Bureau de L'Union

a) The results obtained were generally satisfactory, but the proposed methods were considered to be not delicate enough for certain special cases. Certain soaps sold in Marseilles have to conform to severe standards, and it becomes necessary to determine quantities as low as 0.02% of free alkali with accuracy. Difficulties arise from the slight but definite solubility of sodium carbonate, and the possibility of interaction between the free caustic alkali and any neutral fat in the soap. A method was tentatively adopted in which thymol blue replaces phenolphthalein in the usual test in which the soap is dissolved in alcohol and the free caustic alkali is titrated with acid. Although not completely satisfactory, this was believed to be the best known at present. It is proposed to try collaboratively a test for free alkali in potash soaps, in which barium chloride is added to the solution of the soap to precipitate the carbonate before the free caustic is titrated.

b) Existing methods having proved insufficiently sensitive to detect small quantities of rosin in admixture, it is proposed to investigate a method put forward by Sanderman (Analytical Chemistry, May 1949). A method for the determination of rosin was agreed upon at the last meeting of the Commission in 1947. The British Delegation referred to some work being carried out in which it was hoped that the constituents which gave the color with the Liebermann-Storch reagent could be concentrated, thus increasing considerably the sensitivity of the test. Progress would be reported.

c) During the discussions concerning the Reichert-Polenske-Kirschner test it was pointed out by the British delegation that the description of the test which had been circulated to the National Committees two years ago was not nearly sufficiently detailed. The test is entirely an empirical one, and exact adherence to detail is essential. Results obtained by members of the Commission on samples circulated to them proved this. Two exact texts were put forward, one by the Netherlands and the other by the British delegation, the latter being that which has been compiled by the British National Committee and will shortly be published by the British Standards Institution. It is based on the text standardized by the Society of Public Analysts and other Analytical Chemists in 1936. The two methods are to be used by the various National Committees on samples to be circulated at the end of the year.

d) For the characterization of the sterols the Commission proposed to adopt the text of the Dutch method, noting that the test is a qualitative one and that it will lead to the detection of small quantities of vegetable oil in animal oil and fat but not to the reverse, this latter being still an unsolved problem.

e) The text circulated two years ago for the determination of thiocyanogen value was adopted, the results obtained being in good agreement.

f) Most of the members of the Commission preferred the peroxide value to be carried out at ordinary temperatures. Both the hot and cold methods gave comparable results when conditions were strictly observed. The original time of standing in the cold, 1 hour, was objected to by members, and it was decided to adopt the method wherein the reagents and fat were mixed, and the tube containing them was filled with CO_2 and allowed to stand for 5 minutes, the contents then being poured into water and titrated in the usual manner. The mode of expression of results adopted by the Commission two years ago is in terms of micrograms of oxygen liberated per gram of sample, and it yields figures 16 times as great as the normal British method of expression (ml. of 0.005 N sodium thiosulphate per gram of sample).

g) It was apparent that there was a real divergence of opinion between the Italian delegation and the rest of the Commission. The latter preferred methods involving the extraction of the neutral oil from the soap solution whereas the Italians proposed the adoption of a method in which neutral oil and free fatty acids are calculated from the acid value and saponification value.

It was finally decided that the methods under review would be again tried on samples to be sent by the French and Italian Commission.

At the final session of the Commission there was a general discussion on the units suitable for the International expression of results of tests on fats. The French Committee proposed that wherever possible results should be expressed in terms of the number of liters of normal reagent per kilogram of fat. Such a method is obviously possible for expression of saponification, iodine, thiocyanogen, hydroxyl, acid, and peroxide values etc. The main objection to such a mode of expression is that it would necessitate the learning of a new set of values without achieving other than uniformity. The French undertook to circulate details of their proposals to the other Committees.

The question for the program for 1949-1950 was discussed. The Italian delegates were interested in the determination of total fatty matter in soap stocks, and it was agreed that the British Committee would send details of the method in use in the United Kingdom. The French Committee suggested examination of methods for Carbonyl, Diene, and Boemer values.

The secretary read the report of the proceedings which the president was to present to the Council.