

THE COLOR COMMITTEE

FOR some 40 odd years there has been a Color Committee of the American Oil Chemists' Society, and for some 40 years or more the color of oils has been determined by the admittedly inadequate process of visually comparing a column of oil against Lovibond glasses. It is true that the method of reading the colors has changed, and changed for the better. The instrument for viewing the oil column has been improved, the color tubes have been standardized, and the color glasses



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themselves have been analyzed spectrophotometrically, calibrated, and put into rotating heads to prevent handling and breakage. About the only things not changed are the glasses themselves (this may not be true of glasses now obtainable), the analysts who still read the colors, and the criticisms aimed at the method by oil processors and oil consumers alike.

Why has such a situation existed for forty years? Has no work been done on a new method or has the Color Committee been unequal to the demand for a new and better method? The answer to these questions is obvious. A simple method for measuring a complex characteristic, such as the color of an oil, is impossible. The Wesson method is so easy to carry out, requires so little equipment, and has become so firmly established that to many the faults of the method are no longer apparent because of lack of facts or lack of desire to change. The changes which have been tried have been based upon an impossible premise, that any new method must yield values that can be translated into the Lovibond color of the oils. The result: 40 years of work, a multitude of facts, the investigation of a lot of instruments, *but no acceptable method.*

The Color Committee has worked and worked hard. In 1917 G. W. Agee writes as follows: "of the things accomplished (1909-1917) may be mentioned the securing of the cooperation of the Bureau of Standards at Washington in investigating the color-reading of cottonseed oil. This investigation progressed satisfactorily, and a method was practically ready to put into operation when conditions brought about by the war made it impossible to have the necessary instruments built in this country." During the years 1917 to 1943 under the able leadership of such men as F. N. Smalley, David Wesson, H. P. Trevithick, W. D. Hutchins, and others the work of the committee went on. In close contact with the work was I. G. Priest of the Bureau of Standards. One needs only to read the committee reports and reports of individuals such as Priest, Wesson, Trevithick, Keuffel, Agee, and a host of others to appreciate the amazing amount of work done and, in the reading, to learn a great deal about oil colors and the basic requirements for measuring them.

In the Chemists' Section of the Cotton Oil Press, Vol. III, No. 2, June 1919, under Addresses and Reports on the 1919 convention is found, "Mr. I. G. Priest of the Bureau of Standards read a valuable paper covering recent work on color grading of cottonseed oil. Mr. Priest believes that the Bureau has developed an instrument and method by which oils can be accurately graded. A committee will go to Washington during the summer and work with him on the practical application of his investigation." In his paper Dr. Priest recommended strongly the use of spectrophotometric methods for oil color measurement, stating the advantages of such a method and the disadvantages of using colored glasses. The committee did go to Washington, and as a result work followed on the Bureau instrument, the Eastman colorimeter, and the Keuffel and Esser spectrophotometer. The need for a spectrophotometer method was recognized, but no suitable instrument and no method resulted.

During the period 1930-1943 committee work centered largely on improvement of the Wesson method, using Lovibond glasses.

In 1943 work on a spectrophotometric method was reinitiated under G. W. Agee as Color Committee chairman. The recent reports of the committee are extensive and have been published in the Society Journal. A photometric method for measuring oil color has been developed and adopted by the Society. The method employs a simple spectrophotometer and fulfills a need recognized for 40 years. Values obtained correlate well with Lovibond red numbers, but the Wesson method still has not been replaced. In tying photometric results to the inadequate Lovibond system, the main goal of the problem has been lost.

Two problems remain for the committee; one the outlining of a method which will give realistic color values, and two, the elimination of instrumental differences between laboratories. These problems will receive attention in 1954.

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