The data in Table 2 show that the readings made on a Rosenheim-Schuster colorimeter[1] by any one observer follow the visual arrangement quite closely. Differences in readings by two observers indicate that there is a considerable subjective factor in the estimation of color by means of the tintometer. However, the observers taking part in these experiments were untrained in the use of the instrument. With more experienced observers, the readings might have been in closer agreement.

Isopropanol was used as the reference liquid in making the measurements with a Beckman spectrophotometer (Table 5). This choice was arbitrary on the basis that isopropanol is the reference liquid and oil solvent often used in the estimation of vitamin A by this instrument. In this experiment, the measurements were made with undiluted oil. A one-centimeter absorption cell was employed. When extremely dark oils are used, it may be necessary to dilute them with a solvent. In that case, isopropanol would be unsatisfactory since oil dissolves in it slowly. A solvent such as chloroform would probably be more suitable as a reference liquid under these conditions.

The results (Table 5) indicate that transmission measurements follow closely the order made by visual comparison and that a fairly reliable estimation of the change in the depth of color can be made. For any one oil, three readings of per cent transmission will probably be adequate, such as at wave lengths of 500, 600, and 700 millimicrons. Further measurements with other oils would have to be made before a procedure could be recommended. It would appear, however, that the spectrophotometric method promises reproducible results which can be correlated with visual observations.

[1] This instrument is based on the Lovibond color system. A one-centimeter absorption cell was employed.

TABLE 4

Rosenheim-Schuster Colorimeter Readings

Sample	Observer					
	1		2		3	
	Red	Yellow	Red	Yellow	Red	Yellow
42	0.0	4.4	0.0	5.1	....	....
82	0.4	5.4	0.0	6.0	....	....
102	0.5	7.2	0.5	8.0	....	....
105	0.6	8.4	1.0	8.4	....	....
110	0.6	8.4	1.0	7.2	....	....
112	1.3	16.0	2.3	10.3	....	....
111	1.6	11.0	1.9	10.0	....	....
126	1.4	14.0	2.0	12.2	....	....
141	2.4	20.0	3.1	20.0	2.5	22
127	2.4	24.0	3.3	20.2	3.1	23
156	5.1	28.0	5.1	27.0	5.1	22
158	7.5	29.9	9.0	26.0	....	....

TABLE 5

Per Cent Transmission Using Isopropanol as the Reference Liquid

Sample	Wavelength in Millimicrons							
	450	500	550	600	650	700	750	800
42	40.0	82.2	97.3	99.1	99.1	99.4	99.3	100.0
82	30.7	74.5	93.7	97.1	98.2	98.9	99.3	99.0
102	20.0	66.1	90.0	96.5	98.2	99.2	99.8	100.0
105	19.2	64.8	88.0	95.1	98.0	99.2	99.7	100.0
110	21.3	61.9	85.9	93.8	97.0	98.8	99.5	100.0
112	5.9	39.7	72.5	88.0	94.0	97.1	98.6	100.0
111	6.7	41.0	72.9	87.2	93.7	96.7	98.1	99.5
126	5.1	41.0	73.0	88.6	94.6	97.5	98.8	100.0
141	2.3	28.7	64.0	83.9	92.9	96.9	98.6	100.0
127	1.2	23.6	57.5	78.5	89.7	95.0	97.4	99.3
156	0.2	11.1	44.2	71.2	85.7	93.3	96.8	99.2
158	0.0	2.3	23.2	52.7	75.2	87.6	93.6	97.5

Report of the Referee Board

AGAIN for the year 1945-46 the Referee Board has little more than routine activity to report. Twenty-eight Referee Certificates were issued, of which twenty-six were renewals. The usual ten check samples of cottonseed were distributed. For the second time a single series of check oil samples, three each of crude cottonseed and of crude soybean oil, were distributed. All three of the soybean oil samples were degummed, i.e., water-washed; fortunately for purposes of checking the accuracy of the different laboratories the new refining procedure for degummed oil gave normal variations for refining loss.

The Referee Board has found it very satisfactory to make regular use of the check meal samples sponsored by the Smalley Foundation Committee and heartily approves the recent change of policy whereby that Committee will also take charge of distributing check seed and oil samples. Sponsorship of the latter samples by the Referee Board has been due to lack of any other committee responsible for them. We acknowledge with great appreciation the help received from R. T. Doughtie and from the Atlanta Laboratory of Law and Company on the cottonseed samples, from F. G. Dollear on the cottonseed oil samples, and from R. T. Milner on the soybean oil samples.

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