grams of tissue. The mean for the entire group was 24 milligrams, with a standard deviation of 6.4 milligrams.

Estimates were made of the vitamin C content of the diets which the patients had been receiving prior to operation and the results suggested a relationship between the vitamin C content of the diet and that of the tonsils.

In order to further study the effect of the vitamin C content of the diet and to determine how much vitamin C the tonsil tissue is capable of taking up 3 children (ages 3 to 6), who were hospital patients convalescing from infectious diseases and who were to have their tonsils removed, were given 400 cubic centimeters of orange juice daily for periods of from 5 to 12 days before their operations. The tonsils of these children contained an average of 42.9 milligrams of vitamin C per 100 grams of tissue.

The urinary excretion of vitamin C was determined in the case of one of the above children on the day before operation. The child received 200 cubic centimeters of orange juice at 8 A.M. and 200 more at 10 A.M. This amount of juice contained approximately 240 milligrams of vitamin C, of which 140 milligrams was excreted in 24 hours. Since this patient had received this same amount of orange juice for 11 previous days his tissues must have been saturated with vitamin C at the time of operation.

It is suggested that the vitamin C content of the tonsils may be used to indicate the vitamin C content of the tissues.

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CYTOGENETIC NOTES ON COTTON AND COTTON RELATIVES. II

CONSIDERABLE effort has been made to produce hybrids between morphologically distinct groups of *Gossypium* with a view of determining their phylogenetic relationships through cytological behavior. Recently hybrids between (1) wild species of *Gossypium* and between (2) wild and cultivated cottons have been described,[1,2,3] but their meiotic behavior has been reported in only a few cases.

The present note deals with F_1 hybrids involving: (1) cultivated American species; (2) cultivated Asiatic species; (3) wild American species; (4) a wild Asiatic species, *Gossypium Stocksii* M. Mast.; (5) a wild African species, *G. anomalum* Wawra and Peyr.; (6) a wild Australian species, *G. Sturtii* F. v. M.; (7) *Thurberia thespesioides* A. Gray, a wild American plant, closely allied to *Gossypium*. Each of these groups, with one exception, has the haploid chromosome number 13; in the cultivated American group the haploid number is 26.

This is the first cytological report on the hybrids discussed below; most of which represent hitherto unreported combinations between groups. The chromosome complement at the reduction division is generally composed of: (a) 13 pairs in hybrids between cultivated Asiatic species and *Gossypium anomalum,* and in hybrids between wild American species and *Thurberia thespesioides*; (b) 13 pairs and 13 single chromosomes in hybrids between cultivated American species and *Thurberia thespesioides,* and in hybrids between cultivated American species and *G. anomalum*; (c) from 0 to 8 pairs with from 10 to 26 single chromosomes in hybrids between cultivated Asiatic species and *G. Stocksii,* and between cultivated Asiatic species and *G. Sturtii*; (d) 26 single chromosomes in hybrids between cultivated Asiatic species and *Thurberia thespesioides.*

Since the haploid complements of *Thurberia thespesioides* and the wild American species are cytologically homologous, and those complements of *Thurberia thespesioides* and the cultivated Asiatic species are not homologous, we may assume that the complements of the wild American species and the cultivated Asiatic species are likewise non-homologous. Hence, the above findings give support to Skovsted's assumption that the cultivated American cottons were derived from a cross between a wild American species and a species having a chromosome complement similar to that of the cultivated Asiatic cottons.[4] The fact that the complement of *Thurberia thespesioides* is cytologically homologous with the complement of wild American species and with a part of the complement of the cultivated American species strongly supports the view that *Thurberia thespesioides* is congeneric with *Gossypium.*

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[1] A. Skovsted, *Jour. Gen.*, 30: 397–405, 1935.
[2] A. Skovsted, *Jour. Gen.*, 30: 447–463, 1935.
[3] J. M. Webber, *Jour. Agr. Res.*, 51: 1047–1070, 1935.
[4] A. Skovsted, *Jour. Gen.*, 28: 407–424, 1934.

BOOKS RECEIVED

Bailey's Textbook of Histology. PHILIP E. SMITH, Editor. 9th edition. Pp. xvi + 773. 506 figures. Williams and Wilkins. $6.00.

BISHOP, A. H. B., and G. H. LOCKET. *An Elementary Chemistry.* Pp. 401. 133 figures. Oxford. $1.75.

MORSE, PHILIP M. *Vibration and Sound.* Pp. xv + 351. 88 figures. 3 plates. McGraw-Hill. $4.00.

MOTT, N. F. and H. JONES. *The Theory of the Properties of Metals and Alloys.* Pp. xiii + 326. 108 figures. Oxford. $8.00.

STEPHENS, D. OWEN. *Flow of Horizons.* A book on evolution. Pp. 190. Illustrated. John Day. $2.50.