diethyl ether given to mice 1 hour after a single-trial conditioning situation will not impair the retention of a response tested 24 hours after training. This observation, supported by the results of another study employing ether anesthesia in rats (*4*), leads one to infer that consolidation is complete between 20 and 24 minutes after training in this type of situation (*5*).

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5. This work was supported in part by grant No. M-1225 and interdisciplinary grant No. 2M-6418 from the National Institute of Mental Health, U.S. Public Health Service.
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15 November 1960

Detection of Lycopene in Pink Orange Fruit

Abstract. Lycopene is shown to be the pink coloring pigment in Sarah—a pink sport of the Shamouti (Jaffa) orange—together with other unidentified carotenoids. This is a condition similar to that found in pink and red grapefruits, while the red pigments of blood oranges are anthocyanins.

Matlack (*1*) had suggested that the red coloration in blood oranges is caused by anthocyanins, which have quite recently been identified as cyanidin-3-glucoside and delphinidin-3-glucoside, dissolved in cell sap of juice vesicles of some blood orange varieties (*2*).

On the other hand, the pink and red color of some grapefruit and shaddock varieties has been found to be caused by plastid-contained lycopene and beta-carotene (*3*), which have been quite recently investigated by Lime *et al.* (*4*), Purcell (*5*), and others. As far as we are aware (*6*), no report of the presence of lycopene in oranges has been published to date.

Sarah, a pink bud sport of Shamouti (Jaffa) orange, which was first detected in the late 1930's and described in 1944 (*7*), presents at an even superficial examination many of the characters of pink grapefruits: (i) the filtered juice is almost colorless and does not present any pink tinge; (ii) the pink color is mainly present in the inner mesocarp, carpel walls, and vesicle stalks; and (iii) large concentrations of dark-yellow to pink plastids are detected especially around main conducting bundles and their anastomoses (*8*) even when fruit is fully ripe.

Carpels of ripe Sarah fruits were blended, extracted, and chromatographed on 1:1 W/W Magnesia-Hyflo Super Cel columns, as described under method A, by Lime *et al.* (*4*).

Two main bands were obtained, an upper red and a lower yellow-orange, which were eluted with 10 percent acetone in hexane and 5 percent methanol in hexane, respectively, into two separate fractions.

Spectral curves of both fractions were determined with a Beckman DU spectrophotometer. The curve obtained from the upper band was identical with that of lycopene in hexane, with peaks at 445, 470, and 503 $m\mu$. This is in accordance with the situation found in pink and red grapefruits (*4, 5*). The second fraction which had been found to contain only beta-carotene in grapefruits (*4*) did not yield a curve identical with that of beta-carotene in hexane, since it has peaks at 440, 470, and 500 $m\mu$ instead of two peaks at 455 and 480 $m\mu$ (*4*); it seems to contain some unidentified carotenoids.

No anthocyanins could be detected in the aqueous and methanolic extracts of Sarah carpels or mesocarp portions. It is therefore concluded that the pink coloration observed is induced by substantial amounts of lycopene and not by anthocyanins as is usual in blood oranges.

Purcell (*8*) has pointed out that a carotenoid precursor must be assumed to enter fruit through the vascular system and to diffuse into the surrounding parenchyma where it produces pink coloration in pink and red grapefruits, especially before full ripeness is attained. It seems worth adding that this must be true for most citrus fruits. Concentrations of carotenoids can be seen easily around bundles, especially at the main fruit axis in many varieties, for example, Shamouti and Valencia oranges, Dancy tangerine, Eureka lemon, and Marsh seedless grapefruit, and especially so, because of the emphasizing pink tinge, in the Sarah orange.

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16 January 1961

A World-wide Stratospheric Aerosol Layer

Abstract. An aerosol layer has been identified by a stratospheric balloon and aircraft aerosol collection program. Measurements of horizontal extension and vertical distribution indicate that this layer is a world-wide phenomenon, displaying little variation with time and latitude. The particles in this layer range in size between 0.1 and 2 μ in radius, are water soluble, and contain sulfur as the predominant constituent. It is most likely that they are formed within the stratosphere.

A program of stratospheric aerosol collection with high-altitude balloon equipment was started about 3 years ago and was recently supplemented by collection with high-altitude aircraft (*1*). The aim was to obtain basic information on a heretofore neglected subject of some importance to radioactive fallout and stratospheric circulation studies. The instrumentation was designed to study vertical profiles of number concentration of two particle size ranges, as well as the horizontal distribution, size distribution, and chemical composition of the particles. It is evident, from the results now available, that a large, persistent aerosol layer exists in the stratosphere at an altitude of about 20 km. This layer is composed of particles between approximately 0.1 and 2 μ in radius. Particles smaller than 0.1 μ are distributed with entirely different vertical profiles, the form of which indicates that they are of tropospheric origin and are brought into the stratosphere by mixing. On the other hand, a 2-μ radius appears to be a rather sharp upper limit, and almost no particles larger than this seem to be present. The characteristic features of this aerosol layer are listed below.

1) Vertical profiles obtained in middle north latitudes show a very broad maximum in number concentration at altitudes between about 18 and 23 km. The number concentration of particles at this maximum is about 1 per cubic centimeter, which is higher by a factor of 3 than that at the tropopause, and in most cases decreases rapidly above 24 km. The time variation at this maximum over a period of more than 2 years does not exceed a factor of 3. The shape of the vertical profile indi-