LETTERS TO THE EDITORS

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Ascorbic Acid in Oranges

IN 1934 Bacharach, Cook and Smith[1] reported that the concentration of ascorbic acid in the peel of oranges was greater than that in the juice. This was the result of tests carried out on five bitter oranges and one sweet orange, and was afterwards confirmed by various workers[2–6]. In connexion with an investigation on methods of preparing orange juices for drinking purposes we have taken the opportunity of repeating this work. Table 1 gives the results of the examination of eight South African oranges.

TABLE 1.

	Concentration of ascorbic acid		
	mgm./gm.		gm./lb.
	Range	Average	
Whole peel	1·01–2·27	1·52	
Pulp*	0·42–0·64	0·52	
Juice	0·42–0·62	0·51	
Whole orange	0·58–1·09	0·81	0·368

* The pulp consisted largely of the skin enclosing the segments of the fruit together with a little of the inner white skin.

Two methods of preparing orange drinks have been tested: (*a*) using the juice obtained by rotary squeezing and (*b*) using a process in which thin slices of whole orange are extracted by sugar syrup. Referring the ascorbic acid content to a unit weight of one pound of oranges, Table 2 shows the results obtained.

TABLE 2.

	Ascorbic acid	
	gm.	As percent. of whole orange
Whole orange	0·368	—
Juice obtained by method (*a*) Experiment I	0·114	31·0
,, ,, ,, ,, (*a*) ,, II	0·113	30·7
Extract ,, ,, ,, (*b*) ,, I	0·238	64·7
,, ,, ,, ,, (*b*) ,, II	0·238	64·7
,, ,, ,, ,, (*b*) ,, III	0·245	66·6

TABLE 3.

	Concentration in mgm./gm.		
	Ascorbic acid	Dehydro-ascorbic acid	Total ascorbic acid
Initial sample	2·11	0·16	2·27
Sample minced and allowed to stand for 3 hours	0·46	1·43	1·89
Sample minced and allowed to stand for 22 hours	0·14	0·05	0·19

If therefore it is desired to extract as much ascorbic acid as possible from oranges, method (*b*) is to be preferred, as there is made available by this means about 65 per cent of the total ascorbic acid in the whole orange as against 31 per cent obtained by using the juice alone.

The relative stability of the ascorbic acid in orange juice is generally recognized. It is therefore considered of interest to record one observation of the rapid disappearance of ascorbic acid in minced orange peel exposed to the air.

Similar results have been obtained by us with cabbage and are recorded in the literature for cabbage and other vegetables. We are inclined to the view that this disappearance of ascorbic acid may be ascribed to the action of an oxidase.

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Feb. 6.

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Effect of Œstrin Injections on the Mouse Ovary

IN 1941 Bullough and Gibbs[1] showed that, both in the mouse (*Mus musculus* L.) and the starling (*Sturnus vulgaris* L.), maximum mitotic activity in the germinal epithelium of the ovary is confined to a short period immediately following ovulation, and it was suggested that, in all probability, some hormone, coming into full operation at this time, stimulates the epithelium to produce large numbers of new oogonia. It has since been shown[2] that a similar post-ovulation peak of mitotic activity is present in the ovary of the minnow (*Phoxinus lævis* L.), and that in this fish it is possible to stimulate the germinal epithelium to abnormal mitotic activity, and consequently to the production of abnormal numbers of oogonia, by abdominal injections of œstrin.

Similar injection experiments have now been performed on the mouse in an attempt to produce the same effect, and after preliminary work, the following technique was devised. Twelve-hourly injections of œstrin in sesame oil were given abdominally into normal mice in early dioestrus, and the mice were killed 12 hours after the last injection. The germinal epithelium is relatively quiescent during the whole dioestrous period, which lasts on the average about three days[3]. At each injection 250 I.U. of œstrin in 0·25 c.c. of oil were introduced, and the liquid was directed into the vicinity of the ovaries. To facilitate the study of mitoses, 0·1 mgm. of colchicine in 0·25 c.c. of water was injected into each mouse 9½ hours before killing. Unusual mitotic activity of the germinal epithelium was noted after only one injection, but the maximum effect was not produced until after five injections. In the accompanying