

charges decayed slowly and could not be detected six months later.

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Use of Plastic Tubing in Chromatography

DURING a chromatographic separation of the carotenoid pigments of the starfish *Marthasterias glacialis* (L.) from Madeira, it was found that some pigment disappeared during elution, which was necessarily prolonged in order satisfactorily to separate the relatively large number of pigments present in the total carotenoid extract. Several pigments were lost in this way (presumably owing to oxidation on the column), and further, some of the zones were so small as to make it difficult to isolate them by extruding the column.

These difficulties were largely overcome by using a chromatographic column made in a tube of polyvinyl chloride instead of glass. This plastic is transparent, and during the time of chromatographic separation does not appear to react with the solvents used, such as light petroleum, diethyl ether, ethanol and methanol. The chief advantage of this type of column is that it may be cut easily and quickly with a razor as soon as the bands become distinct, thereby lessening much of the elution and consequent loss of pigment.

When adsorbents, added in a slurry, tend to adhere to the sides of the tube, they can easily be dislodged by tapping the flexible plastic.

By using such tubes, it was possible to isolate eight carotenoids from the aboral integument of this starfish.

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Causes of Eskimo Birth-rate Increase

IN a recent article on "Researches in the Arctic Ocean"¹ dealing with Dr. G. E. MacGinitie's recent zoological work at Point Barrow, Alaska, a paragraph is of particular interest to me as an anthropologist who has spent time, off and on, at Barrow since 1908.

It reads: "The Eskimo birth-rate is increased as much as threefold when the arctic people eat 'white man's food' instead of their traditional pure animal diet of whale, fish and seal. When hunting was the only means of subsistence, Eskimo women became pregnant only once in several years; but with the new diet they bear a baby about every year".

There is no doubt that the Barrow diet has changed, along the lines indicated by Dr. MacGinitie, and that there has been such increase of birth-rate as he says. But another change, which is not mentioned there, has also been suggested as pertinent, namely, that Eskimo mothers used to nurse their children up to ages of three and four years; while now, under white

tutelage, they nurse them for only about as many months.

When I was first at Barrow, forty-eight years ago, there was in residence for the Presbyterian Church a medical missionary, Dr. H. R. Marsh, who was then on his second assignment, having been there several years before going out on a leave which he spent at medical schools. Dr. Marsh stated the facts about as Dr. MacGinitie does; but his explanation was different: That women do not readily conceive while they nurse their babies; and he believed the previously normal three-year spacing of births had been reduced to a yearly one chiefly through the adoption of the white man's style of early weaning.

While my observation as to the usual three-year spacing agrees with those of Dr. MacGinitie and Dr. Marsh, I noted many exceptions to that rule during the eleven years I spent with Alaskan and Canadian Eskimos. The most striking case was that of an inland couple who looked to me around forty. They told me they were the parents of eleven children, none of whom had been twins; nine of these were still living, they said, the other two having died at or soon after birth. When I learned this, my chief interest was in the size of the family. It was the largest that anybody had heard of; and, engrossed with this, I neglected inquiring about spacing. Since these were 'uncivilized' people, there is no doubt the mother nursed each child until the next came; and she may have nursed her previous along with the current baby, as I often saw done. Neither is there any doubt that these parents of eleven had produced them while living on Dr. MacGinitie's traditional pure animal diet (which was never strictly pure in northern Alaska after 1880).

Perhaps both Dr. MacGinitie and Dr. Marsh are partly in the right. Moreover, perhaps other factors than change in eating and nursing habits should be invoked to help explain the undoubtedly higher birth-rate; for many and profound have been the changes at Barrow since Dr. John Simpson first described these Eskimos a century ago.

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¹ *Nature*, 177, 1215 (1956).

"Automation Economics"

MR. AUSTEN ALBU's reply to my protest against having been misrepresented in his review of my book "The Economic Consequences of Automation" (October 13, p. 816) contains two further misrepresentations in a single sentence. He attributes to me the view that "all steps taken to increase production are inflationary"; and states that on p. 84 of my book I claim that "the effect of automation is . . . to reduce the extent of inflation". I must emphatically disclaim having held or expressed these views, both of which are incorrect.

What I did say was that an increase of production is inflationary if it means an increase in the aggregate cost of production. In quoting me as having said that automation reduces the effect of inflation, Mr. Albu omitted my all-important reservation "other things being equal".

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