A POSSIBLE DIETARY PREDISPOSITION TO STAMMERING

IN working with stammering patients over a considerable period, it has been impressed upon me that while there are a number of specific causes for the habit, each of which must be treated on its own basis, there are probably certain predisposing causes which are also predisposing to other objectionable habits. A habit, as a habit, may be broken; but obviously this is not a final solution of the problem if either specific or predisposing cause is still active.

In the cases of many stammerers whose childhood histories could be reconstructed with reasonable fullness of detail, it has appeared that improper diet in infancy and childhood may have been an important predisposing factor. Further survey of stammering cases, made with the assistance of Dr. Vernon Scheidt, has strengthened my suspicion that an insufficiency of meat in the diet is a predisposing factor in a great many cases. Being unable to carry this survey farther at the present time, it seems appropriate to present the suggestion to all who have opportunities to study stammering cases and who may be able to experiment by placing on an adequate meat diet stammering children who have been on an almost exclusive vegetarian diet.

From the age of two years, there is no reason why children should not have meat at least twice a day. In many cases where the diet has previously been badly managed, the problem may be to induce the child to eat a sufficient quantity. Variety of meats and of preparation, with good psychological technique, offer the solution to this problem. Overcooked meats should probably be avoided.

In some cases, children who have been reared on a diet which includes meat (beginning with liver) from the age of three months refuse to eat meat except sparingly, when they have attained several years of age. In some such cases, the incidence of stammering has been noted. Further observations on such cases and on children who have continued without interruption an adequate meat diet are needed. In the cases of adolescents and those of later ages, adequate information concerning the diet of infancy and early childhood is obtained with difficulty, on account of the well-known unreliability of the reports of both individuals and their mothers concerning matters of early life. In many cases, however, sufficiently accurate accounts of the dietary régime can be secured, and the collection of these seems to be of importance.

For stammering adults, it is conjectural whether a full meat diet would be helpful, along with proper psychological treatment of the habit. The situation of the adult stammerer is of course quite different from that of the stammering child or adolescent. That which may be a predisposing cause in infancy may have other bearings in adult life. Since a surprisingly large number of adult stammerers are relative vegetarians, however, it would seem possible that meat diet would be advantageous to many of these cases.

KNIGHT DUNLAP
THE JOHNS HOPKINS UNIVERSITY

OCCURRENCE OF A PHYTOSTEROL IN AFRICAN OIL PALM (ELAEIS GUINEENSIS)[1]

IN the course of an investigation dealing with the separation of α-carotene from a commercial carotene product representing chiefly the unsaponifiable fraction of palm oil, there were obtained several grams of a substance which gave a strong phytosterol reaction.

The alcoholic mother liquor remaining after the separation of most of the carotene was mixed with petroleum ether and sufficient water added to bring the alcohol content to 85 per cent., whereupon a separation of crystalline material occurred. After being filtered and recrystallized, first from 95 per cent. alcohol and finally from absolute alcohol, white plate-like crystals melting at 136.2 to 136.5° and giving a positive Liebermann-Burchard reaction were obtained. Acetylation with acetic anhydride yielded an acetate melting at 130.5 to 131.5° C. and having a specific rotation in $CHCl_3$ $(\alpha)_D^{20}$ −36.5°. The regenerated parent substance melted at 136.5 to 137° C. and had a specific rotation in $CHCl_3$ $(\alpha)_D^{20}$ −41.66°.

From these data it is concluded that palm oil phytosterol probably consists chiefly of sitosterol.

K. S. MARKLEY
M. B. MATLACK
U. S. DEPARTMENT OF AGRICULTURE

BACTERIA-FREE CULTURE OF PARAMECIUM

THERE are two reports in the literature on the successful culture of *Paramecium* in bacteria-free media. Glaser[1] demonstrated such cultures of *P. caudatum* and *P. multinucleata*, and later Glaser and Coria[2] outlined the culture methods employed for *P. caudatum*. Recently Hetherington[3] has questioned the bacteria-free nature of their cultures because he was unable to repeat their method with success. The following results may be of interest in this connection. In November, 1933, *P. bursaria* was washed according to the method of Parpart[4] and has since been successfully cultured in a synthetic peptone medium.

[1] Food Research Division Contribution No. 223.
[1] *Jour. Parasit.*, 19: 13, 1932.
[2] *Jour. Parasit.*, 20: 33–37, 1933.
[3] SCIENCE, 79: 413–414, 1934.
[4] *Biol. Bull.*, 55: 113–120, 1928.

Repeated sterility tests indicate the complete absence of bacteria and show that this species is capable of growth under such conditions. The zoochlorella which the ciliate ordinarily harbors has been cultured independently on agar slants. Further studies on the symbiotic relationship of these forms are in progress.

JOHN B. LOEFER

NEW YORK UNIVERSITY

SPECIAL CORRESPONDENCE

THE SCARRITT EXPEDITIONS OF THE AMERICAN MUSEUM OF NATURAL HISTORY, 1930–34

THE Scarritt Expeditions have now completed their fourth year of continuous work, and a preliminary account of progress made is here presented. Sponsored by Mr. H. S. Scarritt, of New York, the purpose of the expeditions has been to collect and to study early Tertiary fossil mammals, especially those of South America. This work continues the program of early Tertiary exploration initiated at the American Museum by Professor H. F. Osborn more than forty years ago, continuously and vigorously pursued in many parts of the world by Wortman, Granger, Matthew, Andrews, and many others. Such exploration had not previously been done by this institution in South America, and the first aim of the Scarritt Expeditions was to fill this gap in our exhibition and study series, and to cast needed light on the most neglected part of the world problem of early mammalian evolution.

The American personnel has consisted of G. G. Simpson, leader, and C. S. Williams, assistant, throughout the period now completed. In the field in Patagonia a number of local assistants have been employed at various times. Of these Justino Hernández is worthy of special mention.

The first Patagonian Expedition, 1930–31, left New York on August 8, 1930, and sailed direct to Buenos Aires by the east coast of South America. Negotiations for permits to explore were delayed by the Argentine revolution of September 6, 1930, but the expedition arrived at its principal base, Comodoro Rivadavia in southern Chubut (central Patagonia) on September 28. Until December 2 we worked in the general region south of Lake Colhué Huapí, then after a reconnaissance west of the Sierra San Bernardo spent eight days north of the lake. On December 18 a base camp was established in Cañadón Vaca, north of the Río Chico, which forms the drainage from Lakes Musters and Colhué-Huapí into the Chubut River. Here a remarkably rich deposit of the oldest of Ameghino's faunas, the so-called *Notostylops* fauna, was discovered and worked with great success for two months. From February 18 to March 22 work was continued in Cañadón Hondo, opposite Cañadón Vaca south of the Rio Chico. Thereafter work was principally stratigraphic and geological reconnaissance, with no attempt at intensive collecting. Our route took us to Cabeza Blanca, made famous by the Amherst Expedition under Loomis, then to the northern coast of the great Gulf of San Jorge at Bustamante, and southward along the whole coast-line to Puerto Deseado. On April 23 we returned to Comodoro on our way north, and after shipping most of the collections by sea to Buenos Aires drove overland to that city, which was reached on May 12.

The collection was cleared for export and Williams returned with it to New York, sailing on June 6, and there began the unpacking and preparation which occupied him for most of the following two years. Simpson remained in the Argentine until October 10, 1931, studying the great Ameghino Collection in the Museo Argentino de Ciencias Naturales[1] in Buenos Aires and the Roth Collection in the Museo de La Plata.

The end of 1931, all of 1932 and the first half of 1933 were occupied by the preparation, illustration and study of the collections of the first expedition.

The Scarritt Expedition of 1933–34 was also directed to Patagonia, with the purpose of completing the collections of the first expedition and particularly of investigating rumors of a rich fossil field in central Chubut, north of the area of most intensive previous work. Simpson and Williams sailed from New York on September 9, 1933, through the Panama Canal, and down the west coast of South America to Valparaiso, thence by rail to Santiago de Chile and by air to Buenos Aires. Preliminary negotiations occupied two weeks, and the party left Buenos Aires by motor truck on October 17. The route followed was westward through Buenos Aires Province into the Territory of La Pampa, thence south across the Río Colorado at Balsa la Japonesa, a brief visit to the Cretaceous strata of eastern Neuquén, a week working on the Cretaceous-Tertiary contact opposite (south of) Roca, and then cross-country to Trelew on the Río Chubut. Here Justino Hernández joined the party and junction was effected with Sr. Alejandro Bordas, working on behalf of the Argentine Museum of Buenos Aires, with whom we collaborated here and also later in the Colhué-Huapí region. After seventeen days near Trelew and Gaiman, the Scarritt Expedition went up the Chubut Valley to Paso de los Indios, a traverse

[1] Its present name. At that time still called the Museo Nacional de Historia Natural.