equal to 2. This means that for each enzymatically active molecule two labile phosphate radicals are present.

2) Spot II consists mainly of DPT, because the compound exerts a cocarboxylase activity and the hydrolyzable phosphorus/cocarboxylase activity ratio is practically equal to 1. This means that for each enzymatically active molecule one labile phosphate radical is present.

3) The compound present in Spot III can be identified with the MPT because, although inactive as cocarboxylase, it has a microbiological activity; it contains bound phosphate which is not split by 10 min hydrolysis; its thiochrome derivative is not soluble in isobutyl alcohol.

4) The compound present in Spot IV can be identified with thiamine because it does not contain phosphorus, is microbiologically active, and is readily soluble in isobutyl alcohol.

Researches on the presence of phosphoric polyesters of thiamine in other organs and on the enzymatic breakdown of these compounds will be published later.

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Comments and Communications

Plankton Terminology

THE term "ultraplankton" has been used recently (*1–3*) to describe the smallest known elements of the marine plankton—e.g., flagellates and green and blue-green algae, which are now generally recognized as being of primary importance as food for the majority of marine larvae (*1, 4, 5*). The use of this term has arisen from the need to differentiate the smaller members of the nannoplankton (or nanoplankton) from the great mass of larger flagellates, nonmotile algae, and peridinians that are too large to serve as food for the early larvae of worms, mollusks, crustaceans, etc.

To the writer the word "ultraplankton" is unacceptable, and it appears desirable to suggest an alternative before it gains general currency. "Ultraplankton" is of bastard Latin and Greek origin and, further, does not bear the meaning ascribed to it by its users. The prefix *ultra* is commonly translated as "beyond," as in ultramarine or ultraviolet, but the combination "ultraplankton" is practically meaningless. Nor is the term "μflagellates," as used by Scottish workers (*6, 7*), admissible, except colloquially, since there are many nonmotile algae present in company with flagellate forms.

It is suggested that the term "hekistoplankton" should be adopted (ἥκιδτος = "least") and should be defined as including all those elements in the plankton 10 μ or less in diameter of cell body. The limit 10 μ is suggested since the majority of larger forms cannot be ingested by marine larvae. It is in relation to their value as food for such larvae that these small elements in the plankton are principally studied; they apparently form the basis of the food chain in most marine planktonic communities.

In preparing this note I have had the benefit of advice on the choice of words of my colleague, M. N. Mistakidis, who has also drawn my attention to the frequent use of the prefix *macro* when *megalo* would be more appropriate. I understand that in modern usage "μακρος" is used to describe objects that are long rather than generally bulky, for which "μεγαλος" is more appropriate.

H. A. COLE

Fisheries Experiment Station, Conway, North Wales

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The Green Peach Aphid on Tobacco in the Dominican Republic[1]

THE green peach aphid, *Myzus persicae* (Sulzer), first appeared in the United States in economically destructive numbers in 1946, in Gadsden Co., Fla. (*1, 2*). Ever since, its progression across the tobacco fields of the U. S. has brought forth various explanations for the phenomenon of its distribution. One explanation frequently advanced is that the development of infestations bears some correlation to the introduction of new synthetic insecticides, especially DDT, in and near the established tobacco-growing areas; it claims, in effect, that these insecticides destroy the natural predators of the aphids and that before these

[1] A contribution from a technical agricultural project in the Dominican Republic, operated jointly by the government of the republic and by the Office of Foreign Agricultural Relations, USDA. U. S. participation in this work is carried out as part of the Point IV program in the Dominican Republic, administered by the Technical Cooperation Administration, U. S. Department of State.

insecticides were used a nearly complete biological control existed. In the Dominican Republic, such claims for the insecticides, however, are not supported by the circumstances, which are, for this reason, presented here.

The green peach aphid was first discovered in the Dominican Republic, in January 1951, by Chupani and Ginberg, two members of the Dominican Department of Agriculture. They found it throughout the Cibao Valley, with the heaviest infestations west of Santiago. Samples of these aphids collected in March 1952, were identified as *Myzus persicae* (Sulzer) by Louise M. Russell, of the U. S. Bureau of Entomology and Plant Quarantine.

Before January 1951 no report is known to have been made of aphids occurring on tobacco in the Dominican Republic—a remarkable record, considering that tobacco has been an important agricultural crop in that country since pre-Columbian days. Harry and Howard Allard, who made an intensive study of pests on Dominican tobacco in 1947 (*3*), do not include Aphididae in their paper. It is doubtful that these observers would have failed to note aphids on tobacco if they had been present.

In February 1952, the distribution of the aphids was general in the tobacco-growing regions of the republic, extending east and west through the Cibao Valley and south as far as Bonao (Monseñor Nouel.) The intensity of the infestations varied from light to very severe, the latter category implying the presence of honeydew and cast skins on the underside of leaves, which were thus rendered commercially worthless.

Lead arsenate has been the only insecticide used in these agricultural areas, and then only in a very limited way for certain chewing insects. We are not aware that any of the new synthetics had been used on any crops in the tobacco-producing regions before the aphids were discovered. The status of the natural predators had not been disturbed by any chemical poisons. Nevertheless, the predators have not responded to the opportunities afforded them. For example, the populations of several of the lady beetles in fields heavily infested with aphids for the second year have been rather scant.

Support is found for the interesting theory of George N. Wolcott (*4*), entomologist of the Insular Experiment Station at Río Piedras, Puerto Rico, that the aphids have been windborne to Hispaniola and Puerto Rico from Cuba, where they have become an important pest since they first were found there, in 1948.[2] The green peach aphid appeared on these two islands to the east of Cuba at the same time, being observed on tobacco in January 1951 both in the Dominican Republic and in Puerto Rico. It quickly established itself as a pest of considerable economic importance in both islands.

So far, this aphid has been rather selective as to its host plant. In many Dominican tobacco fields, tomatoes and eggplants are found growing adjacent to tobacco that is heavily infested with aphids. Such plants either have been planted by the farmer for his own use or are of volunteer growth from a previous crop. We have yet to observe aphids on these other solanaceous plants, even where the adjoining tobacco plants may be very heavily infested. Does this indicate, as Wolcott has suggested in correspondence this year, that the aphids found on the Dominican tobacco are morphologically indistinguishable but, on the basis of host selection, physiologically distinguishable from those previously present in the West Indies?

ERNEST G. BEINHART[3]

[2] *The editors fail to see how Wolcott's theory of windborne migration is supported in a region where the prevailing trade winds blow consistently from Puerto Rico to the Dominican Republic to Cuba, and where the rare reversals of wind direction are associated with hurricanes, the radii of which are much too small to bridge the water passages between these islands.*

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[3] Tobacco specialist, Office of Foreign Agricultural Relations, on assignment to the Dominican Republic.

Shipping Small Animals

I AM glad to report that the difficulties with transportation of live materials for research, cited by Wm. Hegener in your July 4 issue (SCIENCE, **116**, 20 [1952]), are well on the way toward solution, at least with respect to air express.

Through the intervention of Barry King, research executive of the CAA Medical Division, an excellent memorandum on the subject has been sent to members of the Air Express Traffic Committee by its executive secretary, Emery F. Johnson, of Air Cargo, Inc. We know of at least one positive response to this memorandum—National Airlines has gone on record as accepting small laboratory animals on all flights, provided they are: (1) consigned to a recognized research organization and all parts marked "Live Animals for Research Purposes;" (2) inoffensive to passengers and crew at National's discretion; (3) packaged in such a manner as to be leakproof and require no care in transit; and (4) of a size readily handled on board all types of aircraft.

National has stated that it is wholly in sympathy with the problems being experienced in shipping animals for research purposes, and that it was amending its tariffs because of the pressing humanitarian need for this research.

BEN STERN

Office of Aviation Information
Civil Aeronautics Administration
Department of Commerce