DISCUSSION AND CORRESPONDENCE

EFFECT OF DRY STORAGE ON THE ANTI-RACHITIC POTENCY OF COD LIVER OIL

IN recent experiments at this station a dry granulated mixture of starch (85 per cent.) and cod liver oil (15 per cent.)[1] which had been stored in corked bottles in the dark at about 50° F. for six months has been used as the sole source of the fat soluble and anti-rachitic substances in the diets of young chickens.[2] When cod liver oil in this form was given as one per cent. of the ration leg weakness (rickets) developed in all except one case (a total of twelve chickens) in from seventeen to twenty-three days. Control lots receiving raw cod liver oil (Harris) which had been stored under the same conditions and for the same length of time as the dry mixture, as .5 per cent., 1 per cent. and 2 per cent. of the ration (thirteen cases each), have made normal growth and have shown no symptoms of leg weakness through the seventh week.

Raw stored cod liver oil was found to effect a rapid cure of the leg weakness which developed in the lot receiving dry-stored cod liver oil, when given at the rate of two to three drops a day to chickens which had become prostrated but were still able to eat.

No symptoms of "vitamine A deficiency" as described by Emmet and Peacock[3] or Beach[4] were noted in the lot receiving dry-stored cod liver oil; although the evidences of deficiency of the antirachitic factor were unmistakable.

It is apparent, therefore, that the antirachitic potency of cod liver oil stored in a dry mixture as described above has been seriously impaired or destroyed.

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A NEW LOCALITY FOR A SPECIES OF DIAPTOMUS

THE entomostracan genus Diaptomus differs from many other entomostraca in that it has many somewhat localized species. While Cyclops has species cosmopolitan in their distribution the species of Diaptomus are frequently quite circumscribed in their habitats. The writer was therefore much interested when, while examining the copepod material collected by Dr. Fritz Johansen in connection with the Canadian Arctic Expedition of 1913–1918, *D. bacillifer* Kölbel was found in material collected at Bernard Harbor. As this was the first instance of the occurrence of an eastern continent Diaptomus in America, the literature on the species was examined with great care in order to make the identification positive. The result of the examination and a description of the species was published in the report on the Copepoda of the expedition, Part J, Vol. VII, of the general report.

Quoting from that report:

D. bacillifer has been found in Scotland, Norway, many places in the Alps, Asia Minor, Syria, the Caucasus, India, Central Asia, Siberia and in islands north of Siberia. It is a stenothermal cold-water form, and is found in the far north in bodies of water near the sea level, and farther south in lakes in the higher mountains.

In the collections of the Canadian Arctic Expedition it was found only in the gathering made on October 6, 1915, from a pond one foot deep a hundred feet above sea level on a ridge at Bernard Harbor. Some Diaptomi collected on St. Paul Island, Alaska, by Professor Parker, were sent to the author some time ago, and proved to be of this species. Apparently, then, it encircles the world in the general neighborhood of the Arctic circle, and probably will be found in many of the bodies of water in northern Canada. It seems strange that it has not appeared in the collections which have been made in Iceland and Greenland.

D. bacillifer has the distinction of having a wider distribution than any other species of the genus.

Recently I had occasion to look over the description of *D. arapahoensis* Dodd, published in the Proc. U. S. Nat. Museum, Vol. 49, pp. 99–101. I noticed the resemblance of my sketches of bacillifer to Dodd's figures of arapahoensis. A careful examination of his figures and the accompanying text leaves no doubt in my mind that they are identical. Dodd's description corresponds even in minute details to the description of bacillifer published in the Report of the Canadian Arctic Expedition. The only difference is in the segmentation of the female abdomen. Arapahoensis must be considered synonymous with bacillifer. Arapahoensis was found in lakes in Colorado at an altitude of about 11,000 feet. This makes a most interesting extension of the distribution of *D. bacillifer*, and it may be expected that further collection will show its presence in other localities of high altitude. Thus this species, found as stated before near the sea level in the Arctic, occurs also in the high mountains of Europe, Asia

[1] Prepared for us by The Harris Laboratories, Tuckahoe, N. Y.

[2] The basic ration used was: Pasteurized skim milk—ad lib; white corn meal, 97; calcium carbonate, 2; sodium chloride, 1; sifted pine sawdust (as roughage) 10 per cent. Hart, Halpin and Steenbock (*Jour. Biol. Chem.*, 52: 379–386) have found this ration to contain sufficient water soluble and antiscorbutic vitamines for growth in the chick. It is practically free from the fat soluble and antirachitic factors.

All chicks were reared from hatching time on a laboratory table which was rotated daily to insure equivalent lighting of all lots. All light falling on these chickens came through window glass.

[3] *Jour. Biol. Chem.*, 46: 679–693.

[4] SCIENCE, 58: 542.

and America, a remarkable distribution for a species of this genus.

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THE USE OF A TOOL BY A SPHECID WASP

THE use of tools by sphecid wasps was first witnessed by the Peckhams and has since been reported by at least seven observers.[1] We wish to contribute one more record of this extraordinary behavior.

During the summer of 1922 we were collecting in open post oak woods near Bonham in northeastern Texas. Our attention, focused on a decaying stump, was suddenly distracted by a loud buzzing behind us. We turned to see a sphecid finishing her burrow by tamping down the filling with a pebble. The performance was not, however, being done according to Peckham. Our wasp pointed her abdomen directly upward and pounded with the tool held between her mandibles by moving her entire body up and down, thereby simulating a pile-driver rather than a hammer. As soon as she had finished we captured her. During the mêlée the pebble was lost; but it must have been about five millimeters in diameter, for the mandibles were spread to the limit while holding it. The burrow was then examined; the tamped filling was quite compact and remained intact when the surrounding soil was dug away. At the bottom of the burrow two inches below the surface there was a paralyzed caterpillar. The wasp was later determined by Mr. S. A. Rohwer as *Sphex* (=*Ammophila*) *gryphus* (Sm.).

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THE ADDRESSES OF AUTHORS

BECAUSE of the shortage of publication facilities, or perhaps more correctly, the increasing demand for publication facilities, there is a marked tendency at the present time toward brevity in the presentation of scientific matter in our professional journals. This is not wholly a bad tendency; in fact, many will strongly support the opposite contention, but at the same time the free exchange of ideas among scientific workers is the principal object sought in publication, and the restriction of this exchange is undoubtedly an obstacle to progress, even though it may be a necessity under present conditions. The liberal allotment of time for discussion of papers on our scientific programs is a recognition of the fact that much is to be learned from the author of a paper in addition to the material he has presented for publication.

The majority of papers published are not, however, presented before a scientific meeting but are sent direct to the editor by the author, and there is therefore no opportunity for discussion. The mails are available to fill this need, which leads me to the point I wish to make: Would it not be useful to scientific men if our professional journals were to publish in every case the addresses of their contributors along with their papers? I frequently have occasion to write to entomologists publishing in foreign journals, but am often unable to secure their addresses without first writing to the editor or to some leading foreign entomologist who may have their addresses. This is particularly true in case of the younger men who are not so well known. I am aware that addresses are often, perhaps generally, published, but my observation has been that this is done when the author has submitted it along with his paper and is not done if the author omits it. It has seemed to me that the adoption of a policy on the part of our editors of always publishing authors' addresses, or the name of the institution with which they are connected, would serve to make the desired free exchange of ideas more easily accomplished.

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A CORRECTION

I NOTE upon page 444 of the May 16 issue of SCIENCE abstract of a paper submitted by me at the recent meeting of the National Academy of Sciences and entitled "Researches in the terephthalic acid group."

Through an unfortunate error, the name of my collaborator in this research, Dr. Philip S. Nisson, was in some way omitted in entering the item on the program of the academy, and I shall be glad to have you publish this brief note in SCIENCE calling attention to the fact.

MARSTON T. BOGERT

SCIENTIFIC BOOKS

The New Geology: A Text-book for Colleges, Normal Schools and Training Schools; and for the General Reader. By GEORGE MCCREADY PRICE. Pacific Press Publishing Association, Mountain View, California.

THIS good-looking book, embellished with excellent illustrations (of which more later), gives a first impression of actually being an orthodox and high-grade text-book of geology. A careful perusal of the work, however, leads to the conviction that the author, who is unknown to the membership list of the Geolog-

[1] See Wheeler, W. M.: "Social Life among the Insects," page 55.