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.