

on mixing, although branch lines of the two clones conjugated readily when grown in another medium.

Fertilizer medium (1) is inexpensively and easily prepared, (2) will support the growth of a variety of freshwater algae, (3) produces large quantities of organisms in a short period of time, and (4) yields cultures relatively free of bacterial growth.

The author is indebted to the Smith-Douglass Company, Inc., Norfolk, Virginia, for the various fertilizers used in his experiments.

NOLAN E. RICE

Carolina Biological Supply Company
Elon College, North Carolina

Misuse of the Linnaean System of Nomenclature

In a recent paper by E. E. Dickerman on "The morphology and life cycle of *Proterometra sagittaria* n.sp., (*Trans. Amer. Soc.*, 1946, 65, 37), the larval form of a trematode is described and assigned a binary name of the Linnaean system (*Cercaria sagittaria* Dickerman), while the adult is described and given another Linnaean name (*Proterometra sagittaria* Dickerman). I must apologize to Dr. Dickerman for thus singling him out among others, but I have risked offense to this author in order to cite a recent and specific example of a practice in systematics that is so obviously in error that it cannot rate the approval of anyone interested in correct procedures in taxonomy. That is, two binomials of the Linnaean system (which go so far as to indicate that the larva and adult belong to different genera) are applied to the same animal, which is certainly contrary to approved taxonomic rules and practices.

Historically, of course, the practice stems from the fact that relationships between certain larval forms and the corresponding adult stages were not even suspected, the larvae and the adults being regarded as totally unrelated animals. In the present instance, however, this extenuating circumstance does not prevail. Furthermore, since there is no justification for applying different binary names of the Linnaean system to age classes of the same species (E. T. Schenk and J. H. McMasters, *Procedure in taxonomy*. Stanford Univ. Press, 1935. Art. 26, p. 33), and since the rule of priority is one of the cornerstones of the Linnaean system, it follows that the name first used in designating a species is the correct one to apply to all its developmental stages. Therefore, the correct name of the trematode described by Dickerman must be *Cercaria sagittaria* Dickerman, and not *Proterometra sagittaria* Dickerman, since the former name appears on page 37 of his paper, while that of the latter is on page 39. This is clearly not Dickerman's intention, since he uses *Proterometra sagittaria* in the title of his publication.

The absurdity of giving different Linnaean binary names to developmental stages of the same animal becomes increasingly apparent if extension of the practice to all animals be assumed. Thus, the tadpoles of frogs and toads, different in morphology and in habitat from the adults, might well be given Linnaean names distinct from those designating the adult stage of development.

Even the early fetal stages of man, bearing little resemblance to the adult, and certainly in a habitat foreign to fully developed man, might no longer be classed within the genus *Homo*. Such examples could be multiplied indefinitely; in fact, no animal species would be exempt from a *series* of Linnaean binomials applied to various developmental stages, if this practice be extended to its logical conclusion.

The comments of G. G. Simpson (*Bull. Amer. Mus. nat. Hist.*, 1945, 85, 24) on the use of the Linnaean system are appropriate to the present discussion, for he says that "nomenclature is the grammar and vocabulary of zoology. Neither nomenclature nor grammar is an end in itself, but they are not less important on that account. The comparison can be extended to point out that literate men do not make mistakes in grammar and literate zoologists do not make mistakes in nomenclature. . . ."

A. BYRON LEONARD

Department of Zoology, University of Kansas

Synthetic Hydrophilic Colloids as Soil Amendments

In Technical Bulletin 189 of Michigan State College, attention is directed to the reduced rate of loss of water by surface evaporation and by transpiration, from greenhouse soils, when such soils are fortified with a suspension of a proprietary methyl cellulose. The results reported were striking. If applicable to Hawaiian soils, in the field, considerable economy in sugar-cane irrigation might be possible.

The important water economies mentioned in this report have not appeared with local soils. When local soils and local soils treated with a suspension of the colloid (the methyl cellulose used was secured from the Dow Chemical Company and is sold under the trade name of "Methocel") are exposed to evaporation, the natural soils lose water at a slightly faster rate, it is true. But the difference is only slightly greater than is required for statistical significance. There seems to be no point in attempting to overcome the great difficulties involved in using this material under field conditions with soils similar to those common in Hawaii.

The results reported in the bulletin cited are more nearly approached when silica sand (testing grade) is used in place of local soil. It would appear that the observed effects were due to a modification of surface and structural characteristics of the soil material and not to the hydrophilic character of the added colloid *per se*.

No significant difference in the rate of evaporation from pure water and from 1-per cent suspensions of methyl cellulose with viscosities of the 25, 400, and 4,000 centipoise grades was noted, when exposed to a constant environment, until the colloid had dried to a horn-like film.

The moisture equivalents of soils and of sands increased progressively with additions of the colloidal suspension. But unit mass of the colloid was much more effective in increasing the water-holding capacities for the sands than the soils.

The permanent wilting percentage of a specific, local natural soil was 23.8 ± 0.04 per cent. When treated with a 1-per cent suspension of the colloid, the permanent wilt-