Comments and Communications

Precedence of Modern Plant Names Over Names Based on Fossils

Comment regarding my proposal (*Science*, April 2, pp. 344–345) to use modern material for nomenclatural typification whenever possible, even though a congeneric fossil group was named first, seems to be generally favorable. Dr. C. A. Arnold has called attention, however, to the possibility of a conflicting interpretation regarding the later-homonym rule (Art. 61), if the original wording should be adopted. The writer relied chiefly on Article 61 to avoid any displacement of fossil-plant names by inadvertence, such as those instances to which E. L. Little (*Wash. Acad. Sci. J.*, 1943, 33, 8–11, 130–135) called attention and renamed as later homonyms of fossils. Consideration of this, and other constructive suggestions by Drs. W. H. Camp and Theodor Just, leads me to suggest alteration of the wording as originally proposed and the addition of a note, to be inserted under Article 18 in the Rules of Botanical Nomenclature or as a part of Appendix I, "Regulations for Determining Types," and to read as follows:

Names based on types derived from modern material always take nomenclatural precedence over names based on fossil or subfossil specimens, if the groups are congeneric.

NOTE: *Names based on fossil types cannot be used again for modern plants in violation of the rule excluding later homonyms* (see Art. 61).

The effects of adopting the present proposal—in the same sense that it is now reworded—were discussed in the writer's previous note (*Science*, April 2) with reference to *Metasequoia* and a few similar nomenclatural examples. Since that time Drs. Hu and Cheng have published the name *Metasequoia glytostroboides* for the living species (*Fan Mem. Inst. Biol. Bull.*, 1948, 1, 153–161). It is of interest, therefore, to re-examine the nomenclatural situation as of the present date.

According to the existing regulation, the type species of the genus *Metasequoia* Miki is *Sequoia disticha* Heer (*K. Svenska Vetensk.-Akad. Handl.*, 1876, 14, 63), and some one of the specimens illustrated by Heer might be regarded as the ultimate holotype. In instances of this sort, according to the new proposal, names based on modern types would always take precedence. Therefore, *M. glytostroboides* Hu and Cheng would become the type species, with its type specimen (holotype), as cited by Hu and Cheng, "C. J. Hsueh No. 5, in flowers and cones" (February 20, 1946), and the additional reference sheets taken in different developmental stages from the same tree. The inherent great advantage in utilizing this modern type material for reference in identification, over any fossil type illustrated by Heer, is obvious.

In my estimation some question still remains whether the living species is best named as "*Metasequoia.*" If the living species is the type of the genus, as it would be under the new proposal, the genus apparently should be cited for type reference as *Metasequoia* Hu and Cheng, *non* Miki.

Unrelated to the above proposal, but pertinent to *Metasequoia*, the writer also wishes to record that, through the generosity of Dr. Just, a copy of S. Miki's rare publication ("On the change of flora in eastern Asia since Tertiary period (1). The clay or lignite beds flora in Japan with special reference to the *Pinus trifolia* beds in central Hondo." *Jap. J. Bot.*, 1941, 11, 237–303) is available for consultation by American paleobotanists at the paleobotanical library of the U. S. Geological Survey in Washington.

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A Point Regarding 2,4-D Penetration

In the article by C. L. Hamner and Kiang Chi-Kien (*Science*, May 28, pp. 572–573) the statement is made that possibly Geon 31X latex may act by sealing in the *vapors* of the salt of 2,4-D. To my knowledge there are no vapors of 2,4-D (granted some slight odor from a bottle of pure 2,4-D), and especially would this be true of the salt, although in the plant this may be converted back to the acid to some extent. The m. p. of the salt is about 225° C (melting block determination of prepared salt), whereas the acid melts at 138° C. Therefore, the vapor pressure is low at normal temperatures. Since the solutions of 2,4-D are usually extremely dilute (less than a gamma/cc), it would be assumed that any effect due to the vapor pressure of the salt would be ruled out.

The probable explanation lies in the fact that by decreasing the local evaporation of moisture, Geon 31X may cause better entry of 2,4-D in solution. One might have suspected that a decrease in the gas exchange—if this is what Geon 31X does—would interfere with the photosynthetic and respiratory metabolism, but the authors report no effect of the Geon 31X when applied alone.

In general it might be surmised that anything which normally either decreases the concentration of 2,4-D or prevents its effective entry is partly or wholly prevented by Geon 31X. The observations reported are interesting and may prove of value from both a practical and a theoretical mechanistic point of view.

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Significance of Clearance Variations in the Rat

While I am very much interested by the attempt of S. E. Dicker (*Science*, July 2, p. 12) to reconcile some of the different results for glomerular filtration rate in the rat, there are several additional factors to remember which negate the reconciliation.

There is some evidence from other authors that diet protein has little effect in raising the serum protein concentration. But it is well known that an increase in dietary protein both increases renal plasma flow (Van Slyke, Hiller, Rhoads, Hiller, and Alving. *Amer. J. Physiol.*, 1934, **109**, 336) and renal size (MacKay and MacKay. *J. Nutrition*, 1931, **3**, 375). These factors tending to increase the glomerular filtration rate must also be considered in estimating the effect of diet.

Most authors have expressed the clearance measurements in terms of body size (cc/unit wt/unit time). Since renal size in the rat has been shown to vary not directly with body size but as a power of body size (MacKay and MacKay. *Amer. J. Physiol.*, 1927, **83**, 196), differences may enter as a consequence of the relative size of the kidney in rats of widely different weight ranges.

Finally, it may be stated that different methods of clearance determinations in the same hands may give widely varying results in the rat, depending upon the precise conditions of measurement (Lippman. *Amer. J. Physiol.*, 1948, **152**, 27). Determinations were made upon rats receiving nearly the same dietary protein concentration (17%) as one of Dicker's groups. If reduced to the same terms by calculation, Dicker obtained a value of 0.64 cc/gm kidney wt/min, whereas this author will report a value of 1.15 cc/gm kidney wt/min.

While it is not my intention to minimize the error that may undoubtedly be introduced into renal clearance measurements through variations in the diet, it seems to me that the precise conditions of measurement are at least of equal importance, and probably of greater importance, in explaining the differing results obtained.

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Record of the Occurrence of *Physoderma graminis* in Canada

Agropyron repens L. plants in the neighborhood of Central Experimental Farm, Ottawa, were found to be parasitized by the chytrid *Physoderma graminis* (Büsgen). The diseased plants showed dwarfing due to suppressed culm elongation and also the presence of yellowish to brown stripes. The stiff erect leaves and general yellowish appearance make these plants conspicuous in the field under close-mown conditions.

Physoderma graminis, though well known in Europe on several grass hosts, is known only from Wisconsin (United States) in North America, being recorded by Thirumalachar and Dickson (*Phytopathology*, 1947, **37**, 885–888). The present record of its occurrence in Ottawa, Canada, indicates a rather widespread occurrence of the disease. The diseased plants are easily overlooked in the field, since they are overgrown by the neighboring healthy plants.

Though quack grass is not of economic importance, the possible spread of *Physoderma graminis* to other important grass hosts needs to be watched and studied. Few cases of its occurrence on *Dactylis glomerata* L. have been noticed by Dr. J. G. Dickson near Madison, Wisconsin. In Europe it is reported on several grass hosts of economic importance.

The writer wishes to acknowledge his indebtedness to Dr. T. M. Stevenson, Forage Crop Division, for his cooperation, valuable suggestions, and kind interest.

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Fisheries Statistics and the Past Oyster Production of the Gulf Coast of the United States

Most Gulf States do not collect adequate data on their fisheries production, and those that do have only done so for a few years. The State of Louisiana has recorded its oyster production for many years. Fisheries production data are important to fisheries biologists, students of economics, business concerns, legislative bodies, and others, and the lack of them is a deplorable gap in our knowledge of past conditions of the Gulf Coast fisheries. The same remarks apply to some extent to other parts of the United States. The deficiency in state production statistics has been partly filled by the U. S. Wildlife Service and its predecessors, the Bureau of Fisheries and the U. S. Fish Commission. Their statistics are comparable from state to state and, to a lesser extent, from year to year. Here again there are great gaps, and statistics on the Gulf Coast fisheries are available for only 24 of the years between 1880 and 1945, or slightly more than one-third of the period. These blank spaces exist because Congress was not foresighted enough to allocate funds for collection of statistics by the Federal fishery agencies. The process still goes on, and Radcliffe (Oyster Institute of North America, Vol. 14, Bull. 4, p. 2, August 17, 1948; mimeographed) has recently pointed out that while $1,000,000 was appropriated under the Farrington Act for the study of fisheries in the mid-Pacific, due to the lack of some $20,000 a year the Fish and Wildlife Service cannot gather adequate production figures on the marine fisheries of the continental United States. When such anomalies as this arise, we may well question the wisdom of Congress or the Bureau of the Budget, or possibly both.

In discussing the present oyster situation, oyster biologists and conservationists are given to pointing to the huge production of the past and comparing it with dismay to present production. For various reasons this picture is too often correct. Nevertheless, it is exaggerated because of a quirk in the Federal oyster statistics, as they are published. As stated above, the Federal statistics are the only ones available for all Gulf States. Oystermen have always reported their catches in gallons, bushels, or barrels. However, the Federal statistics are given in pounds, and evidently the statistics collectors used a factor to translate bushels of oysters to pounds of oysters.

Fiedler *Fishery Industries of the United States, 1931* Appendix II, Report of Commissioner of Fisheries, Bureau of Fisheries, 1932, pp. 97–440) stated that in the Federal series of reports (*Fishery Industries of the United States*) in all years previous to 1931 all oysters