DISCUSSION

ONE-MAN CITATION OF AUTHORITIES FOR BOTANICAL NAMES

BOTANISTS should consider the advantages of the one-man citation of authorities for scientific names. As matters now stand it is difficult, when writing of plants, to do so without constantly turning to manuals for a verification of every one of those complex citations such as: *Luzula campestris* (Linnaeus) De Candolle, var. *multiflora* (Ehrhart) Čelak; or *Croton texensis* (Klotzsch) Mueller of Argau; or *Lappula Redowskii* (Hornemann) Greene, var. *occidentalis* (Watson) Rydberg. But it is a simple affair to recall *Quercus phellos* Linnaeus, *Quercus macrocarpa* Michaux, *Carpinus caroliniana* Walter, *Salix humilis* Marshall.

The zoologists have long reduced the authority citation to one man. Alas, it seems to me they have chosen in every case the wrong man! They have picked out *the original authority, who first described the species,* on the basis that he deserves the credit. But take the green heron, often given as *Butorides virescens* (Linnaeus). Suppose that we wish to return to the original description of this bird. Will we in all Linnaeus' writings find a creature under the name *Butorides virescens*? We will not, for the simple reason that Linnaeus never made such a combination. The green heron is almost hopelessly buried from us in his voluminous writings under the name *Ardea virescens,* while the author of the combination *Butorides virescens* is Bonaparte, and if zoologists would cite it that way we would have some idea how to trace our way back to an original description. Bonaparte will, almost of necessity, tell us whence he derived the name *virescens* that he has transferred to a new genus.

The botanical one-man citation, as it was formerly much used in this country and abroad, was the opposite of the zoologists' present system. It cites the man who transferred the specific name into the *correct* genus. Thus the pawpaw, now given as *Asimina triloba* (Linnaeus) Dunal, would be, under the one-man citation, simply *Asimina triloba* Dunal. This sort of citation would, in the aggregate, save hours of time for everyone who uses botanical nomenclature.

The objections to this type of citation are these:

(1) "The original author is deprived of credit." But the purpose of citing authorities is simply bibliographical. It is to distinguish John Doe's homonym from Richard Roe's. And to lead you back, *via* his name, to a printed description. The lure of giving credit is pernicious, encouraging the making of ill-founded species.

(2) "The one-man citation might encourage name-jugglers to attach their names to everything." But this is done with equal success under the two-man system. Look at the sport that Otto Kuntze and Dr. E. L. Greene had in transferring everybody's species into a very new, or a very old genus, and thus forcing you to mention them endlessly.

(3) One-man citations "conceal the history of the species." Why, except in elaborate taxonomic work, should it be revealed? Even then the one-man citation would still be enough for the titular name of the plant. The name-bringing synonym could be cited, along with all other synonyms, under the accepted name.

The double citation, in America, is a thing chiefly of the last forty years. In England and France it is still highly unpopular and often disregarded. The one-man citation was, in effect, used by De Candolle, Lamarck, the Hookers and Asa Gray, to mention but a few of the most famous names. The double citation is shallowly rooted in custom and could still be easily weeded up.

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TREATMENT OF BLACKTONGUE WITH COZYMASE

THE report of Elvehjem, Madden, Strong and Woolley[1] that nicotinic acid will cure blacktongue of dogs has created considerable interest in the role of nicotinic acid in metabolism. Since codehydrogenase (cozymase) contains nicotinic acid, it seemed desirable to determine whether this substance, given in doses below the effective level of nicotinic acid, would have a curative effect on blacktongue.

Professor O. Warburg very kindly furnished us with 5 mg of diphosphopyridine nucleotide and 5 mg of triphosphopyridine nucleotide. Three milligrams of each preparation were given intramuscularly to a dog in an acute attack of blacktongue. No therapeutic effect was seen.

We then prepared approximately 200 mg of partially purified cozymase (diphosphopyridine nucleotide) according to the method of Meyerhof and Ohlmeyer.[2] A similar preparation is reported by them to be approximately 80 per cent. pure. The activity of our preparation and that of Warburg's triphosphopyridine nucleotide was determined by the growth-stimulating effect on *Haemophilus parainfluenzae,* according to the method of Lwoff and Lwoff.[3]

The order of activity of our preparation approximated that of Professor Warburg's material (in dilution of $1:2\times10^8$ in our hands).

Two dogs in an acute attack of blacktongue were

[1] C. A. Elvehjem, R. J. Madden, F. M. Strong and D. W. Woolley, *Jour. Amer. Chem. Soc.,* 59: 1767, 1937.

[2] O. Meyerhof and P. Ohlmeyer, *Biochem. Zeits.,* 290: 334, 1937.

[3] Andre Lwoff and Marguerite Lwoff, *Proc. Roy. Soc.* B. 122: 352, 1937.

each given a total of 50 mg of this material intravenously without any observable therapeutic effect.

CONCLUSION

No therapeutic effect on blacktongue was observed from the intravenous administration of 50 mg of an impure preparation of diphosphopyridine nucleotide.

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THE NATURE OF THE MUCO-POLYSACCHARIDE OF SYNOVIAL FLUID[1]

THE viscous fluid bathing the joint surfaces and thought to be produced by cells of the synovial epithelium yields on acidification a stringy precipitate which has been called the synovial mucin. By a modification of the methods described for the isolation of chondroitinsulfuric acid from cartilage[2] we have succeeded in obtaining from bovine synovial fluid a sulfur- and phosphorus-free polysaccharide acid of high molecular weight, containing per equivalent weight one equivalent each of nitrogen, hexosamine, acetyl and hexuronic acid. It appears to be identical with hyaluronic acid, the polysaccharide isolated from bovine vitreous humor,[3] from human umbilical cord[4] and from hemolytic streptococcus.[5] This conclusion is based on the similar composition and rotation and on the hydrolysis at a similar rate by the "autolytic enzyme" of pneumococcus.[6] We have obtained about 200 to 250 mg of the acid per liter of cattle synovial fluid, and 225 mg per liter from 160 cc of a human knee exudate. Like other acid polysaccharides the carbohydrate in synovial fluid occurs as a salt and not bound to protein. Solutions of the isolated polysaccharide are extremely viscous and the substance apparently is responsible for most of the viscosity of the native fluid even though present in a low concentration. It is of interest that the same polysaccharide is elaborated by hemolytic streptococci (Group A, Lancefield), by the ciliary epithelium and by the synovial tissue. It may be of further interest that hemolytic streptococcal infection is frequently incriminated in inflammatory conditions affecting those tissues in which the polysaccharide is found.

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THE LAND-SNAIL AN INTERMEDIATE HOST OF THE CECAE FLUKE OF POULTRY

THE life history of *Postharmostomum gallinum* has heretofore been unreported. Experiments conducted during the past year have revealed that land snails, *Eulota similaris,* are the common carriers of this fluke under natural conditions. Snails collected in fluke-endemic poultry farms near Honolulu have been found heavily infected with larval flukes (adolescercariae); the largest of these flukes measured 0.87 mm long and 0.39 mm wide, and possessed well-developed suckers and ceca closely resembling those of the adult fluke. When three two-month-old laboratory-raised cockerels were fed such infected snails and killed one month later, adult *P. gallinum* flukes 5 to 6 mm long by 2 mm wide were recovered from the ceca. Control birds under the same laboratory conditions, but not fed infected snails remained free from all helminths. The results reported here are of importance from the control standpoint, in view of the common occurrence of these flukes in poultry in Hawaii.

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SCIENTIFIC BOOKS

LOW TEMPERATURE PHYSICS

Low Temperature Physics. By M. and B. RUHEMANN. Cambridge: at the University Press; New York: The Macmillan Company, 1937. ix + 313 pp. Price, $5.00.

KAMMERLINGH ONNES, the acknowledged father of low temperature research, frequently compared his investigations to a polar expedition. Lengthy and careful preparation was a preliminary. The actual work had to be carried on by a large group highly organized, a squad of technicians to operate the hydrogen liquefier, another for the helium liquefier, a group of observers at galvanometers, others at manometers and so on. Then, when the low temperature region was entered, it was a kind of "never-never" land in which the ordinary rules of behavior were suspended. Electrical and thermal conductivity took on outlandish values, radiation disappeared, and vapor pressures vanished.

It is this character found in all low-temperature

[1] From the Department of Ophthalmology of the College of Physicians and Surgeons, Columbia University, and the Institute of Ophthalmology of the Presbyterian Hospital, and from the Edward Daniels Faulkner Arthritis Clinic of the Presbyterian Hospital, New York.

[2] K. Meyer and E. M. Smyth, *Jour. Biol. Chem.,* 119: 507, 1937.

[3] Recently the identical polysaccharide has also been isolated from pig vitreous humor.

[4] K. Meyer and J. W. Palmer, *Jour. Biol. Chem.,* 114: 689, 1936.

[5] F. E. Kendall, M. Heidelberger and M. H. Dawson, *Jour. Biol. Chem.,* 118: 61, 1937.

[6] K. Meyer, R. Dubos and E. M. Smyth, *Jour. Biol. Chem.,* 118: 71, 1937.