Although the organism has not been found in sufficient numbers to make a complete study of its life cycle or of its structure, a study of living and of stained specimens leaves no doubt that it is a folliculinid, probably *Folliculina boltoni* Kent. Insofar as can be determined, this is the first unquestionable record of a fresh-water folliculinid from North America, and is the first time that a folliculinid has been found so far from the seacoast.

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Photographing Graphs for Publication

Gutsell's note (*Science*, 1949, **110**, 403) on the preparation of graphs for publication suggests a method which is extremely roundabout and quite unnecessary. He proposes working on the reverse side of graph paper in order to eliminate the graph lines in photographic reproduction of charts.

No high order of photographic skill is required to make use of graph rulings and still eliminate them from photographs. I use Dietzgen millimeter cross-section paper #338, the light green lines of which are held back very well when the desired chart is photographed through a green filter (X2 or X3) onto contrast process film.

The method is simple; if standard lighting is always used, other data are readily standardized and any quantity of charts may be easily and satisfactorily prepared.

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Hotchkiss Reaction and Structure of Polysaccharides

A method of staining polysaccharides based on oxidation with periodic acid followed by combination of resulting aldehydes with fuchsin sulfurous acid has been published by Rollin D. Hotchkiss (*Arch. Biochem.*, 1948, **16**, 131). The required conditions for a positive reaction are supposed to be two adjacent free hydroxyl groups. The reaction has been used for testing polysaccharides in solution. Jorpes, J. Erik, Werner, Birgitta, and Åberg, Bertil (*J. biol. Chem.*, 1948, **176**, 277) used this method in an attempt to detect the presence of such hydroxyl groups in heparin trisulfuric and monosulfuric acids, chondroitin sulfuric acid, and hyaluronic acid.

As far as our experience goes, the presence of two adjacent free hydroxyl groups within the chain of the polysaccharide does not bear any relationship to a positive Hotchkiss reaction. Numerous sugars having such groups, such as cellobiose, methyl α-D-glucopyranoside, methyl *n*-acetyl-α-D-glucosaminide, give a negative reaction, while hyaluronic acid and chitin, which yield a strong positive reaction, consume only a very small amount of periodic acid (0.1–0.4 mole for each repeating unit). Under the same conditions, starch, glycogen, and cellulose consume one molecule of periodic acid for each pair of adjacent free hydroxyl groups.

Since the information bearing on the mechanism of the Hotchkiss reaction is only fragmentary, we consider it unsafe to use this reaction for identification of polysaccharide structure.

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Categories of Availability or Validity of Zoologic Names

Recent publication by one of us (Smith, H. M., *Science*, 1947, **106**, 11) of a note on the use of the expressions *valid* and *available* in describing the status of scientific names prompted the other two to write him that experience in other groups of animals might modify the conclusions that he had reached. Comparison of usage in our three widely separated fields (herpetology, entomology, and paleontology) has led to substantial agreement on a set of terms and definitions different from those previously held by any of us. It is thought that these conclusions may be of interest to others, for the categories involved are not clearly understood by all taxonomists, and the terminology is often confused in practice. Particularly confusing are the uses of *valid* or *validly* by different writers for several of the categories.

Zoological names appear to fall into four categories in respect to their nomenclatural status. (1) All names that have appeared in print (in the broadest sense) must be considered for possible acceptance into scientific nomenclature. (2) Printed names that meet all the publication requirements of the *International Rules of Zoological Nomenclature* are automatically accepted into nomenclature. (3) Names published in full accord with the *Rules* are nomenclaturally acceptable if they are not preoccupied by another name of the same spelling. (4) From among the nomenclaturally acceptable names, there is only one which, because it is the oldest or has been judicially accepted, can be properly used to the exclusion of all others under a given set of circumstances.

The first of these categories generally has not been given a name, although *printed*, *published*, and *occupied* have all been used. We believe that *printed* is not sufficiently descriptive since a printed label should be excluded, and *occupied* implies "in nomenclature" and so is more appropriate in the second category. *Published* appears to be logically applicable to all names that have appeared in print (in the broadest sense). Most published names are accepted into nomenclature, but some fail to meet requirements of the *Rules* and are disregarded in nomenclature; examples are vernacular names, names without referrants (*nomina nuda*), and names printed in mediums not qualifying as scientific publications.

Names in the second category have generally been cited as *published*, but *available* has also been used. In the customary sense, however, not all these names are available for use, since some are junior homonyms; and to be exact in this usage, *published* must be modified by "under the *Rules*." The term *occupied* may be applied appropriately to those published names that do meet the requirements of the *Rules* as to publication. *Occupied* names include all names published according to the technical requirements of the *Rules*—all names that are ac-

cepted into zoological nomenclature, such as valid names, synonyms, homonyms, and *nomina inquirendae.*

The word *occupied* in this sense has an unfamiliar ring and may at first glance seem inappropriate. However, if one imagines that there is theoretically a niche for each possible combination of letters that could form a name under the *Rules,* and that when a name is published it would occupy its particular niche, the concept of occupation becomes clearer. Note also that the common use of the familiar term *preoccupied* makes it easier to understand the corresponding term *occupied.*

In the third category names have been described as *valid* or *available.* They are available for use, but they are not valid in the more common sense of that word, as being the one acceptable name. The numerous ways of using *valid* make it unsuitable for a sharply defined concept. We may then apply the term *available* to all names that were published in accordance with the requirements of the *Rules* (legally published) and which have not been so published previously for some other genus of animal or for some other species of the same genus. If any of them has been so published previously, the later name is said to be preoccupied and is called a homonym, or more significantly, a junior homonym, and is not available. Thus all names are available which are now properly in use or which may at any future time be properly used.

Finally the one name under which the species or genus is to be known has also been called the *valid* or *available* name. *Available* seems more appropriate in the third category, and *valid* has the disadvantage of being commonly used with several meanings. We suggest that the simple and self-expressive term *correct* be applied in a technical sense to the oldest available name for a genus or for a species within a genus. If the oldest available name has been set aside by the International Commission using its plenary powers, then the next oldest name or the one designated by the commission is the correct name.

The categories may then be defined and named as follows, according to these conclusions: Any name that is printed and circulated is *published*; any published name that meets the publication requirements of the *Rules* is *occupied* in zoological nomenclature (if it fails to meet the requirements it is an outlaw name, i.e., unpublished, illegally published, or a *nomen nudum*); any occupied name that is not preoccupied by an older name of the same spelling is *available* (if it is preoccupied it is a junior homonym and is not available); the oldest available name is the *correct* name, unless it has been specifically set aside by the commission under the plenary powers. (The correct name will, of course, vary with changes in our knowledge of subjective synonymy or discovery of unknown facts in the history of the names, such as homonymy and objective synonymy. An available name whose genus cannot be identified is a *nomen dubium.*)

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