

AN Associated Press dispatch reports that a cargo of unusual and valuable foreign plant species gathered on an 8,000-mile cruise of the Caribbean Sea has been brought to the United States aboard the yacht of Mr. Allison V. Armour, of New York. Rare palms, new vegetables and species for experiment to develop the production of the Southeast were included

in the cargo. The owner of the yacht, *The Utowana*, was accompanied by Dr. David Fairchild, Mr. P. H. Dorsett and Mr. W. F. Loomis, of the staff of the division of cotton and rubber plant investigations of the U. S. Department of Agriculture, and Mr. L. R. Toy, of the new homestead branch experiment station at Florida.

DISCUSSION

WHAT IS A PUBLICATION?

FOR many years systematists in the botanical and zoological fields have debated, often with considerable acrimony, the subject of what constitutes publication. I wish, as indicated in the title, to direct attention to a slightly different aspect of the problem, namely, to the methods of reproducing manuscript. Prior to the present century an easy and sharp distinction could be made between manuscripts and documents reproduced by use of cast type. There were few or no intermediate processes. But during the past two decades with perfection of appropriate machines a rapidly increasing amount of extensively duplicated material has been issued in typewriter face. Duplicate copies produced by direct manual effort on a typewriter are obviously still to be considered as manuscript. The gelatin-pad processes (hectograph, "ditto," *et cetera*) need not be considered, since the number of copies so produced is limited. It is the printing of typewriter reproduction by forcing ink through a stencil (mimeograph) and the printing of typewriter facsimile by use of roller or ribbon-applied inks (multigraph) which need consideration.

Dr. C. W. Stiles, in his scholarly address to the American Ornithologists' Union in 1927 on "What constitutes publication?"¹ set up the following theoretical definition for a zoological publication: "The manifolding of a dated zoological document which is intended as permanent record and which is made potentially and reasonably available to the populus zoologicus as of the decade of issue" (p. 477). He also touched upon the "methods of manifolding manuscript" and indicated several means of reproduction, including the stencil (mimeograph). But he concluded his brief discussion of this subject by saying "in view of the economic problems involved, I am not prepared to take a definite stand on the question of technique of manifolding manuscript as a condition precedent to recognizing publication" (p. 475).

However, it seems to me that some definite decision must be made with respect to mimeographed and multigraphed materials, particularly those items which

agree in other respects with the accepted requirements for publication.

In order to provide a basis for discussion, some of the materials which fall into this controversial field will be described. These items are used merely as examples to illustrate the problem; no reflection is intended on organizations or persons concerned, because of their use of the methods herein discussed.

The U. S. Bureau of Biological Survey has issued a mimeographed series of "Bird Banding Notes," of which 17 numbers appeared between 1922 and 1925. A footnote on the first page of each issue stated that "Bird Banding Notes' is not a publication and is not for general distribution." It is issued for the information of cooperators of the Biological Survey, but anyone using in a published paper any of the information contained in it will be expected to give credit to the person named and to the Bureau."

In March, 1926, the Biological Survey issued a special report on "Our migratory wild fowl and present conditions affecting their abundance," by E. W. Nelson. This bore a designation "BSR-1 Special Report," as though it were the initial item in a series. The cover is printed in a non-typewriter face; the text is in typewriter face on both sides of the sheet, printed so clearly as to suggest it may have been the product of the movable types of a multigraph machine. In the published history of "The Bureau of Biological Survey"² by Jenks Cameron this item is not included in the formal list of publications but is mentioned on p. 219 together with a mimeographed report on effect of rodent poisons on game birds; a footnote says of the latter, "this was published in July, 1927; the wildfowl report in March, 1926."

The Pacific Northwest Bird and Mammal Society [Club to 1922] has since 1920 issued thrice a year, in January, May and September, "The Murrelet," which is stated to be the "official bulletin" of the society. Any person interested in birds or mammals may become a member of the organization upon payment of dues and may purchase back numbers of "The Murrelet." At first entirely mimeographed, a printed

¹ SCIENCE, n. s., 67: 471-478, 1928.

² Institute for Government Research, Service Monographs of the U. S. Government, No. 54, 1929.

cover of regular form was added with the issue of January, 1925. Beginning in January, 1930 (Vol. xi, No. 1) text as well as cover is printed. The general form of the earlier mimeographed issues of "The Murrelet" differs in no respect from that of a periodical printed on a letterpress, save for the limitation in type face. "The Murrelet" includes material similar in nature to that appearing in many letterpress journals, such as notes on the distribution, habits and ecology of birds and mammals in northwestern North America. Each issue includes a table of contents, and two 5-year indices have been issued. A sample entry is entitled "Farthest North Record of Fur Seal," by J. F. Bernard ("Murrelet," vi, No. 1, January, 1925, p. 14); it reports the occurrence of a large male fur seal at Sledge Island, near Nome, Alaska, on September 15, 1924. This record is exactly similar to many occurring in printed journals, such as the *Journal of Mammalogy*. "The Murrelet" is included in the "Union List of Serials in Libraries of the United States and Canada," issued by the H. W. Wilson Company, of New York, and sets are reported in ten libraries. Items in "The Murrelet" submitted by members of the U. S. Bureau of Biological Survey are included with other "Articles in Current Publications by Department Workers" in the weekly Official Record of the U. S. Department of Agriculture.

Some years ago Dr. Royal N. Chapman prepared an outline of his course in insect ecology, as given at the University of Minnesota. The "publication," as it is called in the preface, is of $8\frac{1}{2} \times 11$ inch size, consisting of ix + 1-187 + 1-183 pages with table of contents, bibliography and text figures, and is mimeographed. A printed title page bears the legend: Animal Ecology/ with especial reference to/ insects—/by/ Royal N. Chapman/ The University of Minnesota—/All rights reserved/—/Burgess-Brooke, Inc./ publishers/ Minneapolis, Minn./ 1925. [Preface dated June 1926.] The volume is bound with a press-board cover. It was for sale at a stated price and so reasonably available to the zoological public. Under date of April 22, 1927, Burgess-Roseberry Company (formerly Burgess-Brooke, Inc.) who describe themselves as "mimeograph publishers," announced a second mimeographed edition of this work, to be of 370 pages. Material from these two editions of the mimeographed volume have frequently been cited in current ecological literature, and this "title" has been included in terminal bibliographies. In 1931 a volume from the pen of Dr. Chapman under the same title was issued by a commercial publisher in conventional book form. This is a third edition, much revised.

Were all mimeographed and multigraphed productions similar in form to those already mentioned, little difficulty would be involved concerning their

status, but grading downward, there is every conceivable intermediate form until the circular letter is reached! Of intermediate status are the "house organs" and "news bulletins" such as those put out by the Bureau of Biological Survey ("The Survey"), by the California State Department of Agriculture and by the naturalists of several of our western National Parks. Of the latter, the one emanating from Yosemite National Park was first mimeographed and later began appearing in printed form; others from the General Grant and Yellowstone parks are still in mimeographed form. These latter contain original material, often of considerable record value, and are available to a wide public.

The greater convenience and lessened cost of these newer means for duplicating and disseminating information in "periodical" or "book" form have been of increasing importance in this country in the last decade, and there is no reason to suppose that their use will decrease in the future. Many of the documents so produced, from their beginnings, contain original material of sound scientific worth. Their intrinsic value as records of scientific work is indicated by repeated citation in other scientific literature. They have been generally accepted by the large majority of scientific writers as conventional documents equivalent to those printed by movable types and letterpress. Admittedly there may be difficulty in making a distinction between casual announcements, press releases, news bulletins and "house organs" intended for a circulation restricted to the personnel of a particular organization, on the one hand, and, on the other, items such as those specifically described above of either periodical or separate character, which are distributed free or by sale to the interested public, and of which some eventuate in conventionally printed form.

The degree of permanency of a document has not been considered to be a criterion in determining what constitutes publication, since many documents both old and recent, of thoroughly accepted status, have been upon the flimsiest of paper and of a sort to be preserved only with difficulty.

The question, then, of what constitutes a publication seems not to be concerned solely with the mechanism of reproduction, but rather with the character of the document. Difficult and uncertain as will be the problem of segregating out true publications, according to Dr. Stille's theoretical definition quoted above, it seems inevitable that items answering the requirements of that definition, even though they be printed by movable types of typewriter face or by stencils, can not be excluded from the category of publications.

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