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WHAT CONSTITUTES PUBLICATION?[1]

YOUR secretary has assigned to me a Chinese puzzle.

Kindly permit me, in accepting this assignment, to make one point unambiguous, namely, that in any views expressed to-day I am speaking only in my individual capacity, as a specimen of the genus *Homo* and not as secretary of the International Commission on Zoological Nomenclature. In fact, it is entirely conceivable that at some future time, as mouthpiece of the commission, I might express views at variance with the content of this paper.

A second point to be made clear is that no definition of zoological publication can be formulated which is not subject to debate, differences of opinion and criticism.

With this introduction I feel at liberty to discuss this very complicated theme.

"Publication" has numerous definitions, more or less subjective according to the particular field and goal under consideration. Our problem is "what constitutes zoological publication?"

Whatever subject we discuss, it is both interesting and instructive to consider the derivation of our terms in order to gain a starting point.

The English word "publication" comes from the Latin *publicatio,* which means "an adjudging to the public treasury, confiscation." Thus, when a zoological manuscript (legally the property of an individual) is published, its content becomes, by confiscation, the property of the *populus zoologicus. Ergo,* from the moment of publication the author has no more claim to the data or the ideas contained therein than has any other member of the zoological profession, except in so far as he may take out a copyright (which gives the exclusive right to multiply and to dispose of copies of an intellectual production—corresponding to a patent of an invention).

Consequently, the author has no more right to change a given published name than has any other zoologist—although the code of ethics provides that in case the author has inadvertently published a homonym, the colleague who notices this fact is to invite the attention of the author to it and, as an act of professional courtesy, to give him first opportunity to correct his error in technique.

The word *publicatio* is based on the Latin *publicare,* which means "to make public property, to seize and

[1] Address, by invitation, before American Ornithological Union, Nov. 15, 1927.

adjudge to public use, to confiscate; to show or tell to the public, to impart to the public, to make public; to publish, etc."

Publicare involves *publicus*,[2] a contraction of *populicus*, from *populus*, which from the root *ple*, of *pleo* (*cf. plenum*), means the people, multitude, host, crowd, throng, great number of persons, etc. *Pleo*, root *ple*,[3] brings us to rock foundation, and means "to fill, to fulfill."

The conclusion appears to be justified that the underlying basic idea in the English word "publication" involves the conception of reaching the *complete*, namely, *not abridged* public.

The completeness of a notice depends upon the audience it is intended to reach. A notice by the American Ornithological Union is complete and therefore published if it is intended only for the members of the American Ornithological Union and if it is addressed through regular channels to each and every member, namely, the *populus* of the American Ornithological Union.

Applying this idea to zoological publication, the conclusion appears justified, from the root *ple*, that a zoological document is published when it is addressed, through regular standard channels of communication, and therefore made potentially available, to the entire zoological public, *i.e.*, the zoologists of the world.

If this viewpoint, based on the conception *populus zoologicus*, be accepted, the corollary obtains that no document addressed to a "limited," "restricted," or "abridged" portion of the zoological public, is, theoretically, zoological publication—since it is not addressed to the entire profession. Thus, if a member of the American Ornithological Union communicates a thought, data regarding a new species, etc., to a colleague, or to all the members of the American Ornithological Union, and restricts or abridges its dissemination by any method which prevents it from reaching the entire zoological public, his act is not zoological publication.

On this principle, neither the date of manuscript nor the presentation of a paper before a restricted audience is accepted as zoological publication, but it becomes publication on the date when the document becomes potentially available to the entire zoological public. On this same principle, proof sheets sent to colleagues to obtain their criticisms have been declared (Opinion 87 of the International Commission) as not constituting zoological publication; and the same principle comes into consideration in connection with the much-discussed Huebner's Tentamen, which was by title addressed to experts, in this case specialists in *Lepidoptera* (see Opinion 97).

With this theoretically basic idea contained in the root *ple*, which thus represents the constitution of publication, so to speak, let us pass to the by-laws (or technique) by means of which the constitution is administered. Here we reach various *practical* aspects of the subject.

It is to be frankly accepted that the technique of publication varies according to the audience addressed, as, for instance, in the case of the board of health regulations of Washington, D. C., which do not involve the citizens of China or South Africa.

The practical problem is: What by-laws are necessary, reasonable and feasible in order that zoological publications may be potentially and reasonably available for use by the *populus zoologicus*? In this connection, it is well to consider—(1) Period of publication; (2) date of publication; (3) address of publisher; (4) language used; (5) status as record; (6) size of edition; (7) methods of manifolding manuscript; (8) sale; (9) daily newspapers; (10) separata; (11) sales-catalogues; (12) society programs.

(1) *Period of publication:* The *populus zoologicus* has varied at different times. In 1760, zoologists were located chiefly, but not exclusively, in Europe. To-day, they are widely distributed practically over the entire world.

The practical condition of making publications reasonably available to the zoological public in 1760 could be largely met by the system of distributing university theses, by exchange, to the leading university centers of Europe without placing the documents on sale. Thus, this system of university exchange could well be accepted in 1760 as largely meeting the necessities of the profession and thus it comes within the basic idea of publication.

To-day, however, the exchange system, not backed by public sale, is thoroughly inadequate to meet the reasonable requirements of the profession; hence this system, still in vogue to some extent, can no longer be reasonably accepted as zoological publication.

The moral is that the requirements as respects distribution vary according to the numbers and geographic distribution of the members of the profession; hence chronologically these requirements are a variable

[2] *Publicus* refers to a public officer; *publicum* to the public purse, also a public place; *publice* on account, at the cost, in behalf, or in charge of the state, also, before the people, openly, publicly.

[3] *Plenus*, from the same root (*cf.* Greek πλα; Latin *plerus, plebs, populus*, etc.), means full, filled; *plenum*, a space occupied by matter, full packed, laden, entire, complete, full, whole, at full length, not contracted, unabridged, abundant, plentiful, much, finished, ample. *Plene*, literally full, means fully, wholly, completely, thoroughly, largely, etc. The same root is found in *plerus* (very many), *plerusque* (a very great part), *pleraque* (all, everything, mostly, for the most part), *plerumque* (the greatest part, commonly).

factor, and what might be reasonably accepted as publication in 1760, 1800 or 1850 is not of necessity to be accepted as publication in 1927.

(2) *Date of publication:* As the law of priority is based upon chronological data, it is obvious that the date of publication is an essential factor in the by-laws of zoological publication.

In the vast majority of cases, the year date suffices; in a lesser number of cases, the month is necessary; in exceptional cases, the day of the month is imperative.

The general principle is universally recognized, so far as I recall, that the date borne by a publication is assumed to be correct unless and until proved to be incorrect.

In connection with the date, various complications—some theoretical, others practical—arise.

For instance, the point has been raised that it may still be November 15 in San Francisco at a moment when it is November 16 in London. Thus, two publications, differing in date by one day, might be issued at the same moment in London and in San Francisco. Which has priority? This same point has been raised in connection with the new wording of the law of priority, and the commission has settled it in advance by definitely stating in its report to the congress that the revised law of priority takes effect at Greenwich time midnight between December 31, 1930, and January 1, 1931. Accordingly, for the United States, the new wording actually becomes effective in the latter part of December 31, by our time.

In connection with the date of publication, serious printers' difficulties are often encountered which are beyond the control of either the author or the editor. Theoretically, it would be wise to print the year, month and day of the month on every zoological publication; but practically this is often impossible, for delays due to proofreading, breakdown of machinery, strikes, etc., etc., are always likely to occur and thereby invalidate the intended exact date of issue as set up in type. To prescribe these details is therefore not always practical, notwithstanding their desirability. But, as the saying goes, "there is more than one way to skin a cat": It is entirely feasible for a serial publication to print in its volume table of contents the exact dates of issue of the separate parts[4] or of each number in each succeeding number, or on the cover or last page of its final number, or in the first number of the next volume.

[4] As a side question in this connection, libraries should always bind in place the cover page of each number when they make up the volume. A failure to do this causes much extra labor for persons who use the serial.

But what is to be said of documents which bear no date at all? Theoretically, two possibilities come into consideration:

(a) Establish the date by evidence obtained elsewhere, as in the case of Huebner's (1806) Tentamen; and

(b) Reject the document on the ground that it lacks the evidence necessary for the application of the law of priority.

In principle, I favor the second alternative. In documents undated as to publication the publisher has not "played the game" with the profession; he has made a "foul play" and the "foul" should be ruled out. I should be inclined to support this as a thoroughly justified rule in connection with future publications. But ought it be made retroactive? Here certain practical considerations arise.

Some undated publications contain names which many authors have adopted. Should we not temper justice with mercy, as applied to some exceptional cases?

If one replies that a principle once adopted should be consistently carried out, and therefore be made retroactive, the answer can be made that we are often faced by choosing between two principles, one primary and more important, the other secondary and less important. As a matter of fact, does not everybody subordinate some secondary principle to some primary principle more or less frequently, possibly every day?

It would not hurt my conscience to vote to suspend the rules for Huebner's Tentamen, despite the fact that it was undated, provided entomologists prove that the rejection of this document will result in greater confusion than uniformity, although to my mind the Tentamen is not zoological publication, but essentially entomological correspondence addressed to a restricted audience.

In principle, I consider that undated documents do not correspond with the technique necessary to make them of reasonable use by the *populus zoologicus*, and, therefore, that they are not zoological publication. It seems eminently unfair to throw upon the reader the burden of proof as respects the date of a document; it causes extra and unreasonable work and easily leads to different conclusions, with later confusion in nomenclature.

For documents of indefinite year date (for instance, "Proceedings for the years 1891–95"), with no further clew as to date of issue, it would seem fair to consider December 31, 1895, as date of publication; and for documents issued with no more exact date than the year (example, "1927") it would appear fair to accept December 31 as date unless and until more definite date is proved.

(3) *Address of publisher:* The address of the publisher is scarcely a *sine qua non* of publication, for it is not zoologically essential to know whether or by whom a given document was printed in London, New York or elsewhere. But think of the unnecessary extra work caused our friends-in-need, the bookdealers and the librarians, when the address of the publisher is not stated. Some printed zoological documents have been distributed without any direct intimation as to whether they were printed in North America, England or Australia, and this point has been raised against one document which is supposed to have been printed at home by the author's son who is said not to be a trade printer.

Cases of this kind seem to have their origin in certain economic conditions which will be referred to later.

I would welcome a rule, effective (say) January 1, 1931, that no document be accepted as publication unless it bears the name of the publisher (or printer) with at least the name of the city in which his office is located. Before making such a rule retroactive, however, I would desire information as to its possible effect on nomenclature and further I would want the viewpoints of booksellers, librarians and publishers, with whom we should "play the game" fairly.

(4) *Language of publication:* Prior to 1800, the question of language of publication was relatively uncomplicated. Latin was read and written by most zoologists and thus formed an acceptable language for the *populus zoologicus*. Not unnaturally, however, even prior to 1800, some zoologists published in the modern languages—chiefly in those of western Europe, which also were understood more or less generally by the zoological public.

How much more complicated this problem is to-day! Professional zoologists are more widely distributed now as respects their mother tongue, some countries lay much less stress than formerly upon the ability to write in Latin, and the semi-professional and the amateur zoologists have increased tremendously in number and distribution.

Not only a theoretical question of national pride, but also practical questions of local economic conditions and other considerations now lead zoologists to publish in Hungarian, Japanese, Polish, Russian and other languages not ordinarily understood by the average zoologists, and the resulting international difficulties of potential availability of the contents of zoological literature are rapidly increasing. This represents a much more serious and more practical problem than is usually admitted and its solution is not so self-evident as I wish it were.

Many authors who write in languages not ordinarily studied clearly grasp the situation—as is evidenced by the fact that they append to their articles abstracts in one of the languages more commonly read than their own. Some of the publications in these exceptional languages are abstracted in journals published in the more international tongues.

That the profession will adopt either Latin or any one of the modern tongues as its official language is hardly to be expected and such a course would not solve the practical problem to-day. The most feasible solution appears to be a movement to urge all authors who publish in the exceptional languages to emulate the considerate example of so many of their colleagues by appending summaries in any one of several more or less generally studied languages. Whether it would be feasible to require this, as a premise to their admission under the law of priority, is a question upon which I scarcely feel in a position to make a pronouncement—for this requires an international consensus of opinion.

(5) *Status as records:* Manuscript can be manifolded for various purposes, for instance: Letters of inquiry, letters of instructions, duplicate proof sheets for criticism by colleagues, news letters regarding administrative or personnel items of an organization. These and some other documents are obviously of ephemeral nature and purpose, intended for the information of a restricted audience, and they do not serve the *populus zoologicus* as a permanent record—unless they are reprinted in a journal or definitely placed on sale through regular channels.

The intent of the document to serve as a permanent record of data would seem to be an exceedingly important, possibly a determining factor, in the pertinency of evidence as to zoological publication.

(6) *Size of edition:* We have seen that publication, through the root *ple,* involves the idea of general, unabridged or numerous. At first thought, one might be inclined to apply this concept in mathematical terms to the size of an edition (*i.e.,* the number of printed copies) as a practical standard to define publication. This, of course, would present difficulties, but it suggests certain general deductions.

An ornithological document issued specifically for the use of ornithologists is obviously not issued for the use of the general *populus zoologicus* but for only a fraction of the whole. Although that document may be of greater interest to this minority than it is to the majority, it can conceivably have a direct bearing on the work of the majority. If, however, by virtue of its being issued only to ornithologists it is limited to them, the conclusion seems justified that the edition is too small to be general, therefore it is not a zoological publication—no matter how universally it is distributed to ornithologists. In this hypothetical case, it is

not really the *size* of the edition which comes into consideration, but the restriction of distribution.

Universities more or less generally require that graduates deposit a given number of copies (say twenty-five to forty, in cases personally known to me) of each thesis, and these copies are distributed, on an exchange system, to other universities. Does this represent zoological publication? My opinion is that *as of to-day* it can not be so accepted; this conclusion is based, however, not on the number of copies but on the method of distribution by exchange, a method which to-day does not make documents potentially and reasonably available to the *populus zoologicus*.

A state experiment station might issue a large edition, say five thousand copies, of a zoological bulletin for free and wide distribution *to the farmers of that state*. Here again it is not the size of the edition, but the audience to which it is addressed and distributed which is the more important factor. If that document is not available to the world-wide zoological public through regular channels, it is not theoretically published as a zoological record.

(7) *Method of manifolding manuscript:* The question as to the methods of manifolding manuscript (printing press, photograph, multigraph, stencil, photostat, etc.) is an important one. The printing press is (to a great extent) the standard method. But the multigraph is coming into widespread use in office work and has actually been used for at least one serial publication issued here in Washington by one of the government bureaus. Apparently stencil-made copies of an official serial were once issued by the German imperial government.

This question of method brings up the serious question of economics—and this latter problem carries us into more and more diverging necessities.

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 publications.

(8) *Sale:* Reasonably to fulfill the requirements of the zoological profession, a document intended as a permanent record should be reasonably accessible to all zoologists.

The fulfillment of this requirement can be met theoretically in either of two ways, namely: (1) the publisher might distribute the document *gratis* to all public, university, college, laboratory and school libraries; or (2) the document might be placed on public sale through recognized trade channels, namely, dealers who are known to make a business of selling zoological publications.

Obviously, the first possibility, though theoretically conceivable, is impracticable for several reasons, *i.e.:* (1) it is economically too expensive; (2) it is inexcusably and economically wasteful; and (3) it is economically excluded from the standpoint of libraries, for public libraries in general have neither the space nor the personnel to take care of all documents. The deduction is, therefore, that free distribution is a most excellent policy—for this makes the document available to zoologists within practical range of the depository, but the conclusion can not be escaped that it does not make it reasonably accessible to the *populus zoologicus*. Accordingly, there is serious objection to making *gift* a determining factor in distribution.

The second possibility (*i.e., sale* through regular channels) makes the document potentially available to the entire zoological profession and therefore fulfills both theoretical and practical requirements.

Accordingly, the conclusion seems justified that as far as zoological documents of record are concerned, the offering for sale through regular zoological book-dealers at time of issue is theoretically a *sine qua non* of zoological publication.

(9) *Is a lay newspaper zoological publication?* Lay newspapers (daily, weekly, city, county, etc.) are on sale, are distributed through regular channels, are dated, their publishers are known, and they more than welcome additional subscribers. Thus they are undoubtedly generally and universally available, despite the fact that zoologists are only an infinitesimal fraction of the audience to which the newspaper is addressed. From this viewpoint, they are undoubtedly zoological publication.

But, are they reasonably available as professional documents of record? To be permanent records, they must be stored in zoological libraries. If the American Ornithological Union adopts the Washington *Post* as its regular medium of addressing the zoological public, each and every zoological society in the world would have the right to adopt the local newspaper of some other city, town or county for the same purpose.

We must pass from the theoretical to the practical. As a practical problem, would any zoological library in the world be in a position, either as respects space, finances or personnel, to keep these newspapers on file for our use? And since very few of them are indexed, could we use them if they were on file? This practical consideration places the daily press in the *reductio ad absurdum,* as respects zoological publication.

(10) *Are "preprints," "reprints," "separata," etc., zoological publication?* This much-discussed question can be approached from more than one angle:

(a) If a "preprint" is to be accepted as publication, then this is actually *the* publication of an article and the journal print is in reality a "reprint." Under this interpretation, how many editors would consent to furnish "preprints"?

(b) Some journals accept manuscript under the condition that the article is not to be published elsewhere. In this case, the author automatically agrees with the editor that neither reprint nor preprint is "publication."

(c) Assume that a manuscript contains "*Tweedledum* new genus" or "*Tweedledum tweedledee* new species": The publication of the new genus or new species represents its literary birth, so to speak. Can a genus or a species be born twice?

(d) Is the "separate" reasonably available to the zoological public through ordinary channels, *i.e.*, is it on sale? If it is, it is neither a "preprint" nor a "reprint" but a distinct publication.

(e) Separates (preprints, reprints, etc.) are essentially complimentary copies for the personal use of the author and his special mailing list, *i.e.*, a restricted distribution. Many of them bear the statement that they are not for sale, and this is *prima facie* evidence that these particular copies are not publication.

(f) To throw upon the reader the burden of proof whether an author uses his "separata" fairly or unfairly to the editor and publisher and has made his separates reasonably available to the zoological public, is not "playing the game" fairly with the reader.

The conclusion (from my viewpoint) is that, in general, evidence which proves that documents are separata (preprints or reprints), is *ipso facto* proof that they are not separate publication, but at best that they take the same date of publication as the journal article. Cases can, however, be imagined in which a so-called "separate" is actual publication and in which the journal article is the reprint. But the interpretation lies near, that republication in a journal is for the purpose of making the article reasonably available to the profession—and if this interpretation be correct, the conclusion seems justified that by republication the author automatically admits that his article was not reasonably available to the profession through his preprints, *ergo* that the preprints were not zoological publication.

It may be frankly admitted that there are viewpoints, *pro* and *con*, *ad infinitum*, other than those I have presented. For instance, if an author in Washington deposits a copy of a preprint in the Congressional Library, this document is available (after delay for cataloguing and other necessary "red tape") to all zoologists in and near Washington, and it is also available to any zoologist in South Africa who will buy a steamer ticket to an American port and a railroad ticket from there to Washington. But is this reasonable availability from the viewpoint of the zoological public? If this be acknowledged as "playing the game" fairly with the profession—a point I am so narrow-minded as not to support—then it is logical to accept as publication the deposit (in a public library) of a single copy of typewritten or photostatic manuscript, or of duplicate proof (either galley or page) as a preprint, months before the journal appears. This is surely a practical *reductio ad absurdum*, however theoretically correct it may be.

In connection with the general subject of "separata," may I invite attention to the enormous amount of waste to the profession, in time and energy, due to that invention (by some "printer's devil") known as "repaging" of reprints. Just why it is that publishers continue this vicious system which causes so much trouble and expense, I can not understand—but I am not a printer, therefore I do not look through the "book-maker's" spectacles. My view may be narrow and due to gross ignorance, but I labor under the impression that any factor (such as repaging, double-paging, etc.) which decreases the practical value of a document to the user can best be discontinued.

(11) *Are sales catalogues zoological publication?* Think of the amount of printer's ink used in discussing this subject! From my viewpoint (right or wrong as it may be considered), sales catalogues are of two distinct sorts:

(a) Most sales catalogues (example, the noted Brookes,[5] 1828, catalogue) are intended as ephemeral documents addressed to an exceedingly limited audience; they are not on sale; and they are not documents intended as permanent records; therefore they are not zoological publication.

(b) In very exceptional cases (example, the first edition, 1798, of the Museum boltenianum) the sales catalogue appears to be utilized for the issuance and recording of scientific data. If placed on sale, it can be reasonably interpreted as zoological publication; if distributed *gratis* during the period when the exchange distribution of university theses reasonably met the demands of the profession, it can be reasonably interpreted as publication. But assuredly, if the Museum boltenianum were issued in 1927 (instead of 1798) and not placed on sale, it would not come within my conception of publication—even if it were sent to every conchologist in the world. In other words, a document like the Museum boltenianum seems to me essentially on the same status as a university thesis—publication in the period prior to 1800, but not in 1927. No sharp line can be drawn at a given date between 1799 and 1927; some cases must of necessity be decided more or less arbitrarily by a specially appointed jury. Let the jury agree or differ with me, I am prepared to accept the jury verdict, for I am a

[5] Brookes, 1828, Cat. Anat. and Zool. Mus. of Joshua Brookes, London, "a sales catalogue" ("Eighth days sale, Wed., July 23, 1828, at twelve o'clock").

firm believer in the legal maxim: *"Interest rei publicae ut sit finis litium"*—"it concerns the commonwealth (*publicus zoologicus*) that there be a limit to litigation [controversy]. Courts at law settle controversies about as frequently as they dispense justice, and some administrative decisions on cases of nomenclature and of publication are of necessity on this same general basis. Some court decisions are made on a very narrow margin which is subject to debate, and the same will always hold true in nomenclature and publication—but the important point is to obtain a decision and then accept it—in other words, "to play the game" with the profession.

(12) *Are society programs publication?* In answer to this question, I must use a witness's privilege in court, "Yes and no, and I will explain my answer."

The program of this meeting is free to everybody here, but it is not potentially and reasonably available to John Doe, protozoologist in Australia. Therefore, this sheet is not to be accepted as publication even were it to contain detailed abstracts of the papers presented.

But the moment this program is placed on permanent record in an annual volume offered for sale or in a journal, accepted as proper medium for publication, it becomes publication, and a new name thus printed would take date, *ceteris paribus,* as of the date of said journal—but not as of the date of this meeting.

Definition: On basis of the discussion thus far, but without expecting general agreement with me, I would define zoological publication theoretically as: *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.*

The theoretical vs. the practical: While it is not difficult to point out certain theoretical factors in answer to the question assigned to me for discussion, the practical side of enforcing these factors is an entirely different question. Two very important principles in particular are to be considered, namely:

First: The basic question must always be considered, *"How much does it cost?* In other words, a practical application of theoretical ideals depends largely upon available funds. Economic conditions can not be escaped, and with the increased cost of printing the problem of finding prompt outlet for manuscript becomes increasingly more difficult. In absence of sufficient endowment and of adequate commercial returns to publishers, it is not unnatural that authors have followed directions of lesser resistance and have issued manuscripts under standards of manifolding which are not always ideal. If they did not know better, the fault is not theirs but that of their teachers; if they did know better, but did the best they could under the circumstances, should we not endeavor to improve the circumstances rather than blame the authors? *Why should not scientific journals be endowed, as well as university chairs, as permanent memorials to persons?* If any of you wish to establish a memorial of this kind to your parents or to a son or daughter, I feel quite confident that I can mention at least two worth-while serials which would welcome an endowment—and both of them need it very seriously.

Second: A rule, regulation or standard, voluntary as to adoption, is of practical value in so far as it has the approval of the *populus.* In this connection attention may be invited to the fact that the zoological profession is composed of specialists, therefore of individualists, who have an inherited idea that science must be free and untrammeled and who are occasionally somewhat inclined (I speak from personal experience in nomenclature) to resent decisions which are not in harmony with their own personal views. With all due respect I would good-naturedly invite attention to the fact that the words "freedom" and "disregard of propriety" are not synonyms.

The profession is not prepared to bow to the views of any one person, but I am persuaded that much good could be accomplished gradually if the International Zoological Congress would appoint a special "Commission on Principles and Practices of Publication" and assign to it the duty of studying this problem from the viewpoints of theory as well as from the practical economics existing in various countries, to determine in how far standards can be internationalized and in how far it would be feasible to reduce the present widespread waste (of publication space and subscription funds) by concentrating the present much-duplicated reviews into fewer journals, thereby releasing more much desired space for original contributions.

Such a commission could classify the current zoological publications in various groups, on a percentage basis or, let us say, as

Class A: Publications printed in or with summaries in certain languages, placed on sale, with a minimum edition of n copies, and with a free list of r copies at least x of which are sent abroad.

Class B: Publications placed on sale, printed in or with summaries in certain languages, with a minimum edition of n copies, but with no free list.

Class C: Publications printed in languages not ordinarily understood and with no summary in more generally understood languages.

Class D: Publications with editions composed of less than n copies.

Various combinations of important characters could be made and publishers would sooner or later endeavor to bring their works into the higher grades as defined

by the commission, while two or more periodicals would probably unite, in many cases, in order to improve their standards, and some of the struggling serials would probably die a natural death more promptly than occurs at present.

Further, the commission could hand down opinions in respect to cases in doubt as to whether a given document is or is not to be accepted as published.

Self-understood, it would take time to obtain practical results. Civilization was not made in a day, and important reforms are developed by evolution rather than by revolution. A campaign of education by the commission would, however, work up a general sentiment in the profession in favor of the view that for the good of science publications should line up to certain prescribed standards of "playing the game" with the profession.

I have sufficient faith in the zoological profession to feel that a systematic campaign of education by an international commission, authorized by the congress and carefully selected as respects its personnel, would accomplish more good in standardizing the *sine qua non* of zoological publications than will any amount of individual essays or debate dealing with this subject which, year by year, is becoming a more complicated, more serious and more practical subject.

C. W. STILES

U. S. PUBLIC HEALTH SERVICE

THE SEVENTH CRUISE OF THE NON-MAGNETIC YACHT "CARNEGIE"

THE non-magnetic yacht *Carnegie,* of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, resumed on May 1, from Washington, D. C., the magnetic and electric survey of the oceans. Thus the plans visioned in 1904 under the enthusiastic and energetic directorship of Dr. Louis A. Bauer for the world-wide magnetic and electric survey will be further realized and the results already obtained will be greatly enhanced. This work was begun during 1905 to 1908 on the chartered brigantine *Galilee* in the then magnetically unexplored Pacific under the command, respectively, of J. P. Pratt for the first cruise and of W. J. Peters for the second and third cruises. With the completion of the specially designed yacht *Carnegie* in 1909 the survey was continued with greater efficiency, because of non-magnetic construction of the vessel and of the steady evolution of suitable instruments and observational methods, in all oceans during 1909 to 1921 under the command, respectively, of W. J. Peters for cruises I and II, of J. P. Ault for cruises III, IV and VI, and of H. M. W. Edmonds for cruise V.

Cruise VII of the *Carnegie,* to continue for three years during 1928 to 1931, will cover all oceans and will add 110,000 miles to the total of 290,000 miles already traversed by the vessel's first six cruises. Besides continued magnetic and atmospheric-electric investigations as heretofore with improved apparatus, determinations of natural marine electric-currents will be attempted as well as an extensive schedule in physical and biological oceanography.

The proposed increase in program is made possible through the addition of two to the scientific personnel which will total eight men. These and their special fields of activity are: Captain J. P. Ault, commander and chief of scientific staff; Wilfred C. Parkinson, senior scientific officer, atmospheric electricity and photography; Oscar W. Torreson, navigator and executive officer, magnetism, navigation and meteorology; F. M. Soule, observer and electrical expert, magnetism and physical oceanography; H. R. Seiwell, chemist and biologist, oceanography; J. H. Paul, surgeon and observer, medical work, meteorology and oceanography; W. E. Scott, observer, navigation and commissary; Lawrence A. Jones, radio operator and observer, radio investigation and communication. The sailing staff will consist of 17 men, making the total number of men on board 25; of the sailing staff, A. Erickson, first watch officer, C. E. Leyer, engineer and F. Lyngdorf, steward, occupied similar positions during the entire two years of the *Carnegie's* last cruise.

The necessary reconditioning of the vessel was completed last summer at Hoboken, New Jersey. The proposed program requires a great amount of instrumental equipment. Many improvements have been made by the department's shop in the magnetic and atmospheric-electric apparatus used on cruise VI; chief among these are the arrangements for electromagnetic determinations of magnetic inclination and intensity and for photographic registration of atmospheric potential-gradient. The oceanographic equipment includes an improved type of Wenner's electrical salinity apparatus made in the department's shop, Richter and Wiese thermometers and water-bottles, Nansen water-bottles, special non-magnetic winch with 6,000-foot and 20,000-foot aluminum-bronze cables for depth-work, sonic depth-finder loaned by the United States Navy Department, chemical and biological apparatus, silk meter and half-meter plankton-nets, various types of bottom-samplers and necessary appurtenances. The meteorological instruments are in general of the recording type and a special program of observation and control has been arranged. At Plymouth and at Hamburg additional recording wet- and dry-bulb thermograph and