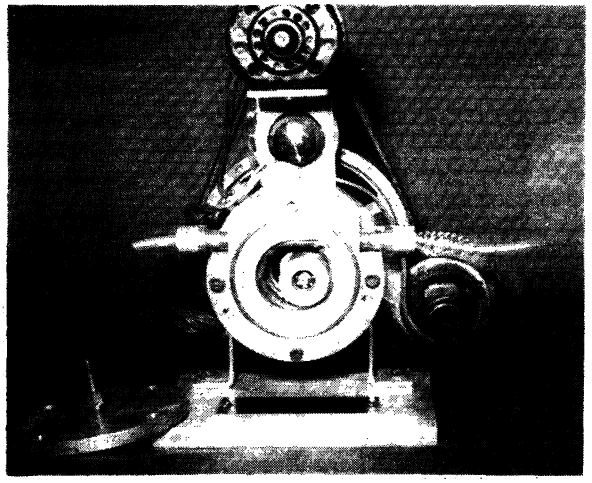

FIG. 1. Pump with casing cover removed to show eccentric rotor and loop of tubing. Motor above and generator-tachometer (used to indicate flow rate) at right.

closing the roller and a section of the tubing in a vacuum. The pump was designed to use 3/16″ ID .032 wall medical-quality, clear polyvinyl tubing.[2] This tubing is hemo-repellent, may be sterilized by autoclaving, and does not initiate clotting. The pump is so designed that a continuous length of tubing may be passed from the blood source, through the pump, and back to discharge point. Simple seals prevent air leakage at the points where the tubing enters and leaves the pump, and at the roller drive-shaft bearing. A vacuum is maintained within the pump by suction applied to a nozzle on the airtight casing cover. Within the vacuum, a roller, mounted eccentrically, operates on a circular loop of tubing. The pump, with casing cover removed, is shown in Fig. 1.[3]

As used during the past year, this pump, driven by a 1/10 hp electric motor, has delivered flow rates from under 100 ml/min to 1200 ml min. Using brass arterial cannulas coated with the nonwetting surface "Arquad 2C,"[4] it has circulated the blood of the nonheparinized, living dog for 2½ hr without evidence of clotting. Although we have not had occasion to extend this period of operation, there seems to be no reason why it could not be used for a considerably longer time. However, tubing wear and cracking appear after 5–6 hr of continuous operation. Replacement of worn tubing is simple.

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[2] Supplied by Fenwal Laboratories, Inc., Framingham, Mass.
[3] Engineered and manufactured to order by Halm Instrument Co., Glen Head, N. Y.
[4] Supplied by Armour, Inc.

The Scientist and the Library Cataloger

From *Physics Today*, Vol. 4, No. 1, 28–29, January, 1951. "A Report From Washington: Library of Congress Science Division," by Dwight E. Gray:

> It is inherent in the very idea of dividing things into categories that a classification system which is highly satisfactory according to one criterion is bound to be quite unsatisfactory on some other basis; that is to say, one man's orderly arrangement may be another's hodgepodge. A physicist, a chemist, and an engineer, for example, might wish respectively to classify a given group of substances on the basis of their physical properties, their chemical compositions, and their industrial applications, and the grouping of no one of the men would be wholly satisfactory to the other two. Or, a breakdown of college coeds according to intelligence quotients might be very useful to the dean but quite worthless to the man-about-campus whose major classification categories in this discipline are blondes, brunettes, and redheads. In other words, the best classification system for any given situation—whether for people, objects, or ideas—is simply the one that experience shows is the most useful.

THE title above should read perhaps "The Scientist versus the Cataloger," for the relationship between the scientist and the cataloger has often been one of estrangement and opposition and not one of understanding and cooperation. But, is it not time that the nature of this relationship be changed from mild opposition or at least lack of understanding to effective collaboration and mutual respect.

Every scientist who publishes a book, be it a monograph, textbook, or laboratory manual, must realize by now that his work will find itself among the other books in some library or libraries, where the books are arranged by subject usually according to the Dewey Decimal, the Library of Congress, or the Brussels classification system. The foreknowledge that the book will be classified by subject provides an opportunity for the scientist to suggest the specific subject under which he would like to see his work placed. That some books do not find the correct subject or the most useful classification is an evidence of utter lack of cooperation between two fields of endeavor that somehow should be joined.

A striking example is adduced for its recency without any criticism aimed at the particular author or the librarians who classified his book. The recent suggested classification of Roberts Rugh's "The Frog; its Reproduction and Development" (1951) by the Library of Congress with books on frogs and not with books on embryology as the specific subject is an evidence of the lack of cooperation between the scientist and the cataloger.

But this cooperation might have existed, if Mr. Rugh could in some manner or other have explicitly indicated that the book in question was best classified with other books on embryology.

The example is perhaps not the most apt but librarians who work with scientists know of many others.

It is suggested that cooperation between the scien-

tist and the cataloger before the cataloging process begins would constitute a guarantee against any book being placed in a secondary or outright useless category.

The cataloger would doubtless welcome the suggestions of the scientist for whereas the specialist thoroughly understands his own subject the cataloger of necessity must range through a myriad of subjects. That the cataloger cannot be a specialist in every branch of the physical and social sciences must be fairly admitted.

Could the librarians interest the scientists in thinking about the subject classification of their works?

ROGER J. POULIN
Nesmith Library, University of New Hampshire

WITH Mr. Poulin's general aim of collaboration between the scholar and the cataloger there can certainly be no objection. Indeed the Library of Congress makes a considerable effort to have special subject knowledge represented in its staff, both in the reference and cataloging activities. It collaborates with organizations of specialists in a number of activities, and suggestions for extending this collaboration are always welcome.

Implicit in part of Mr. Poulin's statement, however, is an assumption which we believe is unsound, namely, that the classification of any given book in any given classification scheme is a matter of absolute precision; that is, that there is one correct number and no other. In many cases, this assumption is warranted, but in many others it is not. The latter are those of works which deal with more than one subject; or with one subject in more than one aspect; or that treat a general subject by means of specific illustration; and so on. In all of these situations we believe it is not possible to maintain that there is one best number, even from an abstract point of view, and clearly not from the point of view of the best placement of a particular book in a particular collection.

On the basis of this general proposition, we believe that there is a case for classifying the Rugh monograph on the frog either with works on the Salientia (QL668.E2) or with the embryology of vertebrates (QL959). It happens that the Library does not want to press the case in this instance, for our review of the book shows that QL669 (Batrachia—Anatomy & Physiology) is clearly incorrect and that QL668.E2 (Frogs and Toads) would not have been in accordance with our prior decisions in this field of knowledge. Mr. Poulin has called our attention to an error and we are accordingly reclassifying the book in QL959 (Embryology).

From a general point of view, however, it seems to us that there is some validity to another possible classification decision, namely, that all works on frogs go with frogs and that the section on embryology be reserved for works dealing with the embryology of more than one genus. In other words, if there is a library whose users would be better served by such a grouping, we would not hold it "wrong" classification. In the Library of Congress there are no doubt a number of such decisions that have proved to be unwise in the light of later developments. Some of these can not be changed for a practical reason: the cost is out of proportion to the benefit when weighed against other work load requirements. There are other decisions which we might have to insist were better in relation to our particular needs, even against expert opinion—with which we might well agree—that different decisions were better abstractly or in general.

It follows from these observations that, while the Library would welcome the opinion of writers and scholars on the classification of particular books (in the present case, Dr. Rugh's statement is unexceptionable from this point of view) it would want writers to understand that its departures from their recommendations should be attributed to differences of need and of judgment and not to wilfulness or—except very rarely we hope—ignorance.

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Book Reviews

Dental Anatomy: Including Anatomy of the Head and Neck. 3rd ed. Moses Diamond. New York: Macmillan, 1952. 471 pp. + plates. $15.00.

The author of this book has divided his subject into 20 chapters covering the complete anatomy of the head and neck regions in relation to the dental apparatus. His principal object is a detailed description of the morphology of each of the individual teeth to facilitate the art of dental reproduction.

For the purpose of describing each of the individual teeth, Dr. Diamond has established a basic tooth form that he has chosen to call the "symmetrical tooth form." This he has done by the elimination of variations and anomalies which individualize a particular crown. The description of the symmetrical crown form is subsequently built up from a description of the segmental portions and their arrangements as they comprise the whole. This basic form has been established for each of the 32 adult teeth.

The author's descriptions are clear and concise, although he has deviated slightly in some instances from the current nomenclature. In addition to the detailed description of each tooth, he has presented a systematic technique for reproducing the symmetrical crown