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# MATHEMATICIANS, AND POETRY AND DRAMA[1]

By Professor RAYMOND CLARE ARCHIBALD

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IN general reading for a number of years I have been interested in accumulating information concerning, firstly, those who had not only achieved something noteworthy in mathematics but had also written verses or dramas; secondly, poems about mathematicians; and thirdly, the numerous incidental citations of mathematicians in poetry by poets of more or less distinction. Such general reading has not been confined to any one language, and translations of poetical or dramatic work of mathematicians were within the scope of my search. The large amount of material collected is in more than a score of languages, from the time of Pythagoras and his "Golden Verses"[2] down to the present. It is my purpose to give you some idea of the nature of this material. I am not aware that any one else has previously discussed this general theme.

The relations between poetry and mathematics have been considered by a number of writers;[3] but this is

[1] Address of the retiring vice-president and chairman of Section L (Historical and Philological Sciences), American Association for the Advancement of Science, delivered at a joint meeting of Sections A and L, of the American Mathematical Society and of the Mathematical Association of America; illustrated by 22 lantern slides. Richmond, Va., December 28, 1938.

[2] See, *e.g.*, "The Life of Pythagoras, with his Symbols and Golden Verses together with the Life of Hierocles, and his Commentaries upon the Verses. Collected out of the choicest manuscripts and translated into French, with annotations. By M. Dacier. Now done into English. The Golden Verses translated from the Greek," by N. Rowe. London, 1707. Greek text and Rowe's translation, pp. 149–164 + i–xi. "Pythagoras," a play by Martin Slaughter, was first acted in London in 1596.

[3] E. J. Wilczynski, "Poetry and Mathematics," *The University Chronicle*, 3: 191–204, 1900; read at the annual meeting of the Science Association May 2, 1900. I. Ionescu, "Matematica si poezia," *Gazeta Matematica*, 17: "Suppliment," pp. 1–3, May 15, 1912. D. E. Smith, (a) "Mathematics and Poetry," Florence, 1922, 8 pp.; (b) "Poetry of Mathematics," *Mathematics Teacher*, 19: 291–296, 1926; (c) "The Poetry of Mathematics and other Essays," New York, 1934, "The Poetry of Mathematics," pp. 1–13; contains practically all of (a). S.

referring to the whole roll of film which it contains. These data may include catalogue number or other designating mark of the roll, date and place of taking, photographer, kind of film, type of developer and ony other pertinent information.

Sheets of paper giving catalogue data, printing time for each negative or any other notes may be placed in the same envelope with the film. These data sheets are best made slightly smaller than the envelopes so that they may easily be inserted or removed. A convenient size is $3\frac{5}{8}$ by $8\frac{1}{2}$ inches.

Film strips of any of the smaller sizes can be kept in the envelope described above. In a No. 10 envelope any width of film up to $3\frac{1}{4}$ inches can be accommodated. Envelopes containing films of different widths may of course be filed together.

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The packages of envelopes with their enclosed film strips may be filed in any manner desired, either in boxes or drawers. They fit nicely lengthwise in the drawers of filing cabinets designed for 4 by 6 cards.

The ease with which the film strips are inserted into and removed from the envelopes, the excellent protection given the film, the cheapness of the envelopes and the possibility of keeping as much data as may be needed with the negatives or microfilm records are the advantages of this simple method of filing films.

LEE R. DICE

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## CONTROL OF MOLD IN FOOD FOR DROSOPHILAE

IN many genetics laboratories where Drosophilae are used for breeding purposes food is still made with bananas as one of the principal ingredients. Banana food molds easily, and when it is kept for more than a day or two the mold usually gets started before the flies have time to produce larvae. The result is that often the flies do not breed well. In this laboratory molds of various species are exceptionally abundant, due largely to climatic conditions. The offenders are usually species of Rhizopus, Mucor and Aspergillus. Conditions have been so unfavorable that a special study was made for controlling molds in general. Contamination seemed to be from various sources, so that more than one method of control was necessary. Food is now made as follows with very pleasing results:

In a pyrex beaker 750 cc of water and 75 cc of white Karo syrup are mixed. To this is added 20 grams of shredded agar. The mixture is boiled until the agar is liquefied. In a separate container two medium-sized bananas are crushed and 25 cc to 30 cc of 95 per cent. alcohol is added. The bananas and alcohol are well stirred and allowed to stand about twenty minutes and are then added to the water-syrup-agar mixture after this mixture has quit boiling and has cooled to about 90 degrees Centigrade. The food amounts to about one liter in volume and is ready for bottling immediately. It is best to autoclave the bottles and cotton plugs, but this is not absolutely necessary. Since alcohol has been added already, it is not necessary to spray the food with yeast, as is done in some laboratories; and since no yeast is present carbon dioxide is not formed. The food adheres well to the bottom of the bottle and the flies do not stick to it easily. It has been kept in this laboraory almost two weeks without being covered with mold; however, when the bottles are not autoclaved contamination may appear within four or five days.

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## BOOKS RECEIVED

BUROS, OSCAR K. *Research and Statistical Methodology; Books and Reviews, 1933–1938.* Pp. vi + 100. Rutgers University Press. $1.25.

*Comité National Français et Comité National Marocain de Géodésie et Géophysique; Années 1933–34–35–36.* Pp. 408. Comité Français, Paris.

EVANS, JAMES H. *Constructive Metal Work.* Pp. viii + 95. Illustrated. Arnold, London. $3.00.

FRAZER, R. A., W. J. DUNCAN and A. R. COLLAR. *Elementary Matrices and Some Applications to Dynamics and Differential Equations.* Pp. xvi + 416. Illustrated. Cambridge University Press, Macmillan. $8.50.

*Inventory; An Appraisal of Results of the Works Progress Administration.* Pp. 100. Illustrated. The Administration, Washington.

KRUMBEIN, W. C. and F. J. PETTIJOHN. *Manual of Sedimentary Petrography.* Pp. xiv + 549. 265 figures. Appleton-Century. $6.50.

LOWER, A. R. M., W. A. CARROTHERS and S. A. SAUNDERS. *The North American Assault on the Canadian Forest; A History of the Lumber Trade between Canada and the United States.* Pp. xxvii + 377. Yale University Press. $3.75.

NAGEL, ERNEST. *Principles of the Theory of Probability; International Encyclopedia of Unified Science, Vol. 1, No. 6.* Pp. vii + 80. University of Chicago Press. $1.00.

NEEDHAM, PAUL R. *Trout Streams; Conditions that Determine their Productivity and Suggestions for Stream and Lake Management.* Pp. x + 233. 74 figures. Comstock. $3.00.

RAISZ, ERWIN. *General Cartography.* Pp. x + 370. 200 figures. McGraw-Hill. $4.00.

STANDLEY, PAUL C. *Flora of Costa Rica;* Botanical Series Vol. XVIII, Part IV, November, 1938, Publication 429. Pp. 1137–1571. Field Museum of Natural History. $2.50.

WILLIAMS, JOSEPH J. *The Maroons of Jamaica;* Vol. III, No. 4, of Anthropological Series, Boston College Graduate School. Pp. 379–480. Boston College Press. $1.00.