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THE PUBLIC RELATIONS OF SCIENCE[1]

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UNTIL recently the attitude of the public toward science seemed to be growing more appreciative. There have always been folk who objected strenuously to the supposed implications of certain scientific hypotheses, but on the whole science was generally esteemed the most progressive factor in culture, man's best hope for bettering his lot upon earth. Of late this tide of approval has ebbed. There is a widespread disposition to hold science responsible for the ills men are bringing upon themselves—for technological unemployment, for the rise of autocracies, for the suppression of freedom, for the heightened horrors of war. For their part, scientific men are appalled at the hideous uses to which their discoveries are put. They feel an urge to combat the misuses of science, to protect the social values they cherish, but what they can do is not clear. The quandary is one that all who cherish science should face, however unwelcome and difficult the task. I offer no apology for asking your attention to a discourse of uncertain issue on an unpleasant theme thrust upon us by developments we deplore.

[1] Address of the retiring president of the American Association for the Advancement of Science, Columbus, Ohio, December 27, 1939.

I

Let me start by recalling certain changes in the relations of science to society that may help us see our present problems in historical perspective.

The beginnings of scientific knowledge have been traced to man's dealings with the implements of his daily life—the sticks and stones, the skins, fibers and clay he shaped to his uses, and in the shaping learned to know. Human beings are born speculators; even the simplest cultures have their explanations of matters that puzzle us to-day—diseases, weather changes,

PROTECTION OF HERBARIUM SPECIMENS

THE use of Cellophane or any similar substance as a protective covering for herbarium sheets may not be an entirely new idea; the extent to which it is employed, however, may be readily determined by a visit to any one of the large Herbaria of this country. It would appear that some such method of covering would find greater application if a simple way of sealing the cover to the herbarium sheet were available. In schools and colleges where herbarium specimens are much used for teaching purposes it is often found that the friable nature of dried specimens is very much of a drawback to their full employment. It is possible that no satisfactory method of fixing a transparent cover over herbarium sheets has so far been introduced, so that the following particulars may prove of service to those concerned with the use or care of such specimens.

The actual covering material used by the writer has the trade name of "Flexiglass." It is a non-inflammable Cellophane-like synthetic substance, perfectly transparent and tough. It is obtainable in various thicknesses from most of the firms dealing with the usual laboratory supplies. From 1/20 mm to 1/10 mm is the range most suitable for the present purpose. If a standard size of mounting-sheet is used the Flexiglass may be purchased ready cut to the required dimensions or it may be bought in rolls for cutting to any odd sizes.

The firm of Offrex Ltd., 15 Newman Street, London, W.1., has placed on the market a very simple type of instrument called the Offrex Edge Binding Machine. This is easily operated and provides an excellent means of fixing the Flexiglass to the ordinary herbarium sheet. Particulars for operating the machine, a very simple process, are supplied with it.

A piece of the Flexiglass is cut to the size of the herbarium sheet in use and the dry specimen covered with this. The edges of the sheet and the cover, in register, are run through the machine and the edges thus bound together with tape. A range of colored tapes is available. An intelligent boy can bind up a sheet in about two minutes if supplied with ready-cut Flexiglass.

The initial cost of the machine with a supply of tape and Flexiglass amounts to about £4. The machine itself will, of course, serve many useful purposes, such as rebinding worn separates, strengthening wall diagrams, etc., and will last for years. The Flexiglass covering will be found to improve considerably the appearance of the specimens as well as protecting them from injury in handling or storage. The thicker material may be used for any valuable or delicate specimens that need to be stiffened as well as covered.

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MARKING ROCKS, MINERALS AND FOSSILS

CELLULOID dissolves in acetone in almost any proportion. Both substances are cheap and abundant. The celluloid, preferably clear, colorless, but discarded from other uses if need be, is chipped with scissors and dropped piece by piece into a wide-mouthed ground-glass-stoppered bottle until the solution attains the desired consistency (about that of thin mucilage). More of either can be added if, after trial, the consistency is not quite as desired.

Numbers or name labels are prepared by printing with india ink on good linen paper. Paper can be trimmed from waste letter heads of wealthy firms for economy's sake. When labels are made and ink is dry, use a small camel's-hair brush or even a toothpick to lay upon the specimen a small patch of the solution larger than the label. Before it dries press the label into the solution. As the acetone evaporates a celluloid film is left between the specimen and the paper. When the first application is about dry, spread a layer of the solution over the label and bordering solution and let all dry completely. There is then a "capsule" of celluloid firmly attached to the specimen with the label inside. It can be washed and handled with impunity. A series of specimens may be given the first step and allowed to dry before starting the second step.

Some of the more porous rocks as clays and infusorial earth sometimes release the celluloid unless a little shellac or varnish is first applied and dried.

This labeling material finds other uses in geologic laboratories. It has been used to make impressions of fossils and sections of surfaces by spreading it over a surface and, when dry, stripping it off, thus making a delicate, exact film of the fossil surface.

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BOOKS RECEIVED

ARTHUR, PAUL. *Lecture Demonstrations in General Chemistry.* Pp. xvi + 455. 113 figures. McGraw-Hill. $4.00.

Aspects of the Calculus of Variations. Notes by J. W. GREEN after Lectures by HANS LEWY. Pp. vi + 96. University of California Press, Berkeley. $0.75.

BENNETT, HUGH H. *Soil Conservation.* Pp. xvii + 993. 358 figures. McGraw-Hill. $6.00.

BORGSTRÖM, GEORG. *The Transverse Reactions of Plants.* Pp. 230. 58 figures. Ejnar Munksgaard, Copenhagen. 6 kr.

Cambridge Philosophical Society, Proceedings. Volume 35, Part 4. Pp. 527–663. Cambridge University Press. 10/6.

CHENOWETH, LAURENCE B. *School Health Problems.* Second edition. Pp. xii + 419. 115 figures. Crofts. $3.00.

LAPAGE, GEOFFREY. *Nematodes Parasitic in Animals.* Pp. x + 172. Chemical Publishing Co. of N. Y. $1.75.

LOEB, LEONARD B. *Fundamental Processes of Electrical Discharge in Gases.* Pp. xviii + 717. 297 figures. Wiley. $7.00.