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SCIENCE AND THE NATION[1]

By Sir WILLIAM BRAGG

MANY events conspire to make the past year notable in the history of our society. Reference has been made to the majority of them in the Annual Report of Council, usefully supplemented by the Notes and Records which we continue to owe to our past treasurer, Sir Henry Lyons. I do not propose to speak of them in detail, but on this occasion it does seem fitting to give further attention to one or two general matters of lasting interest.

One of these is personal. Fellows will have noted the long list of those whom we have lost, and the great names which the list contains. I have felt as I have been reading it that I have turned over the last leaves of a chapter that stands by itself. The present generation is quick to honor the names of J. J. Thomson and Oliver Lodge, but they can not remember, as we older men can, the brilliant years when these men and their contemporaries were writing the chapter's first pages. What they wrote was eagerly read, their lectures were rapt attention; they were the pioneers, and the scientists of that time, nearly half a century ago, streamed after them. All that is now a memory. The years have slipped away since their work was done, and we now look back on it and see it as a separate entity, a noble event in the history of science, and of British science in particular.

There is no vestige of sadness in such a retrospect, nor any trace of feeling that our pride must be founded only on what has passed. I am sure that all those who like myself can recall the long years, and compare those that have gone by with those that are still ours, will say happily and proudly that our young men of to-day are maintaining in full force the tradition that they have received. They are writing a new chapter;

[1] Address of the president of the Royal Society at the Anniversary Meeting, November 30, 1940.

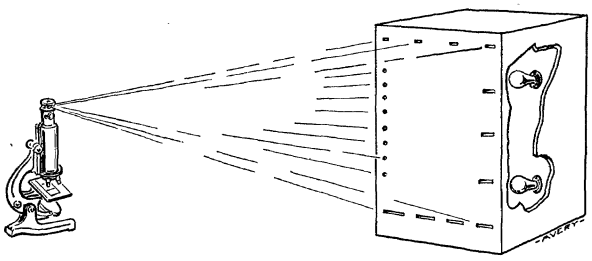

FIG. 1

made. For measuring in tenths of a micron, the scale consisted of a series of slits 1 mm in width and of various lengths. The length of each slit was calibrated so that the length of its image as seen through the camera-lucida corresponded to the length of the image of an object of known size when the object was placed on the stage of the microscope. The scale for reading in microns was made up of holes spaced at proper intervals along a line.

A stage micrometer was used to determine the proper lengths of the slits for reading in tenths of a micron, and for determining the proper spacing of the holes for the micron scale. To accomplish this calibration, the light-box was covered with a piece of cardboard upon which two points were determined to coincide with the images of two rulings on the stage micrometer when viewed through the camera-lucida. Using the known distance between these two points on the cardboard as a standard, the relative lengths for the slits desired were determined by subdividing the distance between the points with a pair of dividers. In making the slits as accurate as possible, holes were first made in the cardboard and the sides of the slits formed by strips of paper pasted over the edges of the holes.

In measuring with the apparatus, the object to be measured was moved about on the stage of the microscope and the dimensions of its image were compared with the lengths of the light-bars seen through the camera-lucida. Since the length of each light-bar represented a known value in tenths of a micron, readings were made direct.

While this apparatus was designed to measure anaplasms, which are less than 1 micron in diameter, it could well be adapted for measuring other microscopic objects. In order to facilitate the measuring of other than spherical objects, it is advisable to use either a microscope equipped with a rotating stage or to design the scale so that it can be rotated, in order to orient the object to be measured with respect to the appropriate light-bar or hole.

JOHN C. LOTZE
MARVIN J. YIENGST
U. S. BUREAU OF ANIMAL INDUSTRY

A SIMPLE DUPLICATOR FOR LABELING SLIDES

THIS duplicator (see Fig. 1) operates on the principle of the mimeograph. It may be made by gluing a thick layer of felt on the flat surface of a block of wood and covering it with a fine meshed cloth fastened to the sides of the block. Mimeograph ink is applied

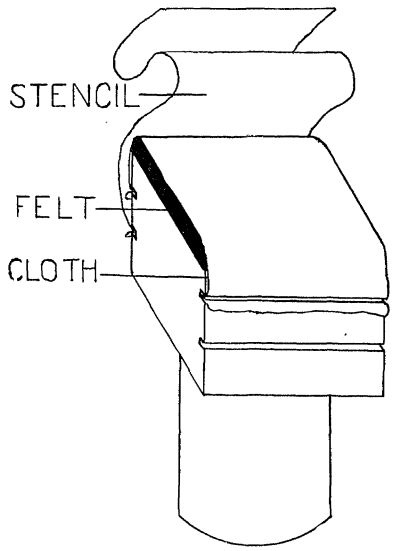

FIG. 1.

to the pad with a brush. A mimeograph stencil of desired size is typed or cut with a sharp stylus and fastened over the surface of the pad. In addition to print, descriptive sketches may be included in the label. The printing is done by touching the duplicator lightly to the surface of the label either before or after the label is pasted on the slide. Excess ink should be removed with a blotter inasmuch as only a limited amount of ink is absorbed by the label. As many as two hundred labels may be printed without reinking. The method may be employed for printing small specimen labels, blanks for collection data, etc. Larger pads may be used for other similar purposes.

PAUL H. RALPH

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BOOKS RECEIVED

COPPOCK, JOSEPH D. *Government Agencies of Consumer Instalment Credit.* Pp. xxii + 216. National Bureau of Economic Research. $2.50.

MASLOW, A. H. and BELA MITTELMANN. *Principles of Abnormal Psychology.* Pp. x + 638. Harper. $3.50.

Naturalists' Directory. 32d edition. Pp. 292. Cassino Press, Salem, Mass. $3.00.

Texas Archeological and Paleontological Society, Bulletin, September, 1940. Pp. 252. 44 plates. The Society, Abilene, Tex. $3.00.