This is the first year in which grants from the Clark Fund have been available. It is founded on a bequest from Joseph H. Clark, '57, who provided that "the income shall be devoted to the encouragement and advancement of original research."

Dr. Frank B. Jewett, electrical engineer, of New York City, and Professor Edwin F. Gay and Professor William M. Wheeler, both of Harvard, make up the committee to advise the president and fellows in selecting purposes for which grants are made.

SCIENTIFIC APPARATUS AND LABORATORY METHODS

A MODIFIED FORM OF KUNDT'S TUBE

IN this form of Kundt's tube the air column is set in vibration by a reed from a mouth organ; the reed being actuated by a blast of air. The cork to which the reed is attached is moved back and forth in the glass tube by means of a hollow brass rod which also conducts the compressed air to the reed. At the nodes the vibration of the reed is dampened while

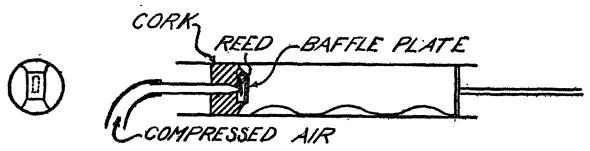

FIG. 1

at the loops, the intensity increases greatly. Thus a large class can listen to the change in intensity. The shadows of the cork particles in vibration may also be projected upon a screen. The success of this instrument is due to the introduction of a baffle plate in front of the reed by Lee Fullmer of our laboratory. This leaves two small rectangular openings in front of the reed, which are actually the sources of the vibrations transmitted to the air column. Therefore as the reed is moved back and forth it never quite ceases its vibration as it would do if unprotected. The cork which holds the reed fits loosely in the glass tube so that air escapes past it when the compressed air is turned on.

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AN INEXPENSIVE GLASS MARKING PENCIL

A VERY satisfactory substitute for the diamond pencil generally used for marking glassware may be easily made from an ordinary file. A six-inch round file is most convenient, but the triangular variety will serve. To make the pencil, the tang of the file is broken off, and the large end of the body is ground to a point. It is then heated to a bright red, and rehardened by plunging into mercury. Triangular points with sharply cut facets have given the best results of the various styles tried. Round points require heavier pressure for marking and appear to be less durable. It is important that the slope be rather short and that the angle between facets at the point be not less than ninety degrees. Long sloping needle-like points have a gouging action that makes neat marking impossible. About an inch of the file should be heated in a Fisher burner, and the cutting point should be kept out of the flame till the portion back of it is red-hot. The hardening operation is best done in a hood to avoid danger of inhaling mercury vapor. A pyrex test-tube is convenient for holding the mercury, and if a number of the pencils are being made, it may be placed in a water or ice bath.

The writer has tested a number of these markers in comparison with a splint diamond and one of the new tungsten carbide pencils, and has found them entirely satisfactory. It is to be expected that the steel pencils will be less durable than the diamond or the tungsten carbide markers, but they will apparently outlast the ordinary carborundum point. One of them has been used for making over five hundred single letters or figures without marked evidence of wear, while another which was not retempered but was ground carefully to maintain the hardness of the file made barely a dozen. The cost is but a fraction of the usual price for the other pencils, and a worn point can be resharpened or a new one made in about ten minutes.

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SPECIAL ARTICLES

THE EFFECTS OF ULTRA-VIOLET LIGHT ON PARAMAECIUM

PROBABLY one of the most interesting problems which has ever presented itself to the physicist and the biologist alike is the effect of ultra-violet light on organisms of all kinds. Little effort seems to have been directed, however, on the well-known infusoria *Paramaecium*. In a series of experiments recently performed by the writer a number of interesting phenomena were observed.