wherever a sensitive mercury relay is required. The total cost of this relay is less than two dollars.

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HOLLOW-GROUND SLIDES FOR WHOLE MOUNTS MADE WITH THE DENTAL ENGINE

THE customary method of making slide mounts of whole specimens requires supporting the cover glass to prevent crushing the specimen, and results at best in a thick preparation which hardens slowly and is easily damaged. Commercial hollow-ground slides are satisfactory in some cases, but their concavities are too large for many specimens and their costliness puts them out of the question for routine use. A simple solution of the difficulty is afforded by the use of a motor-driven flexible shaft and grinding tools, such as the well-known dental engine. Slides with depressions to fit any specimen may be easily and rapidly made as required. These mounts permit the cover glass to rest directly upon the surface of the slide, require a minimum of mounting medium and facilitate the orientation of the specimen. Where a number of specimens are to be mounted under one cover glass, as for example the successive stages of an insect, their arrangement in any desired position is made possible by grinding a depression for each specimen.

The essential apparatus for turning out these laboratory-made slides is an electric motor (that of an electric fan will serve), a flexible shaft provided with a chuck or "handpiece" into which may be fitted any of the dentist's arsenal of burrs, drills and abrasive devices. Of these the most generally satisfactory for grinding glass are the abrasive wheels, which consist of small disks of carborundum or other material mounted on a mandrel, and which are available in a variety of diameters, thicknesses and degrees of abrasiveness. Abrasive "points," *i.e.*, small carborundum spheres, cones and cylinders, may also be used, but are much less rapid than the abrasive wheels on account of their small diameter and hence low velocity of grinding surface.

The process of grinding a depression consists merely of placing a drop of water on the slide and applying the abrasive instrument. Very little spattering occurs. The most rapidly ground depression is the slot made by the edge of the carborundum wheel. A cavity of this shape is desirable for elongate specimens. By moving the wheel while grinding, a depression of almost any size and shape may be made, and rotating the slide on a turn-table produces a circular concavity similar to that of the ordinary hollow-ground slide. Where any considerable quantity of glass is to be removed the wheel is the most efficient instrument, though the small carborundum spheres which grind circular depressions with relatively steep sides give the neatest and most uniform results. An inspection of the grinding devices at a dental supply house or in a dentist's office will doubtless suggest at once the instrument appropriate for a given purpose.

These slides may be ground with a speed which permits their routine use for large series of class slides. For example, a slot-like depression suitable for a mature flea larva may be ground in ten to fifteen seconds, one for a mosquito larva in about thirty seconds, while the broader and deeper depression necessary to accommodate a bedbug may be ground in about a minute. The ground surface may be polished in a little more than the original grinding time, though polishing is usually unnecessary since the ground surface is nearly invisible when covered with the mounting medium.

Once a flexible shaft and its accessories are installed in the laboratory it will be found to serve any number of useful purposes besides grinding slides. Among these may be mentioned etching glass or metal, making the opening in egg-shells for the purpose of inoculating chick embryos, and grinding and shaping dissecting needles and other instruments under the dissecting binocular.

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