hand atomizer, or brushed on, and the slide is dried in a vertical position. Printing or tracing the desired information is then easily done on the roughened absorbent surface with pen and ink. India or other colored inks can be used with equal effect. When dry, the surface is again covered with the gum solution, preferably by means of the atomizer, and allowed to dry. It is then a permanent record which can, however, be added to directly or altered, simply by scratching out an unwanted area and starting again. When the slides are of no further use they can be easily cleaned with xylene and re-used.

ERNEST R. M. KAY
School of Medicine and Dentistry
The University of Rochester, Rochester, New York

A Slide-Projector in the Lecture Desk

A LANTERN slide projector that can be operated on the lecture desk by the lecturer himself has been on the market for many years. Laboratory furniture manufacturers, however, have not listed in their catalogues lecture desks into which such projectors will conveniently disappear for storage when they are not needed, and upon which they can easily be made to appear when wanted.

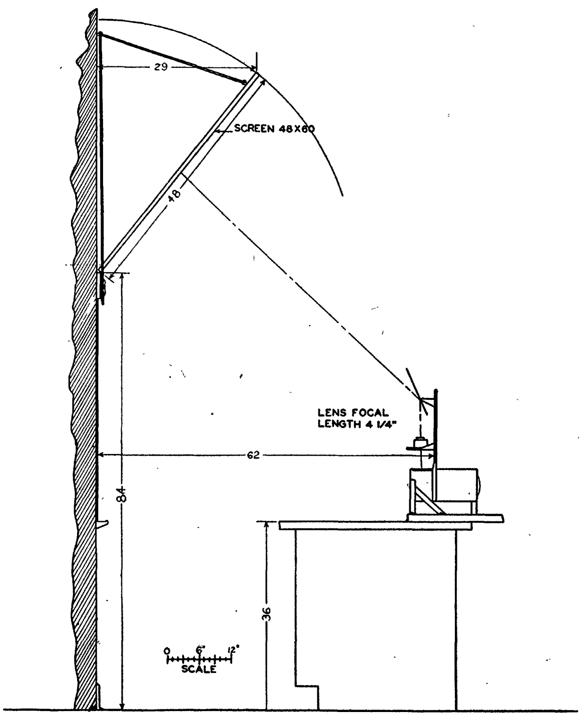

FIG. 1. Convenient locations of projector and screen for the lecture room.

A standard projector can be mounted in a lecture desk so that it can be made to disappear and leave the top of the desk completely flat and free of all obstructions.

In Fig. 1 are shown relative locations of projector

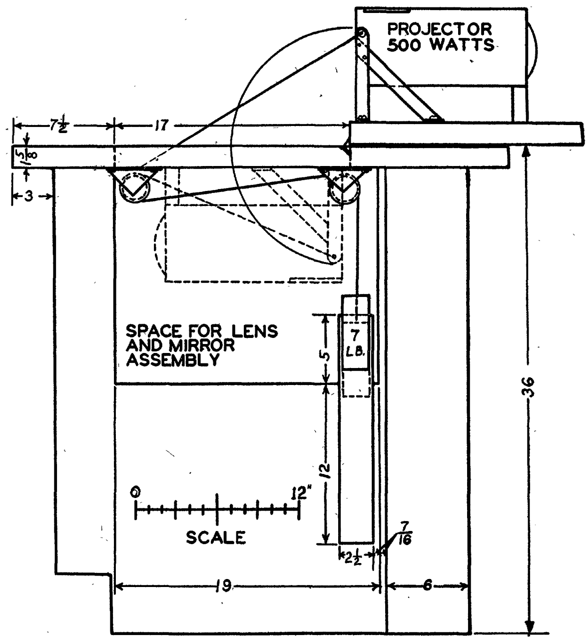

FIG. 2. Side view of projector well and counterpoise assembly.

and screen. The projector, screwed to the underside of the trap door, is shown in its operating position with the lens and mirror assembly in place. The screen, 48″ × 60″, is made of ¾″ five-ply board painted a flat white. It is mounted with three 2″ × 2″ butts on the top of the casing above the blackboard. A braided

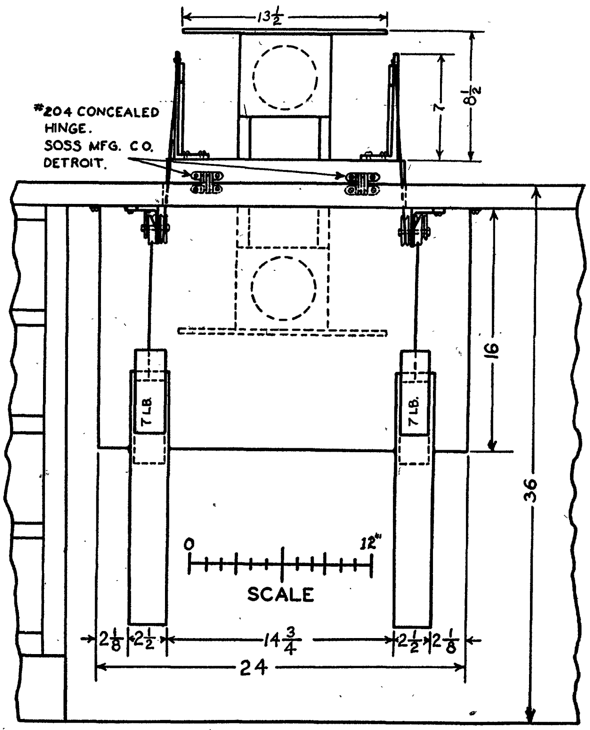

FIG. 3. Rear view of projector well and counterpoise assembly.

sashcord passing through a pulley permits the screen to be lowered into the operating position, in which it is accurately stopped by two chains, attached to the wall and the screen with screw eyes. At the distances shown in Fig. 1 a lens of 4¼″ focal length makes the image of a full standard slide cover the screen.

In Figs. 2 and 3 are shown the details of the well and the unique counterpoise for the projector. Each of the two 7-lb counterweights is attached to a stainless steel braided cable which passes over two pulleys attached to the underside of the desk top, and fastens through a steel grommet near the top of a 7″ tall steel bracket screwed to the trap door. Details of the pulleys are shown in Fig. 4. The trap door is mounted with concealed hinges, thus eliminating all projections above the desk top when the trap door is closed. A countersunk hinged ring in the top of the trap door enables one to lift it easily.

The two counterweights counterpoise the trap door with attached projector before the projector gets to the operating position. The same counterweights also counterpoise the trap door and attached projector before the trap door is closed (see dotted line position). This arrangement prevents accidental slamming of the door on either opening or closing.

A 24″×19″×16″ sheet-metal box screwed to the underside of the desk top forms the well for the projector. It protects the projector and also forms a storage space for the easily removable lens and mirror

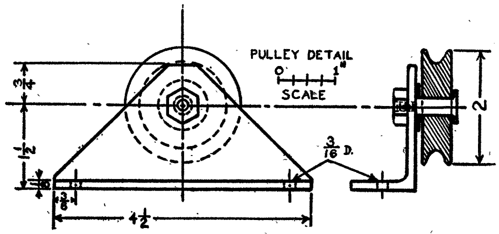

FIG. 4. Detail of pulleys for counterpoise assembly.

assembly. Two 2½″-diam metal tubes welded to the box form the guides for the two counterweights.

The electric power line to the projector bulb is permanently wired through a suitable snap switch and also through a microswitch. The microswitch is normally closed, but when the trap door is shut this switch is opened, thus preventing overheating of the projector in the closed well. The finger-operated snap switch enables the lecturer to turn the projector on and off at will.

It should be pointed out that the horizontal platform on which the lantern slide rests must be fastened to the body of the projector with two sheet-metal screws, and that the recessed glass plate should be cemented to this platform to hold them in place when the trap door is closed.

WILLIAM SCHRIEVER

Physics Department
University of Oklahoma

Book Reviews

The Chemistry of Uranium: The Element, Its Binary and Related Compounds, Part I. Joseph J. Katz and Eugene Rabinowitch. New York–London: McGraw-Hill, 1951. 609 pp. $7.25.

This volume covers the "dry" chemistry of uranium and other pertinent data. The solution chemistry of uranium is to be dealt with in a subsequent volume. The first major section of the book has three chapters that deal, respectively, with the isotopic composition and the atomic weight of uranium, the x-ray and optical spectra of the element, and a survey of the occurrence of uranium in nature.

The second major section has chapters devoted to a brief account of the extraction of uranium from its ores and the major types of methods for the reduction of uranium compounds to give the metal (Chap. 4). The conventional physical and chemical properties of metallic uranium are the subjects of Chapters 5 and 6. A six-page chapter is devoted to alloys of uranium.

The third section has four chapters (8–11) that discuss the binary compounds other than the halides. Novel and interesting findings with regard to uranium hydride are presented in Chapter 8. Descriptions of uranium-boron and uranium-carbon, as well as the uranium-silicon system, are the subjects of Chapter 9; for the latter system a phase diagram is presented. A brief chapter covers the properties of compounds of uranium with nitrogen, phosphorus, arsenic, and antimony. The final chapter of this section deals at length with the oxides and hydroxides of uranium, with much new and authoritative data. The sulfides, tellurides, and selenides are briefly discussed.

The final part of the volume (Chaps. 12–16) deals with uranium halides and oxyhalides. A special chapter is devoted to the nonvolatile fluorides, with major emphasis on the tetrafluoride and its double salts with alkali fluorides. As might be expected, a rather lengthy chapter (53 pp.) is devoted to a thorough discussion of uranium hexafluoride. A full coverage of the chlorides is given in Chapter 14, with much new and interesting information. The bromides, iodides, mixed halides, and borohydride are treated in Chapter 15, which concludes with a discussion of the various attempts that were made to prepare uranium carbonyl. The oxyhalides of uranium form the subject matter of the concluding chapter.

The general impression given by this treatise is that the earlier literature has been critically reviewed and