

Projecto-Height Attachment for Multiplex-Type Tracing Tables*

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THE projecto-height attachment herein described is a device, designed and built by the author, to be attached to any of the multiplex-type tracing tables. It was developed primarily to enable the operator to read heights directly in ground units (feet or meters) for any desired plotting scale, and to make possible reading the units to the required accuracy without use of a vernier. The device eliminates the use of conversion tables to convert height readings from millimeters in the model to feet in nature. The direct-reading feature is attained without the use of gear systems, which have a tendency to wear and develop lost motion between the vertical movement of the platen and the height counter.

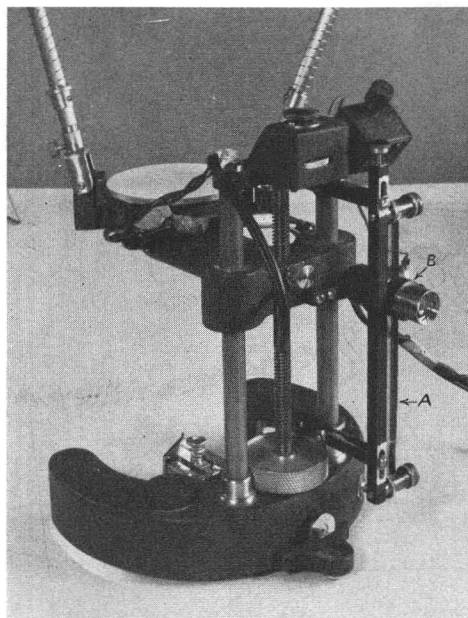


FIG. 1. Height-indicator attachment mounted on Kelsh plotter tracing table.

CONSTRUCTION

The device consists of two main elements: a precise scale printed photographically on a strip of transparent film (A, Figure 1), and a very compact optical system (B, Figure 1) to project the scale onto a viewing screen at high magnification. In many cases, the wall of the room can be used as a convenient viewing screen. Figure 2 shows a tracing table with the height readings projected on the wall.

The scales to be used with this device are printed photographically from specially prepared master negatives on flexible, but dimensionally stable, film strips. Printing may be accomplished either by projection, or by contact methods, as desired. For this reason, a wide range of scales from 1:360 (1 inch = 30 feet) to 1:24,000 (1 inch = 2,000 feet), including any odd-value scales, can be made available. The larger

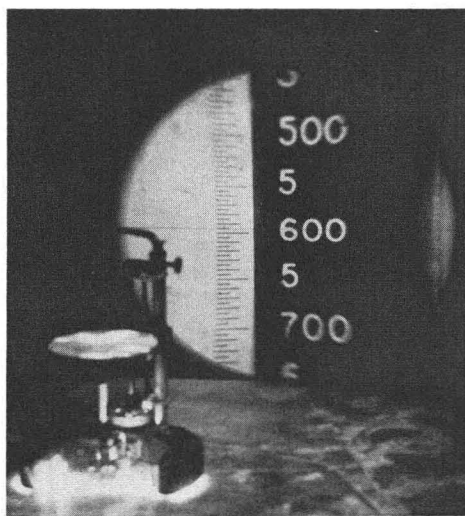


FIG. 2. Height reading projected on wall of plotting room.

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scale values, such as 1 inch = 50 feet, can be read directly to tenths of a foot, and are numbered at two-foot intervals. This is very desirable for some phases of highway mapping, or other large-scale mapping, where a large number of model elevations are to be read.

CHARACTERISTICS

The outstanding characteristic of this attachment is simplicity. As can be seen in the accompanying photographs, the mechanism employs no gear boxes, gears, pinions, worms, or other moving or wearing parts. Its simplicity is of great importance for the reason that it guarantees durability and freedom from operational trouble. Regardless of the age or condition of the tracing table, there is no lost motion. It is easily attached to the tracing table in a short time by following simple instructions.

Over an extensive trial period in the the Atlantic Region of the U. S. Geological

Survey, and in private mapping organizations, it has been found that the high-magnification feature of the device enables the operator to read elevations with greater accuracy, speed, and ease, than when observing the conventional height counter mounted on the tracing table. The increased accuracy of more recently developed stereoplotting instruments demands the increase in accuracy of reading elevations that this device affords.

The idea is also adaptable to other types of stereoplotting instruments (for example, see "Use of the Orthophotoscope," by Russell K. Bean and Morris M. Thompson, PHOTOGRAMMETRIC ENGINEERING, vol. xxiii No. 1, March 1957, page 170.

CONCLUSION

The ease of operation afforded by the projecto-height attachment described above should result in increased accuracy with a corresponding increase in production.



PHOTOS OF MISSILE PROJECTORIES

Instruments used to analyze photographs of missile trajectories, and plotting devices used to measure photographs of aerial targets will be manufactured by Gordon Enterprises, North Hollywood camera firm.

Expansion of the firm's instruments division follows acquisition of the Photogrammetric Division of Q.O.S. Corporation, New York City.

FIELD DEMONSTRATION OF TELLUROMETER

On December 17, 1957 a very effective field demonstration was arranged jointly by Tellurometer, Inc. of Washington, D. C., Pacific Air Industries of Long Beach, California and Aerial

Controls, Woodland Hills, California. It was witnessed by more than 100 executives and engineers. The TELLUROMETER—"The New Electronic Measuring Instrument," exceeded all expectations.

As a part of the demonstration a "Southwest Helicopter" was used to transport one unit of the measuring instrument quickly from one control station to another over fifteen (15) miles away.

The demonstration was staged at a U.S.C. and G.S. Survey Station in the San Pedro Hills. The master station was set up over this point and all spectators allowed to observe while the distance (over 12 miles) was accurately measured to another point known as "Knight."

The main unit and lecture was operated by Robert Thurrell of Tellurometer, Washington, D. C., who was assisted by Al Cocking of Aerial Controls. The sub-station was controlled by Harman Rasnow of Aerial Controls and Edward Jackin of Pacific Air Industries.

The helicopter was used to move the sub-station and crew to still a third U.S.G.S. point known as "Denker" which was then measured to an accuracy of one (1) part in 392,000.