where ΔR is the map-unit-ratio-change induced by tilt.

When relief is present, h_{ec} is multiplied by $(1 \pm M\tau)$ to compensate for the inherent relief displacement. This means that when this factor is applied, the resultant ΔR is definitely expressed as a function of the true position without the effects of tilt or relief.

It can readily be seen that τ is one of the most significant tilt symbols in the science of photogrammetry. Further significance of τ will be realized as photogrammetric research progresses.

COMMENTS ON "SYMPOSIUM ON THE ANDERSON TILT LAWS"

Everett L. Merritt, Chairman, Nomenclature Committee

1. General Comments

Generally speaking, the paper is well written and is of interest to the readers of the PHOTOGRAMMETRIC ENGINEERING, as Mr. McNeil concisely and simply summarizes Anderson's tilt laws. He clearly demonstrates that Mr. Misulia's "Derivation of Image Displacement Due to Tilt" is not new at all, but rather a duplication of one of Anderson's original tilt formulas. Mr. McNeil's paper further demonstrates that the articles in PHOTOGRAMMETRIC ENGINEERING are stimulating judicious and critical interest in the Journal. Of equal interest, however, is the fact that Mr. McNeil's description of a method of graphically locating the map position of a photo image is also not new. This method of graphically locating the map position by use of the fundamental laws of perspective was described by M. P. Bridgland of Canada in 1924 (Photographic Surveying, by M. P. Bridgland. Dept. of Interior, Canada, Bulletin no. 56. 1924. p. 28, 29).

2. Comments on the Symbol τ

With a full appreciation of the tremendous contribution that R. O. Anderson has made to analytical photogrammetry, it is felt that his repeated use of the Greek symbol τ for the expression Sin t/f is not sufficient justification for adopting it as a standard symbol. What amounts to a convenience for anyone familiar with, or using, Anderson's method is a limitation for one more familiar with, and using, other methods. In lengthy analytical equations it is quite easy to confuse English letters symbolizing sides with English letters symbolizing angles. This is particularly true of Prof. Church's space resection formulas. It is suggested that all Greek characters be reserved to symbolize "any angle," as expressed by Mr. Tewinkel, so that "any angle" is not confused with any linear value in photogrammetric formulas.

CORRECTIONS TO AUTOMATIC MAP PLOTTING INSTRUMENTS*

Duane Lyon, Aeronautical Chart Service

The above entitled article, published in the September 1946 issue (Vol. XII, No. 3) of PHOTOGRAMMETRIC ENGINEERING, is incomplete and contains several errors. The significant corrections to that article, with which the author is acquainted, are described in the following paragraphs.

A plotting instrument erroneously called the "Stereotopograph" was illustrated by Figure 3 on page 319, and described in the accompanying text. Figure

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3 does not illustrate the construction of the Stereotopograph. An instrument of this particular design had not previously been proposed so far as the author knows. However, this method of changing the plotting scale is identical in general theory with that used in the Stereotopograph and the Multiscope. It is the authors understanding that in 1927 Prof. H. L. Cooke of Princeton University developed a plotting device similar to that illustrated in Figure 3.

Figure 2 on page 317 will serve to illustrate the construction and theory of the Stereotopograph. The Stereotopograph differs from the patent specifications for "Cook Model I" in the method of changing plotting scale. In the patent specifications it was provided that the plotting scale could be made larger than that illustrated in Figure 2, simply by increasing the distance between the two half-silvered mirrors 5 and 6. This movement of the half-silvered mirrors caused a corresponding change in the horizontal map distance between the perspective centers O_1' and O_2'. It should be noticed that this method of changing scale did not necessarily alter the size, shape or position of the stereoscopic image seen by the operator. In the Stereotopograph, mirrors 5 and 6 are fixed. The plotting scale is changed by moving the full surfaced mirrors 3 and 4, instead. For example, in Figure 2, the plotting scale may be reduced, according to the principles illustrated by Figure 4 of the original article, by moving the mirrors 3 and 4 closer together. It should be noted that this method of changing the plotting scale introduces similar changes of size, position and shape into the stereoscopic image SM' and the stereoscopic model SM of Figure 2. The perspective centers O_1 and O_2 and O_1' and O_2' are not moved in changing the plotting scale.

It has been recently announced that U.S. Patent 2,303,099 was granted to Mr. Lage Wernstedt in 1942 for a plotting instrument that appears, from an inspection of the patent, to be similar to the Mahan Plotter. This device will be manufactured by Harrison C. Ryker, Inc., of Berkeley, California. The so-called Wernstedt floating-dot principle is described in the covering U.S. Patent in the following terms: "The present invention differs in principle from prior devices of a similar character[1] employing two index marks in that these marks are vertically movable. This permits placing the floating mark in contact with different points on the model without spreading the index marks on the instrument." This construction of the floating marks appears to be a typical application of the well known Zeiss parallelogram[2] and is used in the Mahan Plotter and the K. E. K. Plotter.

In the paragraph on the Multiscope it was not made clear that a change in the plotting scale of that instrument does not necessarily effect the size, position or shape of the stereoscopic image seen by the operator. A change in plotting scale is produced by bending the light rays coming from the floating mark before they pass through the half-silvered eye piece mirrors. This bending is caused by the use of adjustable prisms located between the floating mark and the half-silvered mirrors of the eye pieces.

The second line from the top of page 322 should be corrected to read "as ORTHOGRAPHICALLY projected"

The word "equal" should be deleted from the sixth line down from the top of page 323.

[1] Apparently this reference applies to the various stereocomparographs.

[2] von Gruber, O., "Photogrammetry, American Photographic Pub. Co., pp. 283–287.