1. *Correction Δb_k of the base length:* (for the formulae: see the French text)
   z = mean z-distance of point N_k in the two models K-1, K
   Δz = difference of these two z-distances of point N_k (The models 1 and n are furnished with control points).
2. *Correction of the Y-tilt:* (y/z is constant for all models).
3. *Vertical base-component:* H_z and H_{n+1} are the altitudes of the air stations 2 and n+1.
4. *Altitude of air station K.*
5. *Horizontal base-component (swing):* ($\Delta x'$ = the difference of the abscisses x′ of the same point A or B in the two models).
6. *Coordinates of point N_k in the projector-system:* D_x, D_y, D_z = differences of the coordinates of the points N_{k-1} and N_k in model (k—1), corrected for the systematic errors and for the local deformations of the models.

The final compensation over the control points is executed with the help of the method of least squares.
In the antennae the terms, e, α, γ are calculated, supposing

$$\Delta b_1 - \Delta b_n = 0, \qquad H_{n+1} - H_z = 0, \text{ a.s.o.}$$

THE DETERMINATION AND CORRECTION OF ACCIDENTAL LOCAL DEFORMATIONS OF PERSPECTIVE RAYS

by

Dr. G. Poivilliers.

(Complete French text is given on page (414)-47-1 of the General Report).

The theory of the plotting is based on the hypothesis of the identity of the perspective rays of the photographic bundle with the bundle of lines through the air station to the groundpoints.

The traversing is based on the hypothesis of the presency of only two kinds of errors: errors with a systematic character descended from systematic deformations of the perspective bundles and errors with an accidental character descended from imperfections of sight to the points.

The hypotheses are not rigorous, sometimes local deformation in the perspective bundles are to be found, deformations descending from either deformations of the emulsion base or from deviation of light-rays that have passed zones of atmospheric turbulence.

These local deformations result in fractures that have been stated in the repartition of the errors after the compensation of the traversings.

The communication treats a method of discrimination of those perspective rays that are subject to such deviations; the errors resulting from these deviations are eliminated.

The deviations have two components: the first is the transversal component, that falsifies the transversal parallax and results in: 1. an error in the execution of the relative orientation of the two perspective bundles of a model, and 2. deformations in this stereoscopic model that propogate theirselves in all following models. The second, the lateral component, modifies the stereoscopic

parallax and falsifies therefore the coordinates of the points in question; if these points are to be used as connection-points, then this error is propogated in all following models.

The transversal component is discriminated by a special method of relative orientation, based on the following remark: "If the transversal parallax is cancelled in a plane $x = x_o$, then in any other plane $x = x_k$ these parallax can be annulled modifying only the base-components by and bz, the values of by and bz being linear functions of x, if the perspective bundles are correct."

The points that are struck by a local transversal deviation of their perspective rays are traced by the fact that the values of by and bz that cancel their transversal parallax don't follow the linear repartition.

The stereoscopic model is formed utilizing only points that don't show deformations; the residual parallax in the struck points is not eliminated.

The connection points in which a corresponding ray has been deviated laterally are traced by their difference Δz in the two models. If the point is situated in the neighbourhood of the plane $x = b$ in model $(k-1)$ and $x = 0$ in model k and if no lateral deviation is present, Δz must verify the relation: (See French text for the formulae).

$\Delta b_k - \Delta b_{k-1}$ is the relative difference of base-length; e and β are two constant coefficients for all models, resulting from systematic errors.

Between the points: N ($y = 0$) and A and B, so that $\frac{y}{z}(A) = -\frac{y}{z}(B)$ the relations: See French text), must be verified (with tolerances corresponding to the accuracy of the measurements), if no lateral deviation of the perspective rays is present.

The discrimination of a deviation is based on the examination of these relations. The corresponding points are not utilized for the connecton of the models.