PROCEEDINGS OF THE MEETINGS OF THE SECTION OF LEVELLING

THE SECOND SESSION 7 SEPTEMBER, A.M.

MATHEMATICAL STATISTICS TO THE ANALYSIS
OF LEVELLING ERRORS. SPECIAL STUDY GROUP NO. 3
(ROME 1954)

The President, Prof. DORE, presented the problem of the Special Study Group No. 3 (Mathematical statistics to the analysis of levelling errors) for the Section.

The President of the Study Group, Dr. A. M. WASSEF, Egypt, had sent a few typewritten copies of a report from the Study Group; unfortunately Dr. WASSEF himself was not present at the General Assembly in Toronto.

Prof. DORE mentioned that the theory presented by WASSEF in Rome 1954 is important, not only for levelling, but also for other branches of geodesy. The Secretary gave a very short summary of the principal points of the theory. The results of the analysis proposed by Dr. WASSEF are indicated by five parameters.*

Prof. W. BAARDA said that the problem of statistical analysis is more difficult for levelling than for triangulation, because we know the distribution law for triangulation but not for the levelling. He said that Dr. WASSEF had made a good start, and he proposed to give him again 3 years for working with the problem.

Dr. WASSEF has marshalled general considerations and some empirical evidence to show that the deviation of the distribution from the normal law is not likely to cause serious error of inference.

According to circular letter from I.A.G. of 15 October 1957, Special Study Group No. 3 continues its work with Dr. WASSEF as president.

Finally it is worth mentioning as to the international formulae for levelling errors and the limit $\mathcal{Z}$ (*Bull. Géod.* No. 18 (1950), pp. 475-87) that in the levelling-report from Czechoslovakia it is indicated that u_L^* will not increase when L varies from zero to great values why in this country the limit $\mathcal{Z}$ cannot be fixed by the aid of u_L as $u_R = \pm 0.28 \text{ mm}/\sqrt{\text{km}}$ and $u_L = \pm 0.26 \text{ mm}/\sqrt{\text{km}}$.

To this the Secretary will add the remark that, for levelling networks in which serious systematic errors are found, the quantity u_L will increase for increasing values of L .

PRESENTATION BY COLONEL R. C. A. EDGE OF HIS PAPER:
'SOME CONSIDERATIONS ARISING FROM THE RESULTS
OF THE SECOND AND THIRD GEODETIC LEVELLINGS OF
ENGLAND AND WALES'

This paper reported on systematic errors in levelling, secular movement, and apparent change in mean sea level (see p. 28).

* See *Bull. Géod.* No. 36 (1955), pp. 44-5.