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DRAFT REPORT OF COMMITTEE I
prepared by the Rapporteur
GEODESY AND HYDROGRAPHY

TU-137

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GEODESY AND HYDROGRAPHY

1. The terms of reference of the Committee I were to study item 13 of the agenda: Technical questions on basic mapping with particular reference to (a) geodesy and (b) hydrography.

2. The Committee elected the following officers:

Vice-President:	Mr. M.A. Kengebele (Congo Kinshasa)
Rapporteur:	Mr. R.J. Simpson (Ghana)

3. The Committee considered the technical papers and held discussions on the following subjects: flare triangulation and satellite triangulation; airborne methods, conventional geodetic surveying, connexion of national levelling networks and common geodetic datum for Africa.

Geodetic flare triangulation

4. The Committee considered the following papers:

- (a) Geodetic flare triangulation (France) - E/CN.14/CART/156
- (b) Geodetic connexion between France and North Africa by simultaneous sighting of the Echo I artificial satellite (France) - E/CN.14/CART/157
- (c) Satellite triangulation (USA) - E/CN.14/CART/191
- (d) The U.S. Army sequential collation of range geodetic satellite system (USA) - E/CN.14/CART/195
- (e) SECOR electronic satellite tracking system (USA) - E/CN.14/CART/221

5. With regards to Flare triangulation it was reported that this method had been successfully used in Denmark and in Norway in summer and early spring, and in the Azores. The American Geodetic Survey employed the method in the

Bahamas - Florida connexion, but the precision obtained was not satisfactory. It was pointed out that the method was best suited to an extensive area under favourable conditions if it was to be economical and accurate.

Conventional Geodesy

6. The Committee considered the following papers:

- (a) Astro-geodetic activities in the "Institut fur Angewandte Geodasie" (Germany) - E/CN.14/CART/201
- (b) Scale checking in first-order triangulation nets (Germany) - E/CN.14/CART/202
- (c) Simultaneous determinations of longitude and latitude in Africa with the prismatic astrolabe (Germany) - E/CN.14/CART/203
- (d) Electromagnetic distance measurement in the US Geological Survey (USA) - E/CN.14/CART/206
- (e) Survey instruments and methods in the United States of America (USA) - E/CN.14/CART/215
- (f) Possibilities for establishing horizontal control over considerable areas (USSR) - E/CN.14/CART/225

7. The Committee concurred that traditional methods of geodesy were still good and economical for geodetic work at national level. Electro-magnetic distance measurers could cover extensive areas with adequate controls at reasonable cost. It also noted that there were still many areas where, due to dense forest, only conventional methods could provide practical solutions.

Airborne methods

8. The Committee considered two papers:

- (a) Mapping from airborne electronic control (USA) - E/CN.14/CART/194
- (b) Aerodist - The flying chainman (Canada) - E/CN.14/CART/207

It was noted that airborne methods had been successfully employed by the USA and Canada.

Connexion of national levelling networks

9. The Committee considered the background paper on the subject (E/CN.14/CART/173) and heard the difficulties often encountered in carrying out such work. The Committee believed that arrangements for co-operation should be made through the national services concerned to facilitate the formal agreement between the governments.

Common geodetic datum for Africa

10. The Committee heard that the choice of a common datum for Africa was a complicated problem for geophysical reasons. Africa, not having a homogeneous block, several cross traverses would need to be run to derive the necessary information and that the new concepts of geodesy based on dynamics might lead to the necessary information being obtained without recourse to the traditional methods.

Hydrographic surveys

11. The Committee heard a report by U.S.A. on their African charting programme (E/CN.14/CART/190) and considered a technical paper on hydrographic surveys, a necessary complement to photogrammetry for topographic mapping (E/CN.14/CART/180) and received an information paper on Dissemination of information on changing conditions affecting the safety of navigation (E/CN.14/CART/218).

12. The attention of the Committee was drawn to the importance of a common levelling datum and the determination of mean sea level. Attention was also drawn to the enormous work involved in keeping hydrographic records up-to-date and to the need for the co-operation of all concerned.