THE INTERNATIONAL MILLIONTH MAP OF THE WORLD.

(Summary of the account by S. W. Boggs, in *The Military Engineer*, March-April, 1929, p. 112, and of the Reports of the Bureau Central of the Carte Internationale du Monde au Millionième, Southampton).

The need for the international map may perhaps best be appreciated by referring to the, mapping situation, particularly in Europe, before the international map project was born. There are many countries and many languages, and each country had its own maps, printed on several different scales and projections, lacking uniformity in symbols, conventional signs, prime meridians, and methods of showing physical relief. Although most of Europe was excellently mapped, there was a veritable cartographic babel.

The idea of an international map of the entire world was conceived by Professor Penck and was presented in 1891 to the Fifth International Geographical Congress which met at Berne.

The desirability of some standard form of map may be said to have been first brought into prominence at the Geographical Congress at Berne in 1891. In the Geographical Congress of 1895, held in London, and of 1908, held in Geneva, the question was further discussed and the project took a substantial step forward when the Delegates of the United States of America, proposed that an international map on a scale of 1 : 1,000,000 should be definitely standardised. The situation then in 1908 was that many eminent Geographers were already in accord with the principle of standardisation, but that no official sanction had been given to that principle, whilst a fair number of maps on the desired scale had already been produced but with no attempt at uniformity.

In 1909, therefore, the British Government convened a conference in London to discuss the resolutions passed in 1908, at Geneva, and to agree upon rules of procedure which the Delegates would submit for approval to their respective Governments. An agreement on all important points affecting the characteristics of the international map was reached at this conference. The resolutions of the conference were approved unanimously and signed by the Delegates of the eight Powers represented. These resolutions were embodied in a Report of Proceedings which was issued to all the Delegates for presentation to their respective Governments. Copies were sent also through the usual diplomatic channels to all Governments which had not been represented, and their replies, invariably favourable, showed how general was the feeling in favour of this international project.

The London Conference made it possible for the various Governments to pass from theory to practice, and by the actual production of different sheets, to test the soundness of the resolutions and the possibility of arriving at a real measure of uniformity. The results were encouraging. By the end of 1912, seven sheets had been produced and much valuable criticism, investigations and suggestions collected. In the Spring of 1913 the 10th International Geographical Congress, held in Rome, discussed the situation and in 1914 issued a report on the progress made.

Meanwhile, the French Government had issued invitations to a second International Conference on the International One millionth Map. This Conference met in Paris in December 1913, and was attended by the Delegates of 35 Governments. In order the better to deal with the study of detail, four sub-committees were nominated to report upon different headings, and it was laid down that their reports should be discussed in plenary session.

After a meeting of eight days the Conference closed and the proceedings were embodied in a pamphlet entitled:

Carte du Monde au Millionième,
Comptes Rendus des Séances de la Deuxième Conférence Internationale, Paris
Service Géographique de l'Armée, 1914.

This pamphlet embodies, in the three official languages, French, English and German, the

resolutions adopted, and provides a complete guide to the conventions and colours. It is accompanied by a separate folder enclosing, amongst other documents, explanatory texts for conventional signs and the tints of the conventional layer system.

Amongst the recommendations, which were approved in plenary session, by the Second International One millionth Map Conference at Paris, December, 1913, was one establishing a permanent Central Bureau. The duties of this Central Bureau included the publication of an Annual Report and of the arrangement of an interchange of views, decisions, and mapping information between those primarily interested.

The effect of the war upon the progress of the International One millionth Map has naturally varied in different States. In some more happily situated countries considerable progress has been made in spite of the war. By others a large area has been mapped on the desired scale, but not in strict conformity with the international resolutions and in many cases the work was brought to a standstill. Nevertheless, the influence of the international form upon recent mapping on the 1 : 1,000,000 and smaller scales has been a marked one. Perhaps it has been most marked in the question of projection and sheet lines. It is a doubtful point whether some at least of the sheets composing it ought not to be considered as in accordance with the international convention. An international meeting at Paris, in October, 1919, at which 28 Nations were represented, drew up a "Convention for the Regulation of Aerial Navigation" and decided to make the sheets of the General Aeronautical Map multiples of the international 1 : 1,000,000 sheets, although on a different projection.

In December, 1919, a circular letter was sent to all concerned asking them to be good enough to give the Central Bureau information of any progress which may have been made in the publication or preparation of sheets; a second circular letter was despatched in October, 1920.

Many enquiries were received by the Central Bureau asking where various sheets might be bought and at what price. It seems advisable, therefore, not only to show the present situation in index form, but to add a list of countries giving the addresses of those departments, or heads of departments, or their agents, to whom requests for maps should be addressed. It would materially add to the international value of these maps if the names of accredited agents for the sale of particular sheets were known in all cases. It was not until early in 1921 that sufficient information could be collected to show the present state of the International Map, and to enable the first report to be prepared, —entitled: "*International One millionth Map — Report for* 1921", published by the Central Bureau, Ordnance Survey Office, Southampton.

The duty of keeping those interested in touch with the general progress of the whole map, was imposed upon the Central Bureau. The Bureau distributes the new sheets which appear to those interested and for this purpose receives from the authors 50 copies of each sheet. In a number of cases the Bureau has been informed by Governments of their intention to undertake the preparation of certain sheets, and in such cases notice has been sent to all who may be interested in the fact.

Several sheets have been sent to the Central Bureau in proof stage for remarks, and this practice seems likely to be a useful one.

The 1921 Report contains a reprint of the resolutions of the Paris Conference.

The plan which it is intended to carry out is to map the entire surface of the Earth on a uniform scale, according to uniform specifications, by international cooperation. It calls not for resurveying but for re-compilation and printing.

Each sheet of the International Map covers 4 degrees of latitude and 6 degrees of longitude The sheets are numbered according to a simple system, as may be seen on the accompanying index of the *One millionth Map.* Each sheet is designated by a letter (*A* to *V*) preceded by "North" or "South", which indicates its distance north or south of the equator, and is further designated by a number (1 to 60), which indicates its distance measured eastward from the 180th meridian (the meridian opposite to Greenwich). It will require more than two thousand sheets to represent the land and water surface of the Earth on this basis. Although the land surface of the Earth comprises only 28 per cent, of the total, it will require nearly one thousand sheets to cover the entire land surface, including islands.

By international agreement, each country adhering to the International Map project, which has an adequate cartographic establishment, shall map its entire land area including territorial

possessions. Wherever a sheet covers territory belonging to two or more countries, one of these countries, according to mutual agreement, shall publish the sheet.

The sheets are made on a special projection, viz: modified polyconic, all meridians on each sheet being straight converging lines, and the parallels being arcs of circles. Each sheet has two standard parallels of latitude. As a result of this projection there is but small distortion in both shape and area on each sheet, which is of great advantage.

A uniform set of symbols and signs must be adopted by all nations for use on the One millionth Map of the World and the limits of the sheets shall be uniform.

It will be appreciated that the International Map project accomplishes, in the field of mapping, something analogous to the advantages derived from use of the Latin alphabet in countries speaking widely varying languages, or perhaps more nearly to what is accomplished by the use of music scores which are universally understood without translation.

The General Assembly of the International Geographical Union at its session held in Brussels on 15th April, 1923, recorded its opinion that the progress made in the publication of the "*One millionth Map of the World*" has been of great service to geographers, and unanimously expressed the desire that the national Geographical Committees or other interested bodies, should do their utmost to encourage the production of the Map, and should take steps to expedite the progress of this international undertaking which is of such consequence to science and geography.

In the Report drawn up by the Central Bureau in 1924, it was mentioned that a certain number of sheets published by various Societies, though differing in detail, were nevertheless sufficiently closely in agreement, as regarded colour and general style, with sheets of the regular international series as to make it possible to use them without inconveninece in conjunction with the latter.

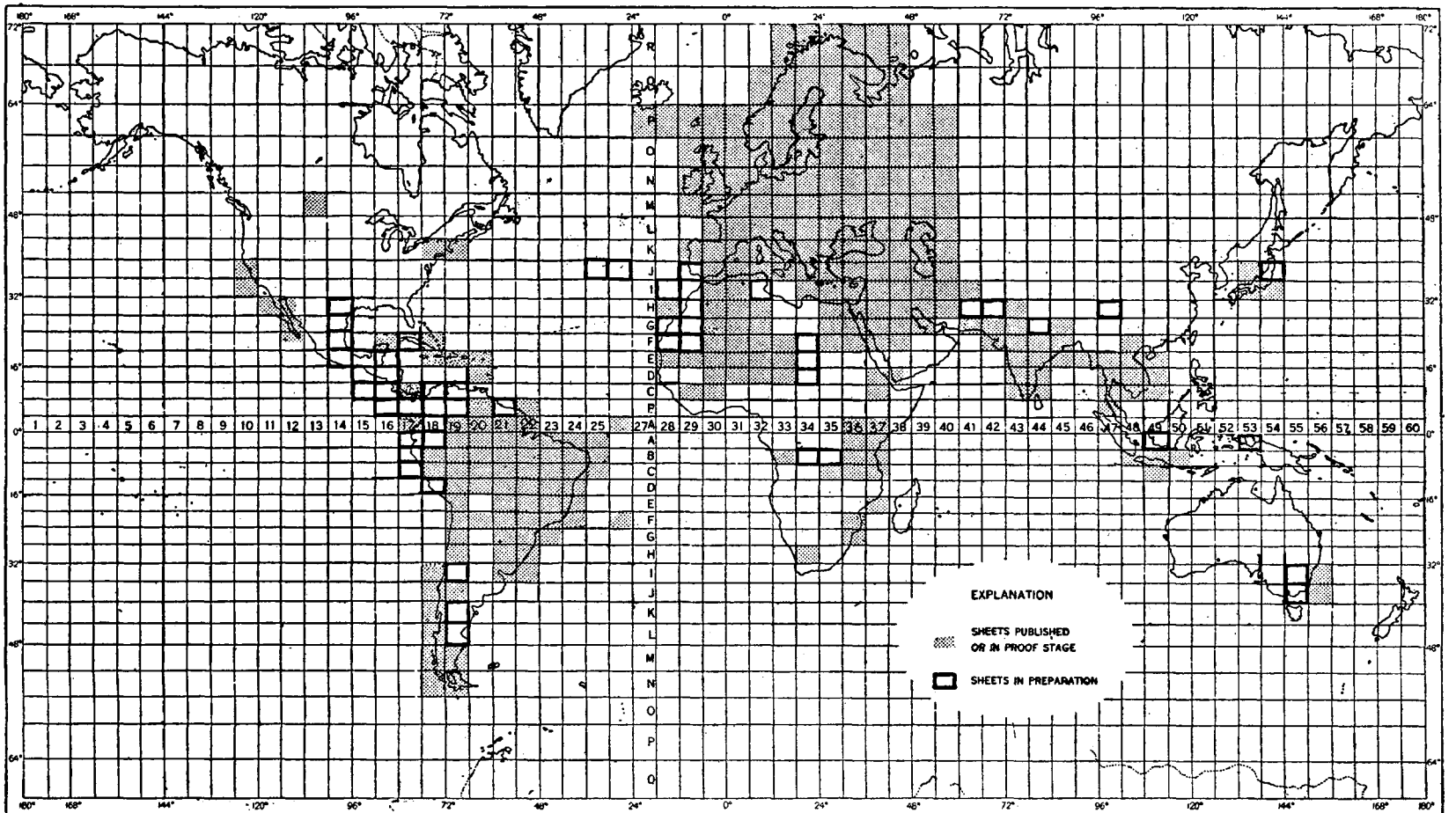
It was also stated that new symbols were required for certain features such as aerodromes, which were not provided for at previous conferences, and that other symbols, given in the tabulation had not been used. The Report also remarked the existence of the cartographical problems raised by the International Aeronautical Map and by its relation to the One millionth Map. Plans for the International Aeronautical Map having been formulated by a sub-committee of the International Commission for Aerial Navigation, a Central Bureau for this Map was established to work in conjunction with the Central Bureau of the One millionth Map. The preparation of aeronautical maps undoubtedly raises cartographic problems which should be considered and discussed by professional cartographers, as well as by air navigators, before it is possible to evolve a type of map which is entirely satisfactory to all concerned. It seems not improbable that the further development of flying may lead to an extension of the area and range of travel comparable to the extensions which have resulted from the invention and development of railways and motor transport, but, whereas the extension following the latter has been mainly internal and national in character, the extension resulting from the former may prove to be more international.

The 1924 and 1926 Reports each contain a diagram, on Mercator's projection, showing the present state of progress of the work and the nomenclature of the charts published or in preparation at those dates.

The Third International Conference on the *International One millionth Map of the World* met in London, at the seat of the Royal Geographical Society, on 14th and 16th July, 1928. As there had been no similar meeting for fifteen years (the Second Conference having been held at Paris in 1913), there was real need of such a conference in view of the progress made in the interval.

At this conference most of the principal countries of Europe were represented, with the unfortunate exception of Germany, Austria, and Hungary. The non-European countries represented included Japan, Egypt, Belgian Congo, Argentine, Canada, and the United States of America.

Action was taken with reference to a number of important specifications and technical matters including conventional signs, selection of names to be shown on the map, and transcription of Japanese geographical names. Addition of a diagram in the margin, indicating the degree of reliability of the map data in regions poorly surveyed or little known, was also authorised by the conference.



INDEX TO CARTE DU MONDE AU MILLIONIÈME

PROGRESS TO DECEMBER 1928

ENGRAVED AND PRINTED BY THE U.S. GEOLOGICAL SURVEY

Each country was recommended to arrange for a national sales agent to handle the sheets of the International Map published by all foreign countries.

A resolution was also adopted to accept all sheets, which have been produced in conformity with the specifications of the *One millionth Map*, as coming within the international map series even when published by non-governmental agencies. The principal effect of this is to make the sheets of the One Millionth Map of Latin America, which are being published, a part of the international map series.

The accompanying index map shows the sheets of the International Map which have been published up to December, 1928. It will be noted that they cover the whole of Europe, considerable portions of the Near East and of Africa, most of India, Siam, and French Indo-China, all of Brazil and appreciable portions of the rest of Latin America, and a few scattered sheets of Japan,t he East Indies, Australia, the United States and Canada. Altogether about two hundred and fifty sheets have been produced by twenty-one different countries. It is true that many of these sheets are provisional editions, some of which omit the layer tints which show physical relief, or otherwise fail to conform to all of the specifications of the *One millionth Map*.

A new and very important use to which Millionth Map sheets are put is in connection with aviation. It is to be noted that on 8th January, 1929, the Committee on Air Navigation Maps appointed by the Federal Board of Surveys and Maps of the U. S. of America, recommended that sectional area air maps on the scale of 1 :1,000,000, conforming to the specifications of the International Map, be published hereafter to replace the "strip" maps which have hitherto been published for civil use. The report goes on to say :

"More flying is being done away from the established airways than on them, and this volume of miscellaneous flying will greatly increase as the public buys airplanes for private use. The very nature of air transportation suggests the idea of private owners. They will represent the greatest body of purchasers, flying everywhere, seeking new scenes and less travelled areas. Maps are imperative".

The question of sale and distribution of published sheets has continued to engage the attention of the Central Bureau.

The mere existence of the sheets themselves, if generally known to the public might tend to stimulate the desire to travel which would engender a demand. It seems desirable from every point of view that the arrangements for sale should be made before arousing a demand, and the appointment of properly accredited Agents in each country seems to be the simplest way of ensuring the necessary publicity and providing the machinery required. It is necessary, however, to emphasize the fact that the task of negotiating with and appointing such Agents is beyond the scope and powers of the Central Bureau, and that the arrangements necessary must be made by the offices responsible for publication themselves.

Any such arrangements which may be made should be notified to the Central Bureau so that they may be recorded for the information of all concerned in the Annual Reports. Such information as is available regarding existing agencies is inserted in the last column of the Appendix of the Report which contains the list of published sheets.