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MAP RESEARCH BULLETIN

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February 1952

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CENTRAL INTELLIGENCE AGENCY

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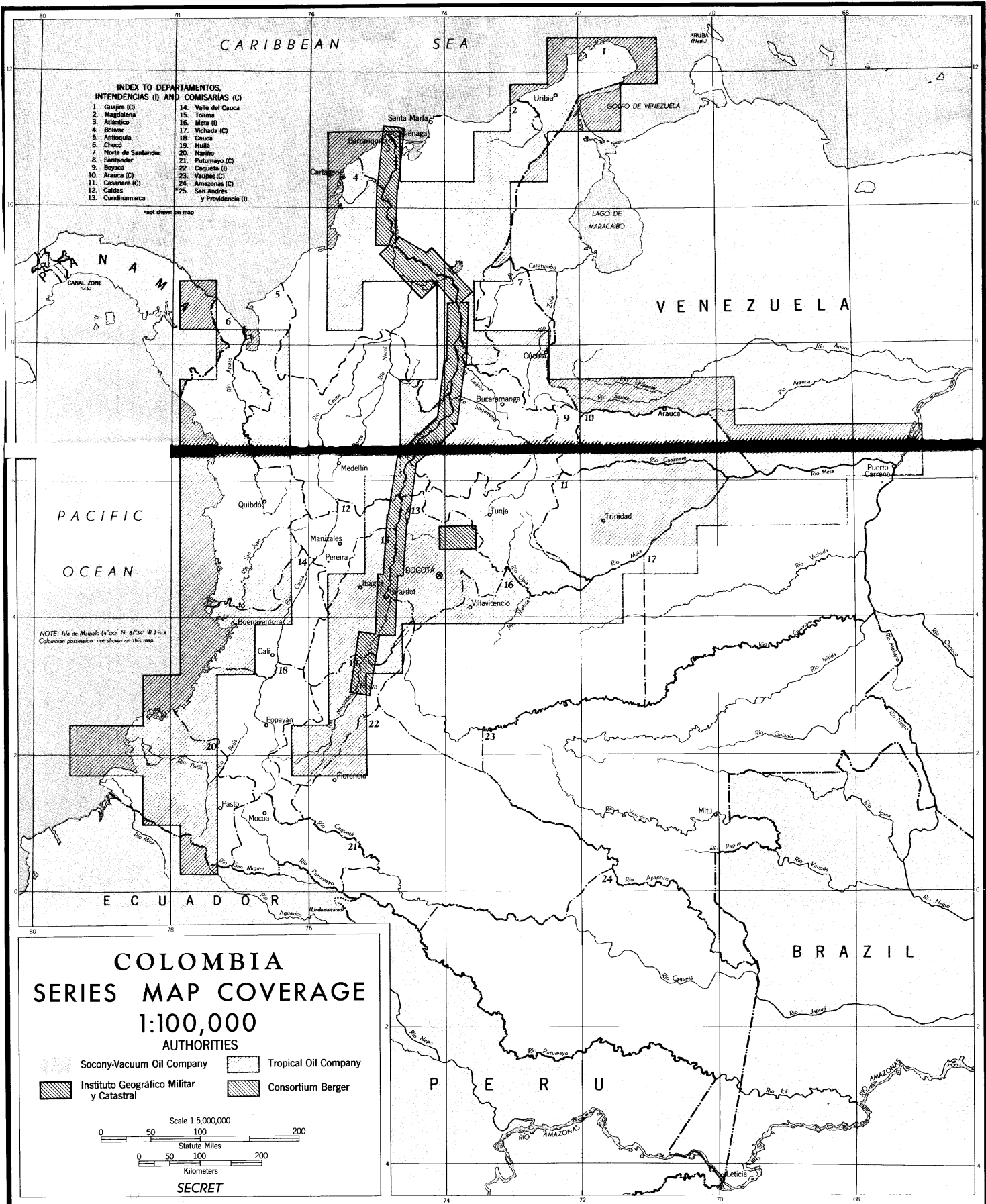
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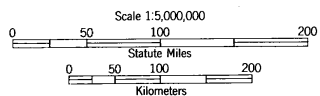
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NOTE: Isla de Malibú (5°05' N. 80°20' W) is a Colombian possession; not shown on this map.

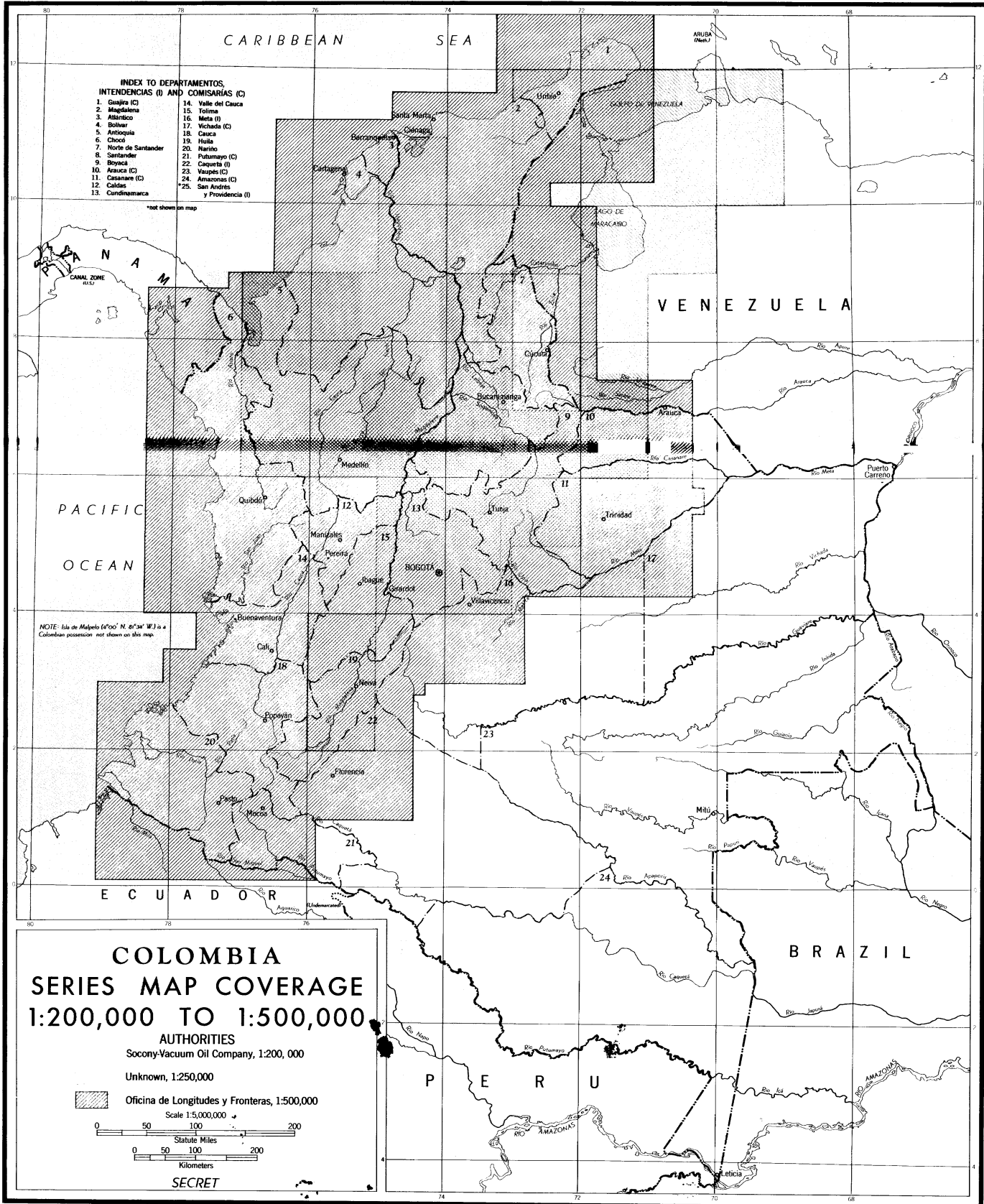
COLOMBIA
SERIES MAP COVERAGE
1:100,000

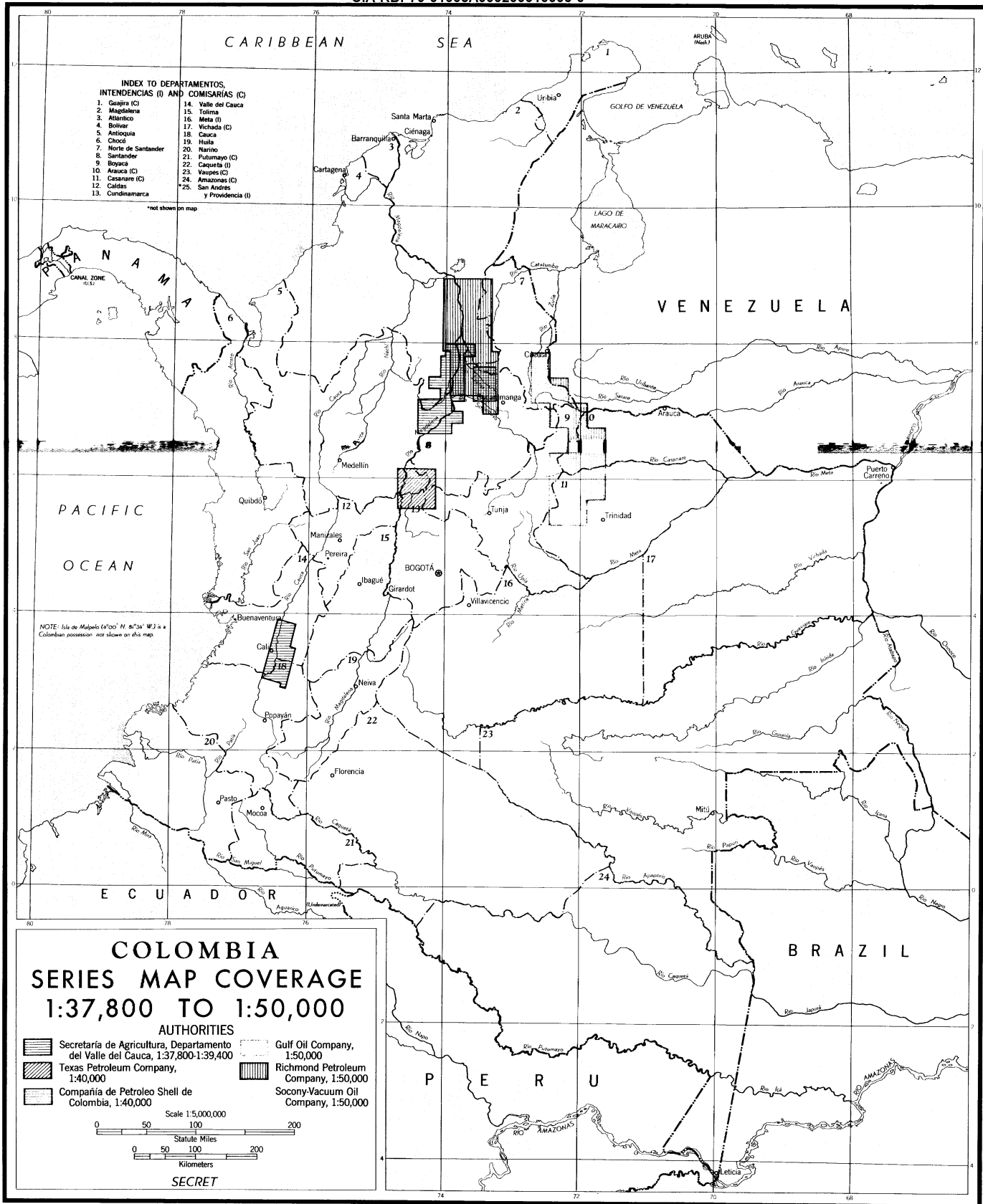
AUTHORITIES

- Socory-Vacuum Oil Company
- Tropical Oil Company
- Instituto Geográfico Militar y Catastral
- Consortium Berger



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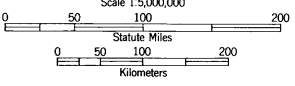




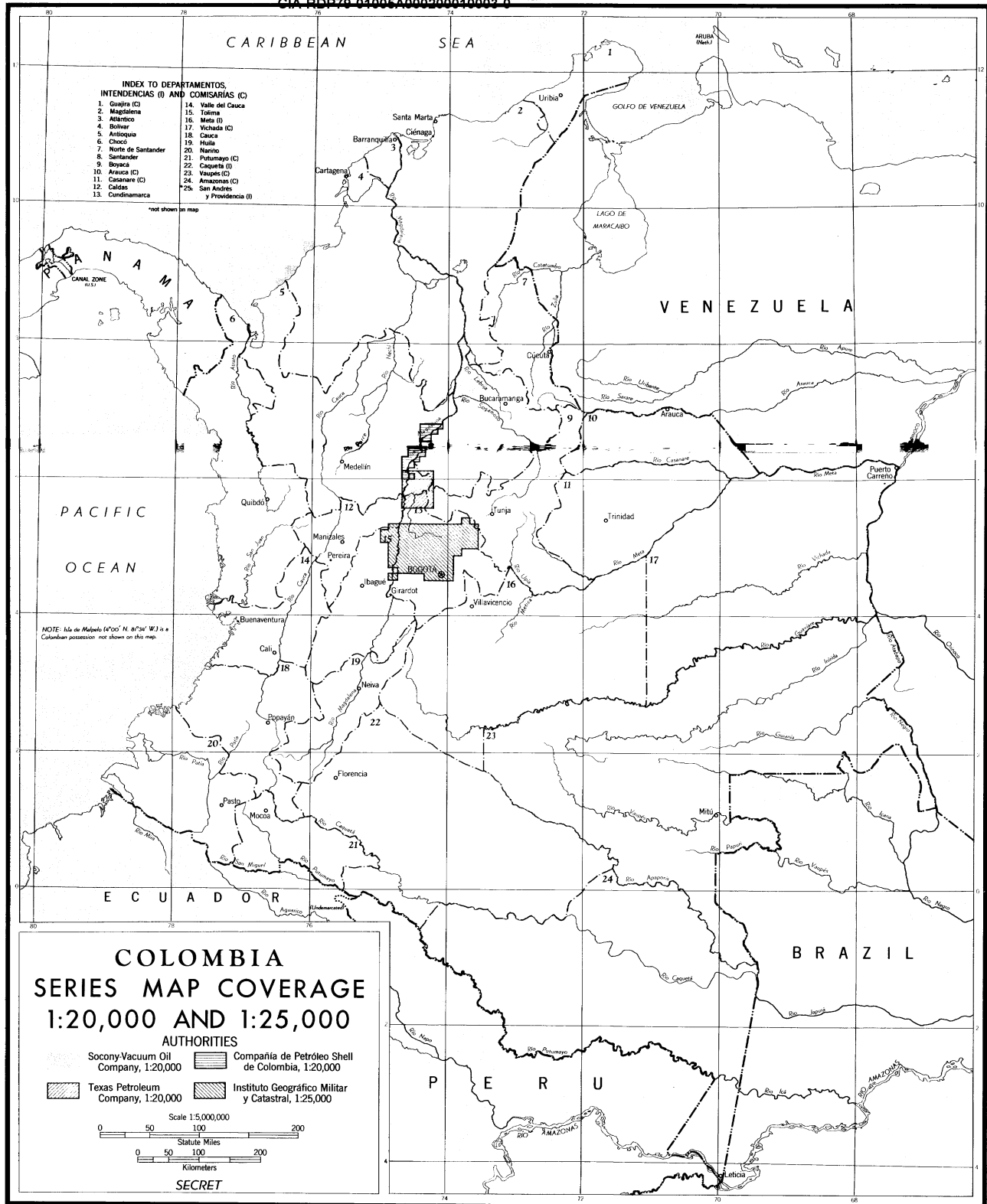
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- *not shown on map

COLOMBIA
 SERIES MAP COVERAGE
 1:37,800 TO 1:50,000

- AUTHORITIES**
- | | |
|--|--------------------------------------|
| Secretaría de Agricultura, Departamento del Valle del Cauca, 1:37,800-1:39,400 | Gulf Oil Company, 1:50,000 |
| Texas Petroleum Company, 1:40,000 | Richmond Petroleum Company, 1:50,000 |
| Compañía de Petróleo Shell de Colombia, 1:40,000 | Socony-Vacuum Oil Company, 1:50,000 |



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I. YUGOSLAV MAPPING AGENCIES:

PROGRAMS AND AN ESTIMATE OF CAPABILITIES

Three agencies account for most of the current output of maps in Yugoslavia. The agencies and the major production responsibility of each are as follows:

Geografski institut Jugoslovenske Armije -- topographic maps
Geokarta -- cadastral and planning maps
Učila -- maps for school use

A few other organizations, including Invalidsko knjižarsko štamparsko preduzeće (Disabled Veterans Book Publishing Enterprise), Propaganda, and Državna založba Slovenije (State Press of Slovenija) have also published maps since 1945. Except for the last, which is known to have a three-man cartographic section, no information is available concerning these agencies.

The programs and capabilities of the three major agencies are evaluated in this article on the basis of estimates derived from the analysis of all available information.

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A. Geografski institut Jugoslovenske Armije¹ (Geographic Institute of the Yugoslav Army -- GIJA)

This institute is the major mapping agency of Yugoslavia. For convenience, the GIJA program and its current status are discussed according to map scale.

Scale of 1:1,000,000. The institute expects to prepare the four Yugoslav sheets of the International Map of the World (IMW) series. It does not have the construction specifications and has not started work on the maps.

Scale of 1:750,000. Two editions of a map of Yugoslavia at this scale, dated 1946 and 1950, have been published. The maps are identical in style and type of content. Most of the corrections on the later edition concern transportation and place names.

Scale of 1:500,000. A 13-sheet series covering the country was completed in 1950. The maps are printed in three forms: (1) an edition with complete cultural and topographic detail, including relief shading and forest cover; (2) the same edition, without relief shading; and (3) an edition that carries only contours, shading, names of physical features, roads, and symbols for large towns. The map is a completely new compilation based on the 1:100,000 and 1:200,000 maps and the "newest information." It was designed for use of the Army General Staff and carries a note stating that the contents are "suitable for military."

An aeronautical chart series at 1:500,000 is also in preparation or may have been completed. Its relationship, if any, to the air chart series published in 1939-40 is not known.

Scale of 1:200,000. Postwar coverage of Yugoslavia in a second edition of the 1:200,000 series has been completed. Although the final sheets of the first edition were published immediately before World War II, new plates were made because the originals had been destroyed. The method of production, however, is not known. In view of the 1949 policy statement on map specifications, which provide for sheet lines based on subdivisions of the IMW sheets, new

1. Successor to the prewar Vojni geografski institut (Military Geographic Institute -- VGI).

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type styles, and certain other changes,¹ the sheets may have been completely redrawn, or new plates may have been made from the pre-war sheets by color separation, with changes made on the negatives.

Scale of 1:100,000. All sheets of this series are scheduled for revision. At least four sheets have been completed, three of which were published in 1949 and one in 1950. The scope of the revision is not known.

Scale of 1:25,000. An entirely new field survey is being undertaken for the preparation of a series at 1:25,000. The goal is map coverage of the entire country, and sheets for the Belgrade and Zagreb areas may have been completed.

There is no indication regarding the future of the GIJA except that the institute may be expected to share the present political and financial stability of the Army, which is suggested further by the fact that the institute has had the same director, Maj. Gen. Karel Marčič, since 1945. Fair estimates may be made concerning the size of the staff of VGI before the war and of the GIJA in mid-1951. It is also possible to make a reasonable approximation of the capabilities of the institute for carrying out its current program, assuming that the status quo in terms of personnel, equipment, and methodology is maintained.

Fair estimates may be made regarding the size of the staff of the VGI before the war and of the GIJA in mid-1951. It was possible to arrive at a reasonable approximation of the capabilities of the institute for carrying out its current program.

1. The new 1:500,000 series conforms to all of these specifications.

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On the basis of VGI reports and prewar production and equipment, it is estimated that the personnel strength of the VGI before the war totaled between 245 and 295 persons and consisted of 50 to 60 topographers, 75 to 90 topographer's helpers, 35 to 45 draftsmen, 15 geodesists, 35 to 40 persons engaged in map reproduction, and 35 to 45 in administrative and clerical positions.

Although a fairly reliable 1947 report stated that the personnel in GIJA numbered only 156 at that time, recent evidence obtained by direct observation and interview, substantiated by production of the last 3 years, indicates that the GIJA has regained the personnel strength which its predecessor, the VGI, had in prewar years.

It seems likely that the four sheets at 1:1,000,000 will be issued within a year or two following official implementation of the project. The necessary base material is on hand, and production in part is a matter of national pride.

A reasonably valid estimate can also be made of the maximum output of the revised 1:100,000 sheets and of new 1:25,000 sheets for the next 5 years, if complete attention is devoted to one program or the other. The relative priorities of the two series, however, are not known.

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In 1951 the publication of 1:100,000 sheets was barely started. The sheets known to have been printed -- Ptuj (in eastern Slovenija), Prozor (west of Sarajevo), Beograd, and Dubrovnik -- do not indicate any areal plan for the work. The sheets may be of an experimental nature to determine the amount of new work that will be necessary in various types of terrain, perhaps with different control available.

Since methods and number of personnel are about the same, pre-war output is a good index to current production. In one 5-year period before the war, when the major effort of the Vojni geografski institut was devoted to the 1:100,000 series, revision surveys were finished on the area of about 80 sheets, and at least 70 sheets were drawn and published. Complete coverage at the same rate would require 11 years; at 85 percent of the prewar figure, 12 to 13 years.

Rates of production of the 1:25,000 sheets before and after the war are not comparable to the same extent. The former are thought to be based on revision of old Austro-Hungarian cadastral surveys, whereas a new survey is to be made for the latter. Since survey speed probably is the critical factor in the rate of map production when ground survey methods are employed, prewar experience provides a good

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basis for estimate.¹ The Vojni geografski institut found that one topographer in a single field season could map 80 square kilometers of moderately difficult terrain with accuracy sufficient for a 1:25,000 survey. According to the present sheet line system, 80 square kilometers is about three-fifths the area of a standard Yugoslav 1:25,000 sheet. From this figure and from the number of topographers available, the maximum current output for the 1:25,000 series appears to be 25 to 35 sheets a year. Complete coverage of Yugoslavia requires more than 2,500 sheets. In time, and as financial means are available, photogrammetric techniques almost certainly will be increasingly employed. Consequently, the rate quoted cannot be regarded as valid for more than the first few years.

Printing has not been mentioned in the calculations on output because it is not likely to be a bottleneck in the immediate future. The three two-color presses, although old-fashioned, served before the war and should be adequate for the still-reduced postwar program.

1. The Yugoslavs have had some experience with aerial photography for mapping purposes, but less than a tenth of the survey work performed in the mid-30's was carried out with the aid of air photos. Although some aerial photography probably is being flown at the present time, all maps are said to be compiled from standard ground surveys. GIJA has acquired a Swiss-manufactured universal type stereoplotter since the war but claims to have no personnel to operate it. This probably is true in view of the technical proficiency required for using this equipment.

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Inasmuch as the Yugoslavs succeeded in restoring the presses to operating condition from the wreckage left by the Germans, they probably can keep them running for some time. The staff is not satisfied with the quality of the colored inks available to them, but the supply apparently is satisfactory, and postwar printing on the whole has been excellent.

It is interesting that, during a recent contact with the GIJA, no mention was made of the 1:50,000 series, which was formerly a basic series. More information is needed on reasons for the possible abandonment of this scale or for any secrecy concerning it.

B. Geokarta

Information on mapping programs of Geokarta is more fragmentary than that for the GIJA, but three types of maps currently are being produced -- cadastral, school maps and atlases, and special maps.

Cadastral Maps

Scale of 1:5,000. The Yugoslavs make the distinction that, whereas prewar cadastral maps prepared by the Ministry of Finance were used for taxation, the new maps are to be used for planning. The 1:5,000 sheets will carry contours and, unlike prewar maps which were filed in manuscript, will be published. There is no information on number of sheets finished or on areas of work.

Scale of 1:25,000. These sheets will be based on the 1:5,000 maps. It is not known whether the 1:25,000 maps will show property lines. Although contouring is planned, sheets seen by US personnel 2½ years ago were planimetric. There appears to be no cooperation

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between Geokarta and GIJA in preparation of maps at 1:25,000. The only report on progress of the cadastral series is a press statement of 1949, which said that 250 sheets covering northern Srbija had been completed. This seems highly unlikely, if not impossible, since Geokarta was not established until 1947. Completion may have been scheduled for 1949; in the past the Yugoslav press occasionally has confused planning with performance.

School Publications

A school atlas, of which a second edition is in process, as well as a series of wall maps of the various continents and of Yugoslavia have been published. Although all of these publications are much simplified and rather coarsely drawn, they are suitable for the purposes for which they are designed. From the point of view of cartographic technique, the maps are inferior to those of the same type published by Učila.

Special Maps

An atlas of Yugoslavia that will contain maps on agriculture, industry, etc., is in preparation. No sheets were seen, and planned date of publication is unknown. In the past, production of special-subject maps by Geokarta seems to have followed no particular pattern. In 1951 an excellent road map was published, and in 1949 a detailed map of the small civil divisions of Makedonija was issued in Macedonian. Some general physical maps of individual peoples republics have also been issued.

Two factors have an important, if incalculable, bearing on the ability of Geokarta to produce maps. In the first place the organization has undergone hothouse expansion. From an initial staff of 9 employees in 1947, it is said to have increased to 300. Almost all personnel observed recently appeared to be in the late teen-age group. Absorption of such numbers of untrained employees would tax the facilities of a well-established unit. It is open to question whether such

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a group is yet capable of carrying on the highly accurate and demanding compilation and survey work required for the planned cadastral mapping program. This may account for the reported unorthodox organization of field work. Field parties are said to consist of 50 to 60 people covering a single area. Blanketing an area in this way with some 20 working teams of 2 to 3 people each would permit unusually close supervision of field work on the site.

The second important factor is the uncertainty of continued state support. Although Geokarta is the cartographic production division of Glavna geodetska uprava (Chief Geodetic Administration), nothing is known concerning the position of this agency in the governmental structure or about the personal authority or influence of the present director of Geokarta, Mile Petrović. According to rumor the financial grants made to Geokarta for nonmilitary mapping purposes, as distinct from GIJA activities, are being seriously reduced and the organization will have to restrict its program. The source of this rumor is not official, and it has not been verified. In view of the generally straitened Yugoslav financial situation, however, Geokarta seems a likely spot for economizing.

Analysis of future special-map publication depends on receipt of much more information concerning the amount of freedom of action permitted Geokarta in contractual arrangements and initiation of work

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on new maps; the school maps are of little intelligence interest. At the present time the cadastral mapping program seems overly ambitious. "Rationalized planning" appears to have overlooked the impracticality in having a country with the restricted resources of Yugoslavia construct and maintain two separate series at 1:25,000, especially from independent surveys.

C. Učila

The most complete and authoritative information on mapping agencies concerns Učila, the agency of least intelligence interest. Učila was founded in Zagreb in 1947 to produce teaching aids, including biological models and laboratory glassware, as well as maps, relief models, and globes. Its output is subject to the approval of the Ministry of Education of Hrvatska (Croatia). Although initially subsidized by the ministry, Učila now is financially self-supporting.

Most of the maps published by Učila, including atlas sheets, are at very small scales -- 1:1,000,000 to 1:15,000,000 -- and the majority cover areas outside of Yugoslavia. Consequently, they offer little of substantive intelligence value. The operation of Učila is of interest chiefly as a demonstration of Yugoslav map-making techniques and as a possible reservoir of trained personnel and equipment. From this point of view, two types of production are worthy of note -- maps and atlases, and models.

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Wall Maps, Desk Maps, and Atlases

Six wall and four desk maps have been produced, and two wall maps and one desk map are in preparation. The first section of a school atlas, containing 10 plates, was published in 1950, and a second section of 14 plates, covering European countries primarily, is in process. A third section, which will include geologic, climatic, biogeographic, economic, and political maps of individual continents and of Yugoslavia, is planned, but some of the maps have not progressed even so far as the choice of scale. "Large-scale" maps of capital cities and important districts in Yugoslavia also are planned.

The cartographic section of the Učila plant employs 38 people. Many of the workers are older men -- retired army officers and geodesists. In making a new map, one man sets up specifications for projections, another draws the grid lines, and several compile the data from a variety of sources. The completed work sheet is photographed and separate negatives painted out for each color plate. This is more costly than currently accepted methods generally used in the US Government. The use of the technique may be explained by the fact that the Yugoslavs have been cut off from mapping developments elsewhere for more than 10 years.

According to the staff of Učila, the three presses available for map work are a handicap. All are 25 to 30 years old, and only one is a two-color press. Nevertheless, Učila has printed 10 or more maps in runs of 10,000 copies each, as well as atlas sheets in issues of 150,000 copies.

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Relief Models

The relief model section employs 28 people. Sixteen models, ranging in scale from 1:25,000 to 1:500,000, are in constant production for school use. The positive contour-cutting method, with stacking of contour cut-outs and filling with clay, is used in constructing these models. The master positive model is shellacked. A plaster negative is then made, from which other positives are cast. The basic coloring is applied by airbrush, and cultural detail is added by hand. This method is old-fashioned, cumbersome, and expensive, but the finished product is of high quality.

Učila seems to be a sound and stable concern with future plans geared to a realistic appraisal of both production capacity and demand for maps. It is too small and the equipment too old ever to add significantly to Yugoslav ability to produce large-scale maps.

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II. COLOMBIA MAP SERIES

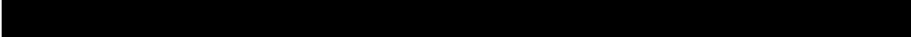
Within the past 10 years, considerable progress has been made in the production of topographic and planimetric map series of Colombia. Although the country has been mapped completely only at scales of 1:1,000,000 and smaller, a good beginning has been made on series at larger scales for the more developed portion of the country lying west of the Cordillera Oriental. Throughout this area, possibilities for economic development have provided from time to time an impetus for foreign capital to conduct exploratory surveys, thereby adding considerably to available mapping data. Map coverage for the area west of the Cordillera is complete at 1:500,000 and partial at 1:250,000, stream surveys for much of the area are available at 1:100,000, and small scattered areas are covered at various scales up to 1:20,000. The less developed region east of the Cordillera Oriental has not received comparable mapping attention, and the only significant series are limited to the northern llanos section (Boyacá, Arauca, Casanare, and parts of Meta and Vichada). Survey series at 1:100,000 are available for many of the rivers, and other maps provide partial coverage at scales ranging from 1:200,000 to 1:50,000.

Only a small fraction of the map series for Colombia consists of contoured topographic sheets. Although field surveys have been made establishing second- and third-order horizontal control over relatively

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large areas, the vertical control essential for the compilation of reliable medium- and large-scale contoured maps has been established in only a few areas. The field surveys have been conducted by both private organizations, primarily foreign oil companies, and official organizations and have been tailored to the various individual needs. As a result, the control data thus provided lack areal continuity and vary in type and reliability. Similarly, much of the aerial photography available for Colombia was flown by private organizations, primarily as an aid to geologic investigation, and therefore varies in its adaptability to mapping requirements.

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 the Instituto Geográfico Militar y Catastral (IGMyC) has initiated a program for (1) collecting, checking, and evaluating all available data on astronomic positions established in Colombia; and (2) using this information to speed up its own triangulation work, which is being carried on in conjunction with the Inter-American Geodetic Survey program. Topographic series at 1:25,000 and 1:100,000 based on IGMyC triangulation and vertical aerial photography currently are in production and eventually will provide complete coverage of the country at these scales.

Much of the mapping accomplished to date, other than that by the IGMyC, has been the work of foreign oil companies. These companies

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have made maps of their concessions and of the areas under contract for purposes of exploration. The mapping is of good quality, but the areal coverage tends to be spotty and discontinuous.

The extent of coverage by the various companies and official organizations is shown on the accompanying maps (CIA 12088, 12101, 12102, and 12103). Brief descriptions of the individual series will be found in the following paragraphs.

Small-Scale Series: 1:1,000,000

Two series -- the American Geographical Society Map of Hispanic America at 1:1,000,000, dated 1927-45, and the US Air Force World Aeronautical Charts at 1:1,000,000, dated 1946 and later -- provide complete coverage of the Republic of Colombia. Both show relief by a combination of approximate contours, layer tints, and spot elevations and present hydrography in considerable detail. The individual sheets of both series vary in their relative reliability according to the quality of the compilation sources available. The American Geographical Society series presents a greater amount of and more detailed cultural information than do the World Aeronautical Charts, which were designed primarily for air navigational purposes.

Medium-Scale Series: 1:200,000-1:500,000

US Air Force Preliminary Base maps, 1:500,000, dated 1945 and later, provide reliable partial coverage for the land area of Colombia

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west of the Cordillera Oriental. The maps were compiled primarily from wartime trimetrogon photography flown by the US Air Force and provide the best contour data available for the area as a whole. This series is not indexed on the accompanying map, since an index, Catalog of Aeronautical Charts and Related Publications, showing Preliminary Base and World Aeronautical Chart coverage, may be obtained from the Aeronautical Chart and Information Service, USAF.

Map of Colombia, 1:500,000, a series published by the Gulf Oil Company, has been received in Washington for reproduction, and copies will be available on loan from the AMS and CIA map libraries. The series provides coverage for western Colombia and the northern llanos area. Contours or approximate contours are indicated on all sheets except those covering the area north of 8° N. Information concerning the publication dates and the control utilized is not available at present. A detailed drainage pattern, transportation facilities, and pipelines are among the features shown.

Shaded relief maps of the departamentos of western Colombia at a scale of 1:500,000 were compiled by the Oficina de Longitudes y Fronteras during the period 1924-42. These sheets are valuable as sources of information on place names and are useful for general orientation purposes but are unreliable as a source for precise locational information.

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Much of northwestern Colombia is covered by an untitled planimetric series at 1:250,000 covering the Colombia-Venezuela boundary region, which was compiled by an unknown authority. This series shows drainage features in detail and presents a few selected cultural features such as settlements, roads, and railroads.

The Socony-Vacuum Oil Company has produced planimetric map series at 1:200,000, dated 1947, for small areas of the middle Magdalena Valley, the northern llanos, and the Sinú-Urabá area of the departamento of Bolívar. These maps are based on reliable horizontal control data and present drainage features, administrative division boundaries, oil installations, transportation facilities, and settlements. On some sheets, only part of the area is mapped.

Intermediate-Scale Series: 1:100,000

The Tropical Oil Company series, Mapa Topográfico de la República de Colombia, at 1:100,000, dated 1938 and later, provides stream and partial land-area coverage for the west coast of Colombia and much of northern and central Colombia east of the Río Cauca and north of 4° N. The sheets are not consistently planimetric or contoured, the contours shown being based on field surveys plus vertical photography. Many of the sheets present geologic data obtained from gravimetric surveys, in addition to the standard physical and cultural features.

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Planimetric coverage of the Río Magdalena south of 3° N is provided by a series at 1:100,000, Plano General del Río Magdalena, published in 1933 by Consortium Berger.

The Socony-Vacuum Oil Company has prepared four sheets at 1:100,000, dated 1946-47, for a portion of the northern llanos area. Although the sheets are not contoured, an indication of the relief is given by spot elevations and by some hachuring.

One sheet of the IGMyc topographic series at 1:100,000, República de Colombia, Carta General, is currently available. This series is being compiled from vertical aerial photography controlled by good second- and third-order surveys. Relief is shown by contours, layer tints, and spot elevations. Many cultural features are presented, including railroads, three categories of roads, first- and second-order internal administrative boundaries, and triangulation stations.

Large-Scale Series: 1:20,000-1:50,000

Socony-Vacuum Oil Company has produced two map series at the scale of 1:50,000. The sheets of the first series, dated 1943-46, have little uniformity in size and overlap one another in irregular fashion. Four sheets at 1:15,000, three at 1:25,000, and one at 1:8,000 are catalogued by AMS along with the sheets at 1:50,000 as a part of that series. Scattered sections on the west coast and the Magdalena River Valley, a portion of the northern llanos, and the

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Sinú-Urabá area of the departamento of Bolívar are covered by the series. Some of the sheets show approximate contours, but in general the sheets are planimetric. The second and more recent series, dated 1946-47, is planimetric throughout. Although the sheets cover scattered areas in northern and central Colombia, each is keyed to a uniform grid of the Republic. Both series show considerable geologic data in addition to oil installations, transportation lines, and other cultural information.

Topographic-geologic maps of the Tame-Moreno region of the northern llanos at 1:50,000, dated 1949, have been produced by the Gulf Oil Company. The sheets contain only partial land-area compilation, but the areas mapped are contoured.

In 1947 the Richmond Petroleum Company compiled four planimetric sheets of the middle Magdalena Valley at a scale of 1:50,000. The sheets show drainage in detail, towns, transportation facilities, and the astronomic positions used for horizontal control.

The Texas Petroleum Company produced a series in 1932 at a scale of 1:40,000, entitled Mapa Topográfico de las Propiedades Guaguaqui-Terán-La Ceiba (Topographic Map of the Guaguaqui-Terán-La Ceiba Properties). This series indicates topography by hachures and spot elevations and shows oil concession boundaries and installations and other selected cultural features.

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Two series at 1:40,000 covering portions of the middle Magdalena Valley have been made by Compañía de Petroleo Shell de Colombia. One series, which is without title, is dated 1942, and the other, entitled Aerial Survey of the Middle Magdalena Valley (Northern Part), is dated 1944. Both show drainage in detail and cultural features such as towns and transportation facilities. Of the latter series, the sheets available in Washington are photocopies bearing no legend. Gray tones appearing on these photocopies are difficult to interpret but are presumed to indicate elevation above and below an unidentified contour. Borders of forested areas are shown, and selected vegetation types appear to be indicated by undefined symbols.

A series of land-use maps, Valle del Río Cauca, Plano General, was compiled in 1947 for the Secretaría de Agricultura, Departamento del Valle, by the US engineering firm of Parsons, Brinckerhoff, Hogan, and MacDonald. Aerial photography and field survey data of the IGMyc were utilized in the compilation of these sheets, which range in scale from 1:37,800 to 1:39,400. The series is contoured in part and presents land-use data interpreted from aerial photography flown in 1943-46.

Seventy-five sheets of the IGMyc series, Carta Preliminar de la República de Colombia, at 1:25,000 are available at the Army Map Service library. This series supersedes the municipio maps printed

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at 1:25,000 and 1:50,000 by the IGMyc in 1942-43. The new series, compiled from vertical aerial photography with good second- and third-order control, is in color and gives contours, astronomic positions, first- and second-order internal boundaries, and numerous other cultural features.

In 1946 and 1947 the Socony-Vacuum Oil Company compiled planimetric sheets at 1:20,000 for portions of its concession areas along the middle Magdalena Valley and in the Sinú-Urabá region. Most of the sheets show drainage features, settlements, and oil concession data, and a few sheets also indicate land forms by hachures and provide geologic data.

A series at 1:20,000, Aerial Survey of the Middle Magdalena Valley (Southern Part), was prepared by Compañía de Petroleo Shell de Colombia in 1944. The series, which is similar in format to the company's series at 1:40,000, Aerial Survey of the Middle Magdalena Valley (Northern Part), gives drainage, control points, railroads, and settlements. The sheets available in Washington are black-and-white photocopies, which tend to obscure data shown in color on the originals. A comparison of individual sheets with aerial photographs of the same area indicates that the gray tones represent elevations above and below an unidentified contour and that the heavy lines with hachures on one side indicate the borders of forested areas.

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Texas Petroleum Company has produced a map series of its Guaguaqui-Terán-La Ceiba properties at a scale of 1:20,000 that resembles its 1:40,000 series in format. The sheets, bearing dates 1932-48, are planimetric and show drainage, spot elevations, oil concession data, and other selected cultural features.

APPENDIX

In general, the series maps of Colombia available in Washington are ozalid reproductions or black-and-white photocopies, the lithographed series of the IGMyc, of the American Geographical Society, and of the US Air Force (World Aeronautical Charts) being exceptions. Nearly all of the geographic and metric grids employed on these maps are based on Bogotá. The series produced by the various oil companies bear the Special Control classification and are available to authorized US Government officials only. Indexes of individual series may be consulted at the Army Map Service.

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MAP SERIES*

<u>TITLE</u>	<u>AUTHORITY</u>	<u>SCALE</u>	<u>AVAILABILITY</u>
<u>Map of Hispanic America</u>	American Geographical Society	1:1,000,000	AMS Call No. 1-3-30-200-1,000; CIA Call No. 21793
<u>World Aeronautical Chart</u>	US Air Force	1:1,000,000	Distribution, ACIS
<u>Preliminary Base</u>	US Air Force	1:500,000	Distribution, ACIS
<u>Colombia Carta General</u>	Oficina de Longitudes y Fronteras	1:500,000	AMS Call No. 7E-32-30.5-8557-500
[No title; catalogued as Colombia-Venezuela Boundary Region]	Unknown	1:250,000	AMS Call No. 7E-23-22.0-100-250
* <u>Mapa de la República de Colombia</u>	Socony-Vacuum Oil Company	1:200,000	AMS Call No. 7E-23-7.5-15147-200
* <u>Mapa Topográfico de la República de Colombia</u>	Tropical Oil Company	1:100,000	AMS Call No. 7E-23-26.0-8562-100 (112 sheets); CIA Call No. 72619 (81 sheets)
<u>Plano General del Río Magdalena</u>	Consortium Berger	1:100,000	AMS Call No. 7E-23-22.2-802-100
*[No title]	Socony-Vacuum Oil Company	1:100,000	AMS Call No. 7E-23-7.5-85147-100; CIA Call No. 38423

*Series marked by an asterisk bear the Special Control classification and are available for use by authorized US Government officials only.

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<u>TITLE</u>	<u>AUTHORITY</u>	<u>SCALE</u>	<u>AVAILABILITY</u>
<u>República de Colombia, Carta General</u>	Instituto Geográfico Militar y Catastral	1:100,000	AMS Call No. 7E-3-15.0-8553-100
* <u>Map of Colombia</u>	Socony-Vacuum Oil Company	1:50,000	AMS Call No. 7E-23-7.5-85147-50
* <u>[No title]</u>	Socony-Vacuum Oil Company	Various	AMS Call No. 7E-32-7.5-85147-V
* <u>[No title]</u>	Gulf Oil Company	1:50,000	AMS Call No. 37E-23-30.0-85048-50
* <u>[No title; catalogued as Middle Magdalena Valley]</u>	Richmond Petroleum Company	1:50,000	AMS Call No. 17E-23-7.5-85311-50; CIA Call No. 38413
* <u>Mapa Topográfico de las Propiedades Guaguaqui-Terán-La Ceiba</u>	Texas Petroleum Company	1:40,000	AMS Call No. 7E-23-7.5-85038-40
* <u>[No title]</u>	<u>Compañía de Petróleo Shell de Colombia</u>	1:40,000	AMS Call No. 7E-23-22.6-85040-40
* <u>Aerial Survey of the Middle Magdalena Valley (Northern Part)</u>	<u>Compañía de Petróleo Shell de Colombia</u>	1:40,000	AMS Call No. 17E-23-22.6-85040-40; CIA Call No. 74045
<u>Valle del Río Cauca, Plano General</u>	Secretaría de Agricultura, Depto. del Valle del Cauca	1:37,800- 1:39,400	AMS Call No. 7E-23-30.0-8567-V; CIA Call No. 38421

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<u>TITLE</u>	<u>AUTHORITY</u>	<u>SCALE</u>	<u>AVAILABILITY</u>
<u>Carta Preliminar de la República de Colombia</u>	Instituto Geo- gráfico Militar y Catastral	1:25,000	AMS Call No. 7E-3-30.0-8553-25 (75 sheets); CIA Call No. 28519 (32 sheets)
*[No title]	Socony-Vacuum Oil Company	1:20,000	AMS Call No. 7E-23-7.5-85147-20
* <u>Aerial Survey of the Middle Magdalena Valley (Southern Part)</u>	Compania de Petroleo Shell de Colombia	1:20,000	AMS Call No. 17E-23-22.6-85040-20; CIA Call No. 74044
* <u>Mapa Topográfico de las Pro- piedades Guaguaqui-Terán- La Ceiba</u>	Texas Petroleum Company	1:20,000	AMS Call No. 7E-23-7.5-85038-20; CIA Call No. 38418

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III. BULGARIAN MAPPING IN DOBRUDZHA

Since the war, almost no reports of Bulgarian mapping have been received in the United States. Consequently, the fragmentary information incorporated in a recent Bulgarian Government decree is of particular interest and merits wider distribution than its volume and substance would otherwise warrant.

The decree, Development of Rural Economy, Irrigation and Electrification of the Dobrudzha, was published in Rabotnichesko Delo on 14 April 1951. Incidental to the body of the decree, which describes reclamation proposals and assigns administrative responsibility for them, a number of references are made to topographic maps and survey materials, as well as to various special surveys necessary to the reclamation plans. These are among the few clues to recent Bulgarian mapping activity in the Dobrudzha, particularly the area acquired from Rumania.

The statement is made that a proposed land-use survey is to be based on the "existing plans of lands in inhabited places and the map at 1:25,000," except in the okolii of Ispirikh and Kubrat, where "newly drawn terrain-situation plans" are to be used. If, as seems likely, the 1:25,000 map refers to the standard topographic series at this scale that was initiated during the 1930's, the Bulgarians must have carried

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on a vigorous mapping program in the postwar period. Publication of 70 to 80 sheets is indicated -- about one-third the total number published prior to 1944. The figure is high but by no means impossible.

Isperikh and Kubrat are the only okolii of the nine covered by the decree that were not formerly Rumanian territory. The 1:25,000 sheets mentioned could therefore be merely reductions of the existing 1:20,000 Rumanian map coverage of the area based on surveys made just before the war. This, however, seems improbable because (1) the Bulgarians are known to have undertaken a new triangulation in the former Rumanian area in 1941 and 1942; (2) the Rumanian and Bulgarian series differ fundamentally in projection, origins of the triangulation and leveling networks, and language; and (3) uncertainty as to whether the 1940 Nazi-inspired award of the southern Dobrudzha to Bulgaria would be upheld probably made the Bulgarians eager to complete the new triangulation and mapping before the territorial decision could be reversed.

Possible hasty compilation with incomplete lower-order control is indicated by demands in the 1951 decree for the quarrying of thousands of "triangulation stones" and erection of enough bench marks so that there will be at least one in every populated place. Provision is also made for continued use of the old 1:40,000 series, which apparently is still the only uniform coverage for the area.

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The "terrain situation plans" recommended as base maps for the okolii of Ispersikh and Kubrat cannot be identified. It is possible that they are planimetric maps of some sort, which would be adequate for the purpose.

In addition to the topographic or cadastral work planned, the elaborate program of special studies would, even if only partially completed, provide more material for mapping purposes than has ever been available for the Dobrudzha. The following surveys are ordered by the decree:

1. Land-use survey to be carried out by the Ministry of Agriculture. The survey is to include establishment of the borders of the various cooperative, state, and other public farms and lay-out of the crop rotations, forest belts, irrigation canals, vineyards, etc.
2. Forest survey to be carried out by the Ministry of Forestry.
3. Hydrogeological survey to be carried out by the Ministry of Electrification. Some responsibility, seemingly overlapping, for similar but limited surveys is also assigned to the Ministry of Agriculture and to the Hydrological Department of the Ministerial Council.

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IV. NEW ROAD MAP OF YUGOSLAVIA

A 1951 road map of Yugoslavia at 1:750,000, Karta puteva (Map of Roads), Automobilsko-motociklistički savez Jugoslavije (Unclassified), is now available in the CIA Map Library under Call No. 73924. The map, which is cartographically excellent, supersedes two earlier postwar route maps.¹ In spite of the authority given, it may be regarded as an official publication, since it actually was drawn and reproduced by Geokarta, a division of the Glavna geodetska uprava (Chief Geodetic Administration).

The most important feature of the new map is the radical departure from earlier systems of road classification. On Yugoslav maps, roads have commonly been classified either by administration as state, republic, and srez roads, or into undefined first, second, and third classes. The 1951 map shows (1) roads with a modern base, (2) roads with a stone base (metalled), and (3) roads without a stone base (unmetalled).

1. Karta automobilskih puteva Federativne Narodne Republike Jugoslavije (Map of Automobile Roads of the Federative Peoples Republic of Yugoslavia); 1:1,000,000; Automobilsko-motociklistički savez Jugoslavije; 1948; CIA Map Library Call No. 49894 (Confidential).

Automobilska karta Federativne Narodne Republike Jugoslavije (Automobile Map of the Federative Peoples Republic of Yugoslavia); 1:750,000; Geografski institut Jugoslovenske Armije; 1945; CIA Map Library Call No. 27809 (Unclassified).

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The first road group actually includes all paved roads -- concrete, asphalt, cobblestone, and brick. Insofar as it can be verified by personal observations reported by attachés, the road net as shown is correct. All road sections that were paved as of the publishing date are believed to be included, except those sections in the immediate vicinity of a few towns which would be difficult to show at the scale of 1:750,000. All the roads of the second group can be assumed to have a base of medium to large stones, usually hand set, with a rolled topping of crushed rock, gravel, and sand -- the standard type of Yugoslav road construction.

Distinction between roads of the second and third groups is not so clear on the ground as on the map. Not all roads of the third group are plain dirt roads, as the legend implies, many being similar in construction to those of group two. Since roads of the third group are in general obscure back-country roads, perhaps half of them have not been the subject of road reports. There appears to be definite correlation, however, between actual driving conditions and the road classification. Most roads of the third type that are not plain dirt roads either are less than 12 feet wide or have surface topping that is excessively worn and pitted, but neither criterion seems universally applicable. If there was any doubt as to the classification of a road, it apparently was given the lower rating. All roads shown on the map are considered to be motorable by passenger cars.

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In addition to information on road characteristics, the 1951 map provides the most complete presentation of recent road construction available. Not only is the Belgrade-Zagreb Autoput shown, but also many of the minor road projects of the Five Year Plan (1947-51). Included also are some roads that were previously known primarily through prisoner-of-war or other reports, as well as those that have received much publicity in the Yugoslav press. For example, the new routes from Glamoč to Drvar and from Čevo to Grahovo are located, together with such insignificant but well-publicized projects as the 3-kilometer road from Žabljak to Crno Jezero in Montenegro. Even though they were completed before 1948, many such roads are not shown on the 1948 road map.

The new map is the first postwar publication to carry a route numbering system. It is not complete, but roads of the first category according to the January 1951 federal classification -- that is, those that pass through two or more republics, connect important industrial centers, or merge with the roads of neighboring countries -- are numbered. The numbering scheme is not the same as that used before the war.

Another minor but curious difference between the 1951 map and those of 1945 and 1948 is that the new map is printed in French as well as in Serbo-Croat -- one more small step in the Yugoslav turn to the West and the bid for Western tourist trade.

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The map carries inset town plans at 1:35,000 of the capitals of the six peoples republics of Yugoslavia. The scale and detail of the plans are such that they provide little intelligence information in addition to that on hand for any of the towns except Titograd. A war-time British "throughway" plan has been the only coverage heretofore available for Titograd, which has experienced a local building boom since it became the capital of Crna Gora. The new map adds a few street names and gives the shape and location, but not identification, of three or four public buildings.

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V. BRIEF NOTICES

A. NEW RAILROAD MAP OF ITALY

A map of Italian railroads at 1:500,000, Italy, Communications, 1950 (Secret), is included in [REDACTED]

25X1C

25X1C

[REDACTED] The map is significant as an ambitious attempt to show in detail the highly complicated characteristics of the railroads of peninsular Italy. The categories of lines shown are well-selected, and the symbols are clear and easily distinguishable in spite of the large number of features shown. Even though plan and format are excellent, the map must be regarded as preliminary rather than definitive because of the large number of errors included. The majority of these are small, but together they involve more than 15 percent of the total rail mileage of Italy.

25X1C

[REDACTED] railroads are mapped according to the following categories: (1) alignment, (2) gauge, (3) trackage, (4) traction, (5) ownership, (6) operability, (7) future plans, and (8) progress in construction. Private lines that are double-tracked, projected, under construction, or being converted to standard gauge are not shown. The errors fall chiefly within categories (2) through (6), and most of them are of minor importance. Errors in categories (1) and (8) are somewhat more serious. The alignment of lines is inaccurate in the vicinities

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of Milan, Rome, and Naples, and to the northeast of Bologna. Only one line is shown [REDACTED] as being under construction, and this construction is not confirmed by any other source available. Official Italian maps, however, show at least three lines as being under construction. Possibly the greatest slip on the map occurs in the legend, where all narrow-gauge lines are given as 0.76 meters, whereas less than one-tenth of the lines actually have that gauge.

B. RECENT TURKISH MAPS

Maps of Turkey on a variety of subjects have become available to the CIA Map Library in recent months. Because of the paucity of good special-subject maps of Turkey, those few that provide new information or supplement previously available maps are noteworthy.

1. Intercity Telephone Circuits; schematic, approximately 1:2,000,000; Turkish Postal, Telegraph and Telephone Directorate; manuscript additions to January 1951; no grid; Call No. 71486 (Unclassified).

In addition to circuits, this map shows exchanges and repeater stations. It has been checked against the latest information available to the Signal Corps Intelligence Agency and is completely up to date as of September 1951. Also included are notes on planned installations.

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Our meager knowledge of Turkish forests is augmented by this small map which shows the distribution of five kinds of forest insect pests and the frequency of forest fires during the period 1937-46. Location of forested areas is generalized and inaccurate.

3. Türkiye Ormanlarının Agaç Nevi ... (Distribution of Tree Species in Turkish Forests ...); 1:2,000,000; [Turkish] Forestry Directorate; probably 1948; in Turkish; no grid; Call No. 71462 (Unclassified).

Areas actually in forest and forests in which the cutting is controlled are plotted in detail adequate for the scale. Symbols show for every few hundred square miles of forest which of six tree types predominates. Earlier maps have shown similar information but in less detail.

4. Yer Sarsıntısı Bölgeleri Haritası (Map of Earthquake Zones); 1:2,000,000; [Turkish] Public Works Ministry; 1949; no grid; Call No. 71482 (Unclassified).

Earthquake intensity is mapped more clearly and in greater detail than on any map previously available. Areas of first, second, and third (not dangerous) intensity are plotted, but in nearly every case the boundary between second- and third-intensity areas coincides with those of the il (province) or ilçe (district). In a few cases, first- and third-intensity areas are indicated as adjacent.

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Maps of Turkish power installations are few and unsatisfactory. This one adds a small amount of information not found on other maps but nevertheless is incomplete. Some of the figures for capacity do not agree with other sources that are considered to be fairly reliable, and no distinction is made between installed and available capacity.

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