

National Center Tour Guide



National Center Tour Guide

To Our Guests

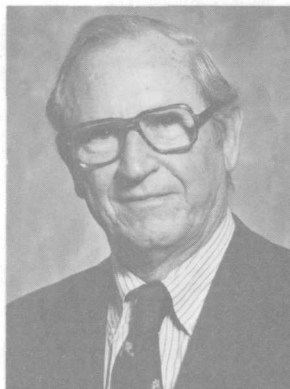
On behalf of each employee at the Geological Survey's National Center, I extend a warm welcome to you during our Centennial Year.

We hope that your visit to our headquarters will be a pleasant and rewarding experience. Our scientific research is directed towards helping to solve some of the critical environmental and natural resource problems that face our Nation today. We want you to see some aspects of this work, and we hope you will visit us again.

As part of the Federal Government, we are deeply committed to the concept of public service. We are proud to serve you.

H. William Menard

H. William Menard
Director



General Information

Reception Area—In the main lobby.

Information Area—In the Auditorium on the first floor. The tour of the building described on subsequent pages begins here.

Telephones—For calls within the building, use any extension phone; for outside calls, use the pay phones located on each floor.

First Aid—The Health Unit (extension 6141) is in Room 1-B-418, adjacent to the main lobby.

Lost and Found—In the Reception Area.

Food and Beverages—In the Cafeteria on the basement level and at snack bars throughout the building.

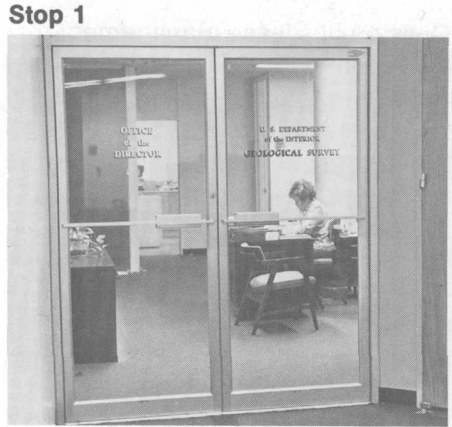
Tour Guides—Located throughout the building. They will be wearing identifying badges and will be available to answer any questions that you may have about the Geological Survey, its operations, and the National Center.



Seventh Floor

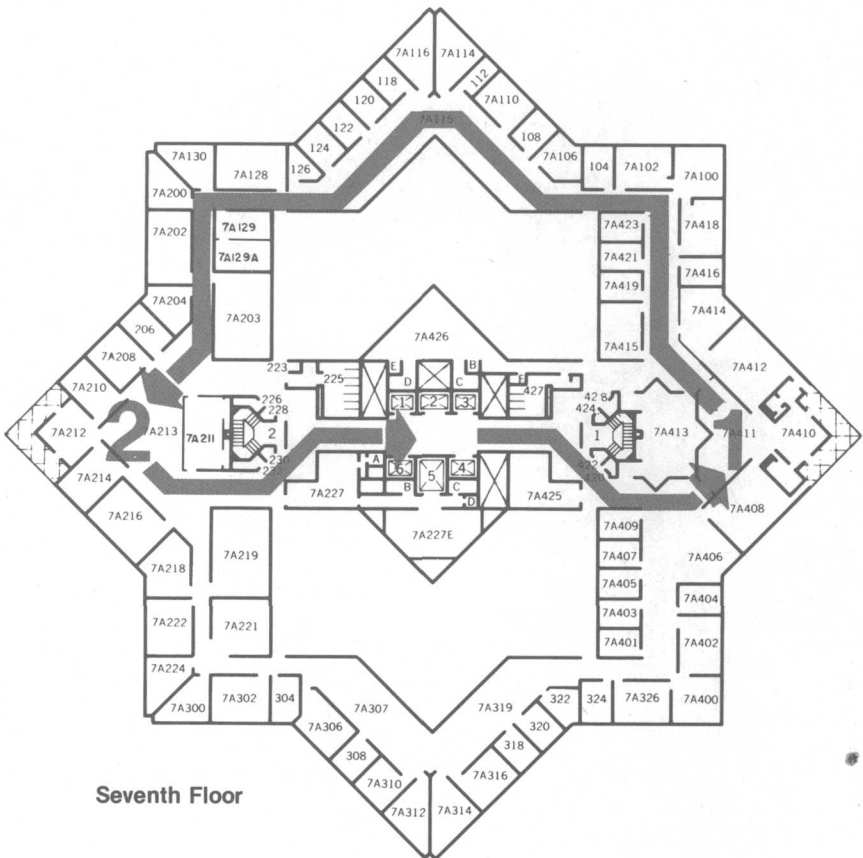
Stop 1—Office of the Director

These offices house the Director of the U.S. Geological Survey, Dr. H. William Menard, and his staff. From here, the Director and his staff direct and oversee the varied activities of the Survey's numerous offices and Field Centers.



Stop 2—Conservation Division

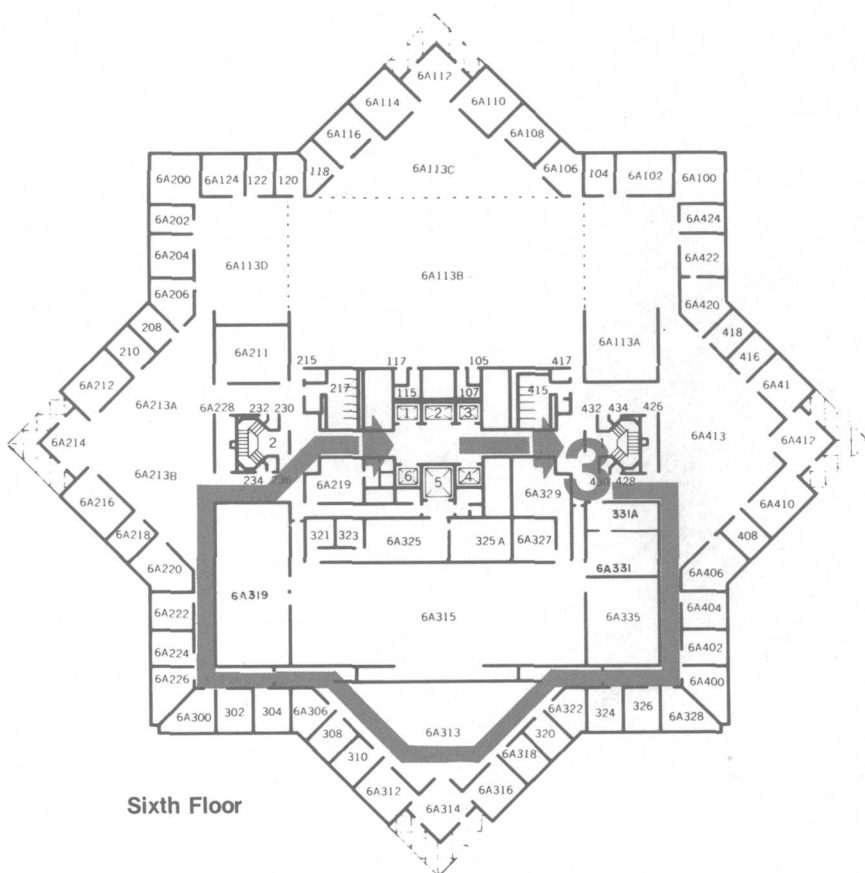
The Conservation Division classifies public lands as to their value for the leasable minerals and for waterpower and water-storage purposes, and evaluates mineral tracts that are subject to competitive leasing. The



Sixth Floor

Stop 3—Computer Center Division

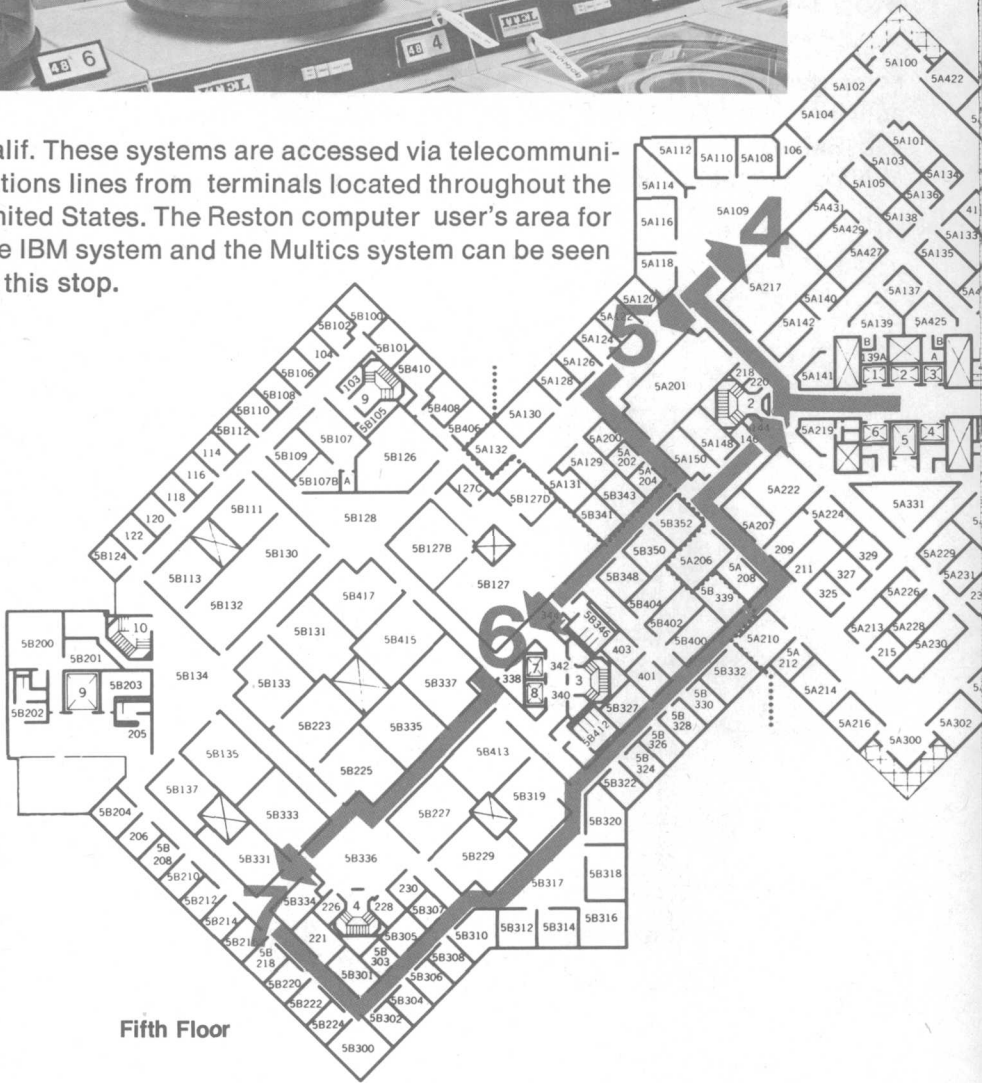
The Computer Center Division maintains and operates large-scale computer systems in support of the research and data-gathering activities of the Geological Survey. The nationwide systems consist of two IBM 370-155 computers located in Reston, Va., and Honeywell 68/80 Multics computers located in Reston, Va., Denver, Colo., and Menlo Park,



Stop 3



Calif. These systems are accessed via telecommuni-
cations lines from terminals located throughout the
United States. The Reston computer user's area for
the IBM system and the Multics system can be seen
at this stop.

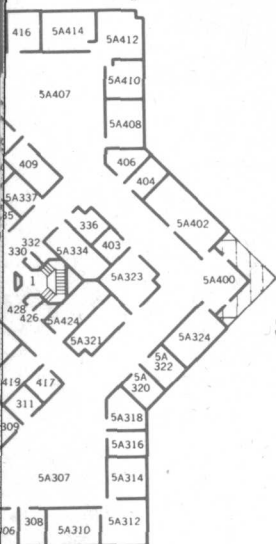


Fifth Floor

Stop 4—Water Resources Division

The Water Resources Division is responsible for evaluating the quantity, quality, and sources of the Nation's water supplies. This is a continuing program that began almost 90 years ago. It collects and publishes information about the flow and sediment discharge of rivers; the location and availability of underground waters; the chemical, biological, and physical characteristics of the waters; and the results of supporting research. This information is needed to achieve effective management of the Nation's water supplies. Exhibits relating to this program are on display at this stop.

Stop 5—National Water Data EXchange



The NATIONAL Water Data EXchange (NAWDEx) provides information on water data available throughout the United States. It maintains a national network of Local Assistance Centers to assist users of water data in identifying, locating, and acquiring needed data. A description of NAWDEX services, examples of its information products, and a computerized demonstration of its information data bases are on display.

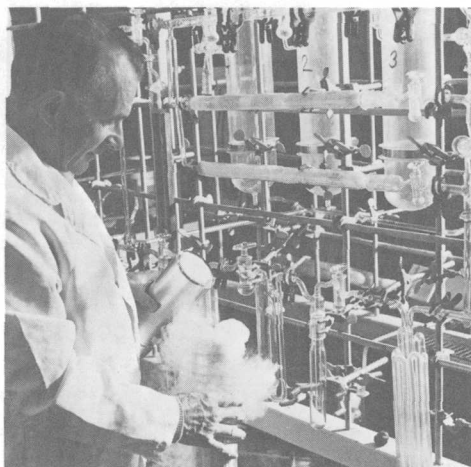
Stop 6—Stable Isotope Geochemistry Laboratory

This laboratory is the Water Resources Division's principal research facility for analyzing the naturally occurring stable isotopes in water and rocks using mass spectrometers. Current research is focused on geothermal energy

Stop 5



Stop 6

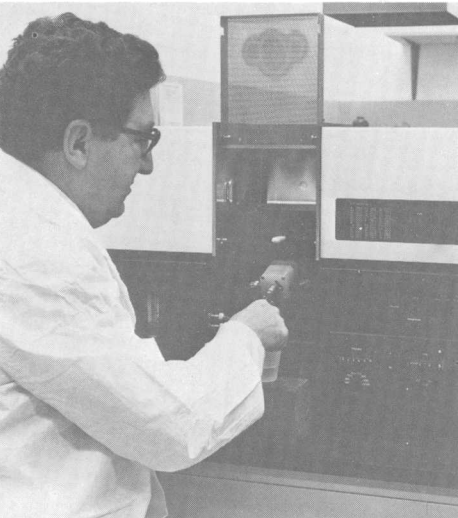


resources, evaporation and mixing of lakes and other surface waters, ground-water geohydrology investigations, and paleoclimates.

Stop 7—Water Quality Laboratory

The Laboratory is a specialized facility for the chemical analysis of water. Here chemists develop improved methods for analyses of dissolved gases and trace metals in liquids and analyze waters in support of geochemical research projects. Much of the work at present is concerned with the ground-water chemistry of the Northern Great Plains coal region, the brine lakes in Oregon and the Potomac River estuary.

Stop 7



Fourth Floor

Stop 8—The Survey Library

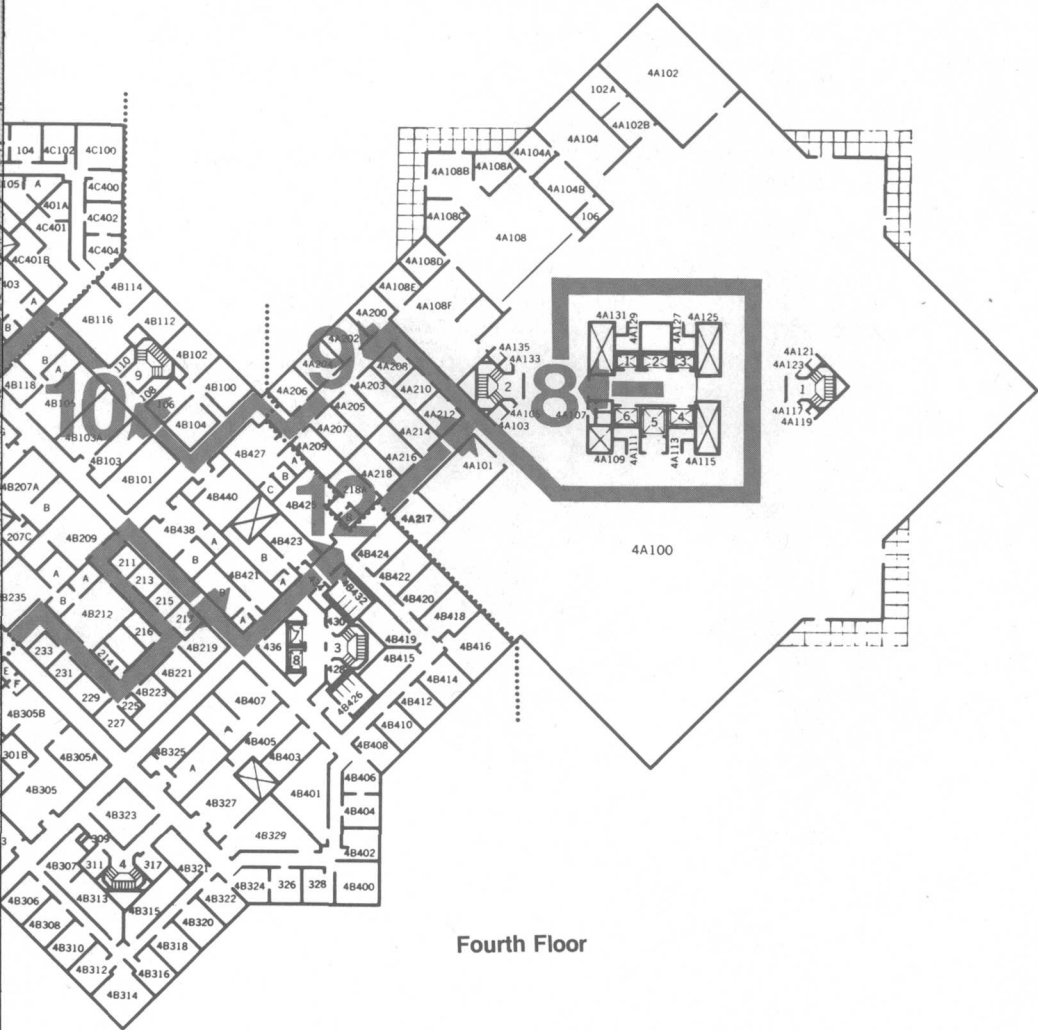
The U.S. Geological Survey Library, established in 1879, contains one of the world's outstanding collections of geoscience literature. Although maintained primarily to support the research activities of Survey scientists, these collections are made available to Department of the Interior scientists, other Government agencies, universities, and research organizations throughout the country. On display is a sampling of the library's historic books in geology.

Stop 9



Stop 9—A Research Geologist's Office and Laboratory

The Geologic Division conducts diversified investigations to increase the understanding of the natural resources of the United States. Information gained from this work provides the basis for decisions relating to energy and mineral development, land use, urban planning, environmental programs, and natural hazards. At this stop, a typical research geologist's office equipped with modular furniture is displayed. Nearby are a small



Fourth Floor

geochemistry and petrology laboratory and one of the six multipurpose laboratories available to the research staff that can be used to prepare and test mineralogic and petrologic samples.

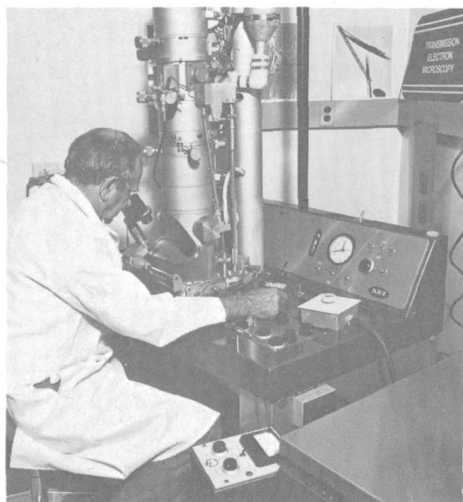
Stop 10—Atlantic Outer Continental Shelf Oil and Gas Assessment

In 1972 the Office of Energy Resources of the Geologic Division initiated a systematic study of the geologic framework of the Atlantic Outer Continental Shelf and an assessment of its petroleum potential. Later the study area was expanded to include the South Atlantic Shelf and the adjacent Blake Plateau as well as the deeper waters on the Continental Slope and Rise from the Bahamas to the Gulf of Maine. At this stop annotated seismic profiles depict the probable age and sediment deposition across the Continental Shelf, Slope, and Rise. Also on display are selected seismic cross-sections of the 3,400-kilometer (over 2,000-mile) profile from North Carolina to the Mid-Atlantic Oceanic Ridge.

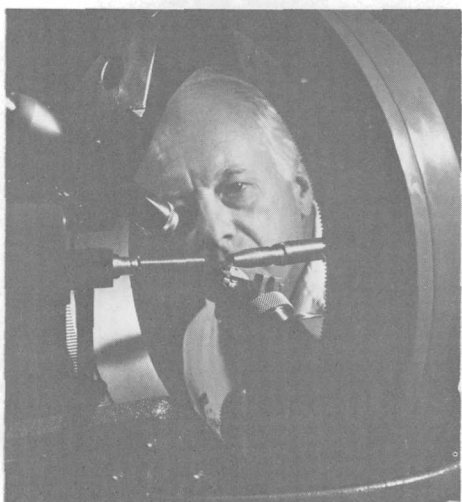
Stop 11—X-Ray Spectroscopy and Electron Microscopy Laboratory

The Geologic Division employs many different analytical techniques to determine the chemical composition of rock and mineral specimens. In the X-ray spectroscopy and electron microscopy laboratory, analyses of all types of geologic materials can be made. The vacuum and air-path X-ray spectrometers, transmission (TEM) and scanning (SEM) electron microscopes, electron microprobe, and automated soft X-ray spectrometers are on display. The clean room, optical mineralogy

Stop 11



Stop 12



laboratory, sample preparation room, and analytical chemistry laboratory can also be viewed.

Stop 12—Single-Crystal X-Ray Diffractometer

The laboratories of the Geologic Division offer sophisticated facilities for the modeling of geochemical processes and for the extensive analysis of extremely minute samples. At this stop, a single-crystal X-ray diffractometer, controlled by a minicomputer, is on display. This instrument system collects data that are used to determine the atomic structure of a mineral magnified 1 billion times. The characteristics of a mineral, such as hardness, cleavage, density, color, and optical properties, which depend on the three-dimensional arrangement of its atoms in space, can thus be determined. In this system, X-rays enter the tiny mineral fragment (0.1 mm on an edge) and are diffracted at angles unique to that mineral. The instrument automatically positions the fragment at the appropriate angles, measures the diffracted intensities with a scintillation counter, and records the measurements on magnetic tape. The raw data on this tape are then analyzed in the Survey's large computer to yield the detailed atomic arrangement in the mineral crystal.

Second Floor

Stop 13—National Mapping Program

The primary mission of the Topographic Division's National Mapping Program is to provide accurate and current basic cartographic data for the United States and to process these data into forms that can readily be applied to contemporary problems. The products include topographic maps showing both the natural and man-made features of the Nation's surface, planimetric base maps, systematic high-altitude aerial photography, and digital planimetric and relief data. At this stop, display panels and audiovisual presentations describe the mission of the Topographic Division, its organization for collecting and processing of data, and sample products of the National Mapping Program.

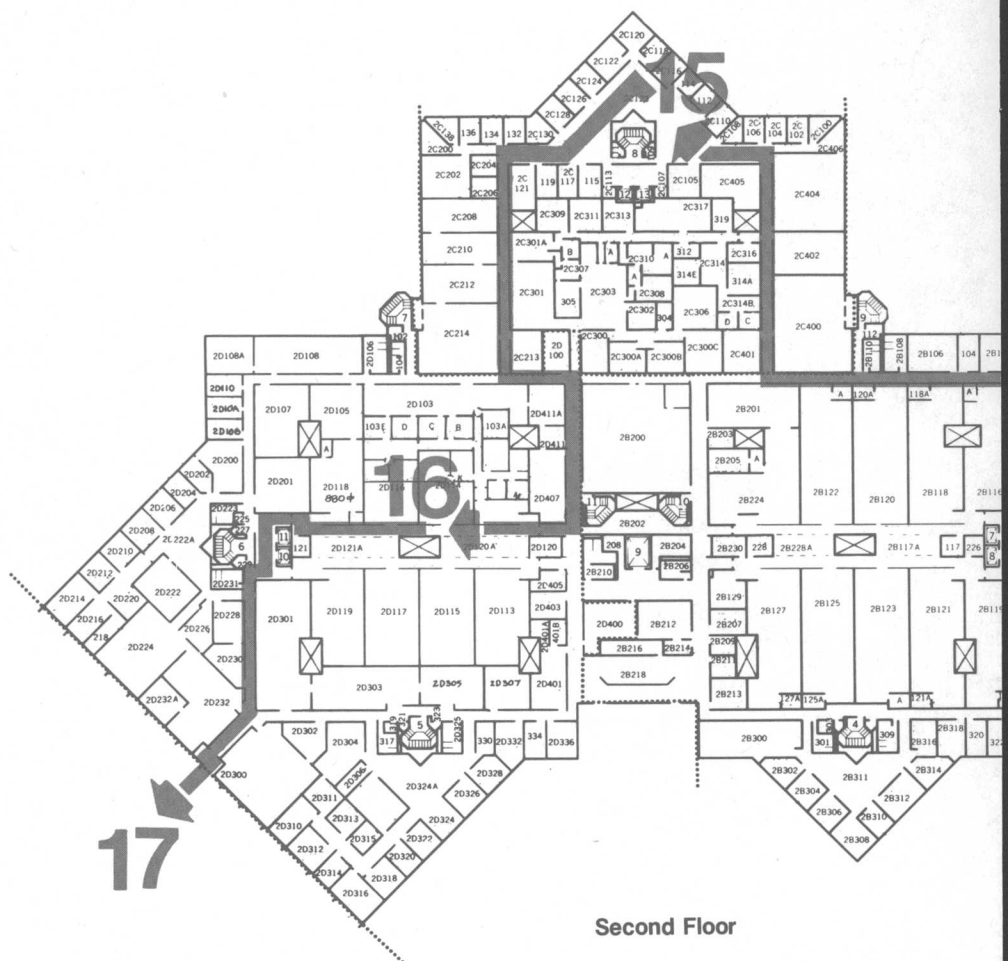
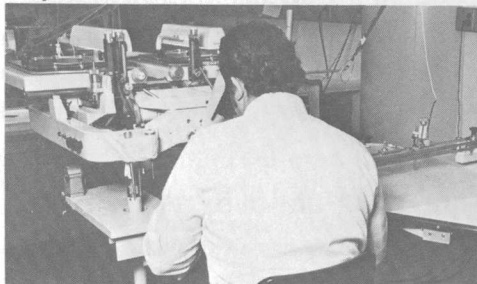
Stop 14—Geographic Names

The largest collection of American geographic names is found on the topographic maps published by the Geological Survey. At this stop, display panels describe the work of the Geographic Names Section and the Domestic Names Committee of the Interagency Board on Geographic Names. A display of antique field instruments and other objects can also be viewed.

Stop 15—Cartographic Operations

At this stop, mapmaking procedures and stereoplottting equipment used in the production of National Mapping Program products are shown. Map separates and diagrams of steps in the mapmaking process are displayed.

Stop 15

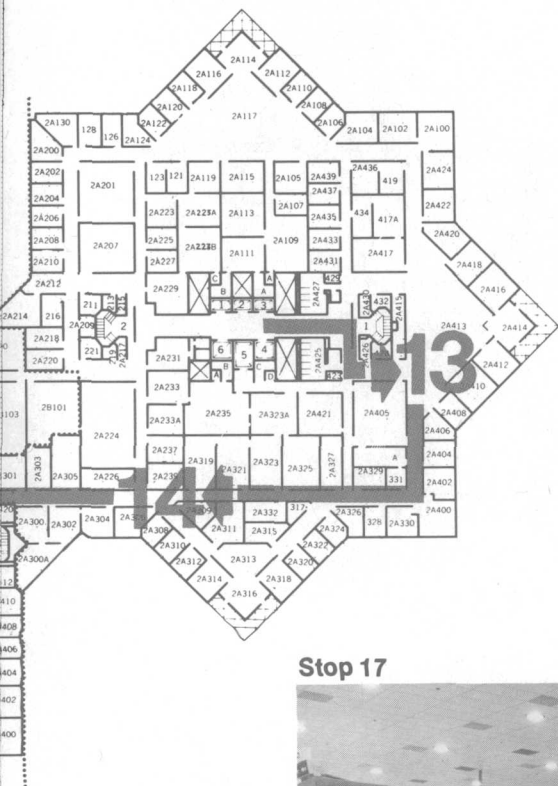


Stop 16—Modern Mapping Equipment

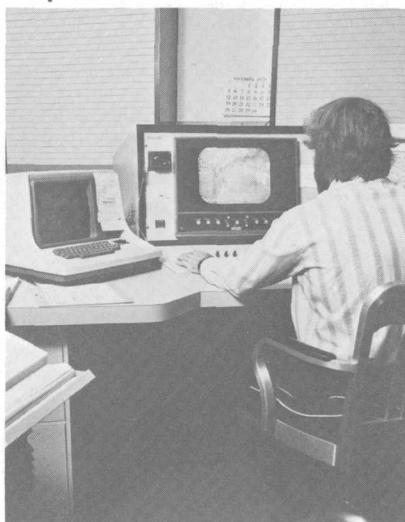
Photoimage maps (orthophotoquads) are one of the newer products of the National Mapping Program. The Gestalt Photo Mapper II, used in the production of photoimage maps, and sample products are on display.

Stop 17—Publications Division

The primary mission of the Publications Division is to provide publications support to the program divisions of the Geological Survey. Results of research and investigations are generally made available to the public through published map and book reports in a variety of



Stop 16

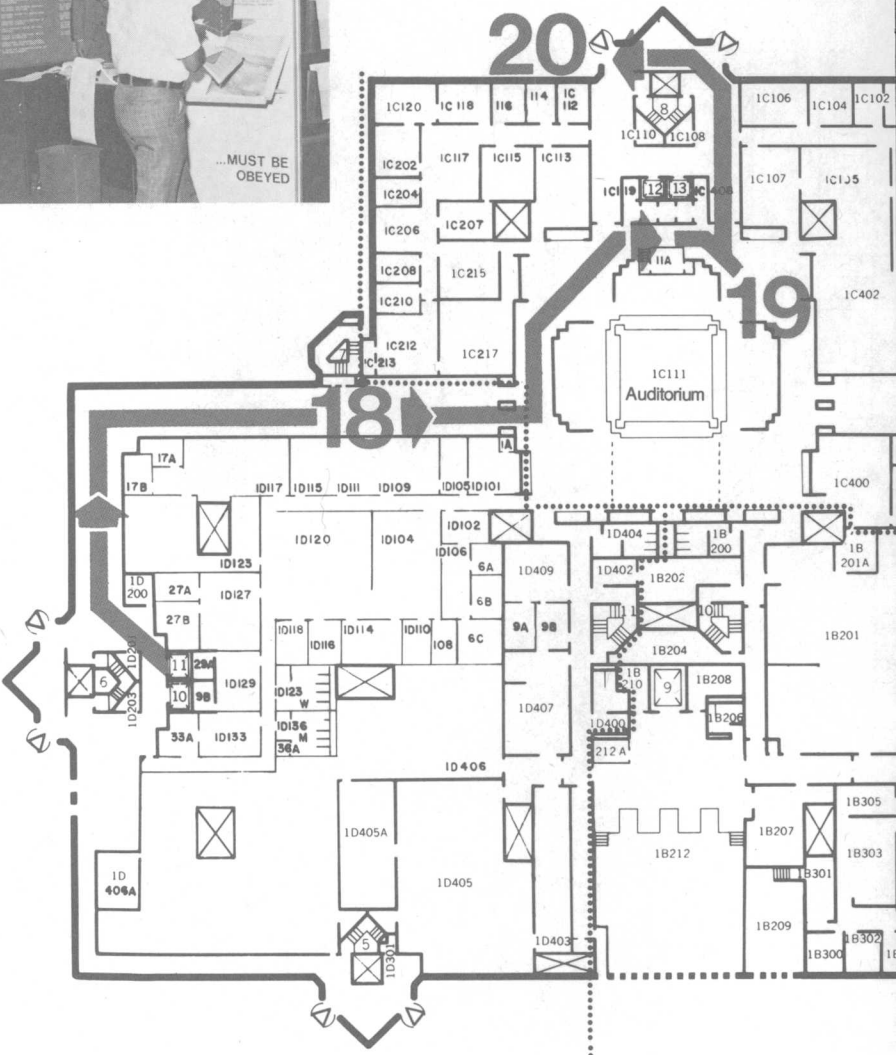
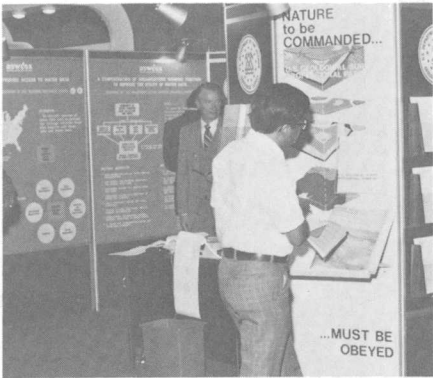


Stop 17



formats. More than 10 million copies of maps and about 2 million copies of technical and non-technical book reports are distributed to the public each year. Book printing is procured through the Government Printing Office. Over 90 percent of the Survey's map products are reproduced in the printing plant, a 460-foot-long extension of this level. Modern typesetting and plate-making machines, and other equipment used to produce Survey publications, can be examined at this stop.

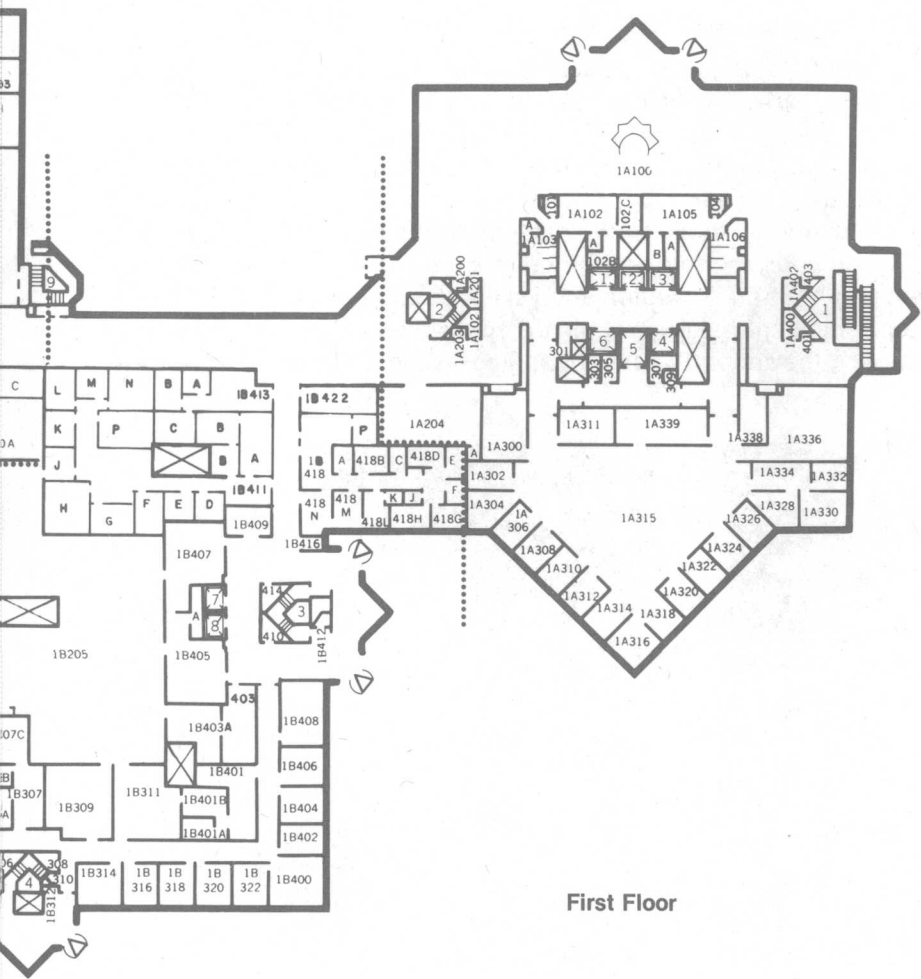
Stop 18



First Floor

Stop 18— Land Information and Analysis Office

The Land Information and Analysis Office was established in 1975 to serve as a focal point within the Geological Survey for communicating the results of our multidisciplinary earth-resources and environmental studies. The Office (1) serves as a focal point for developing multidisciplinary natural science, engineering, and geographic information to support land-use decisionmaking; (2) evaluates the environmental consequences of alternative land uses; and (3) meets the Survey's responsibilities under the National Environmental Protection Act.



First Floor

Stop 19—National Cartographic Information Center/ Public Inquiries Office

The National Cartographic Information Center (NCIC) provides information on the availability of U.S. cartographic data—maps, charts, aerial photography, geodetic control data, map data in digital form, and other data—and assistance in ordering these products. A description of NCIC services, samples of cartographic data, and other information of public interest are on display.

Also on display at this stop are the activities of a Public Inquiries Office. Personnel, in this and similar offices across the Nation, provide information about the work and products of the U.S. Geological Survey. They also make available (by sale), to the public, book reports and maps produced by the Survey.

Physics Building

Stop 20—Solid State Physics Laboratory

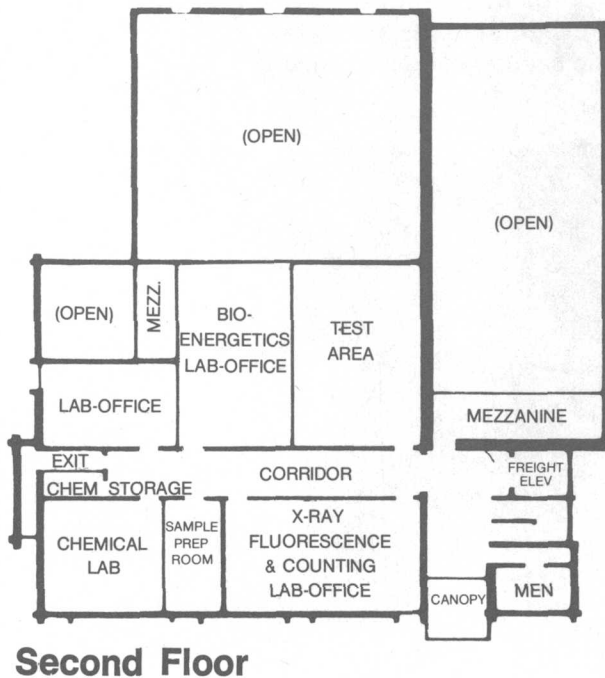
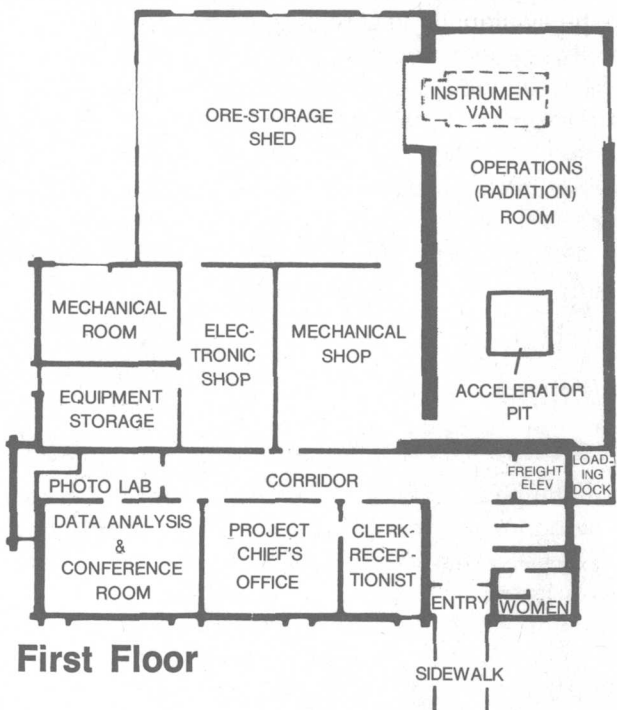
A separate building housing about a dozen scientists, technicians, and administrative personnel is located adjacent to and southeast of the Powell Building. Here, as part of its mineral exploration program, the Geological Survey conducts research into the design and construction of analytical equipment using portable accelerators and neutron-emitting radioactive materials to make chemical analyses of samples in the field.

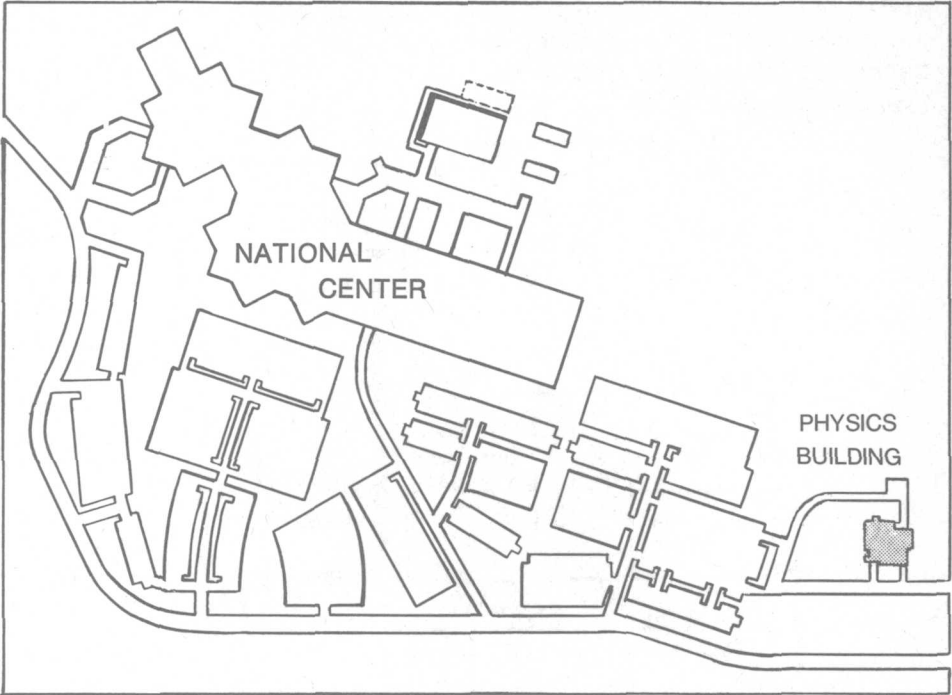
On the first floor, the truck-mounted mineral resource exploration system using neutron activation analysis in boreholes and a similar oceanographic exploration system are on display. In the bioenergetics laboratory on the second floor, a biological fuel cell system can be seen.

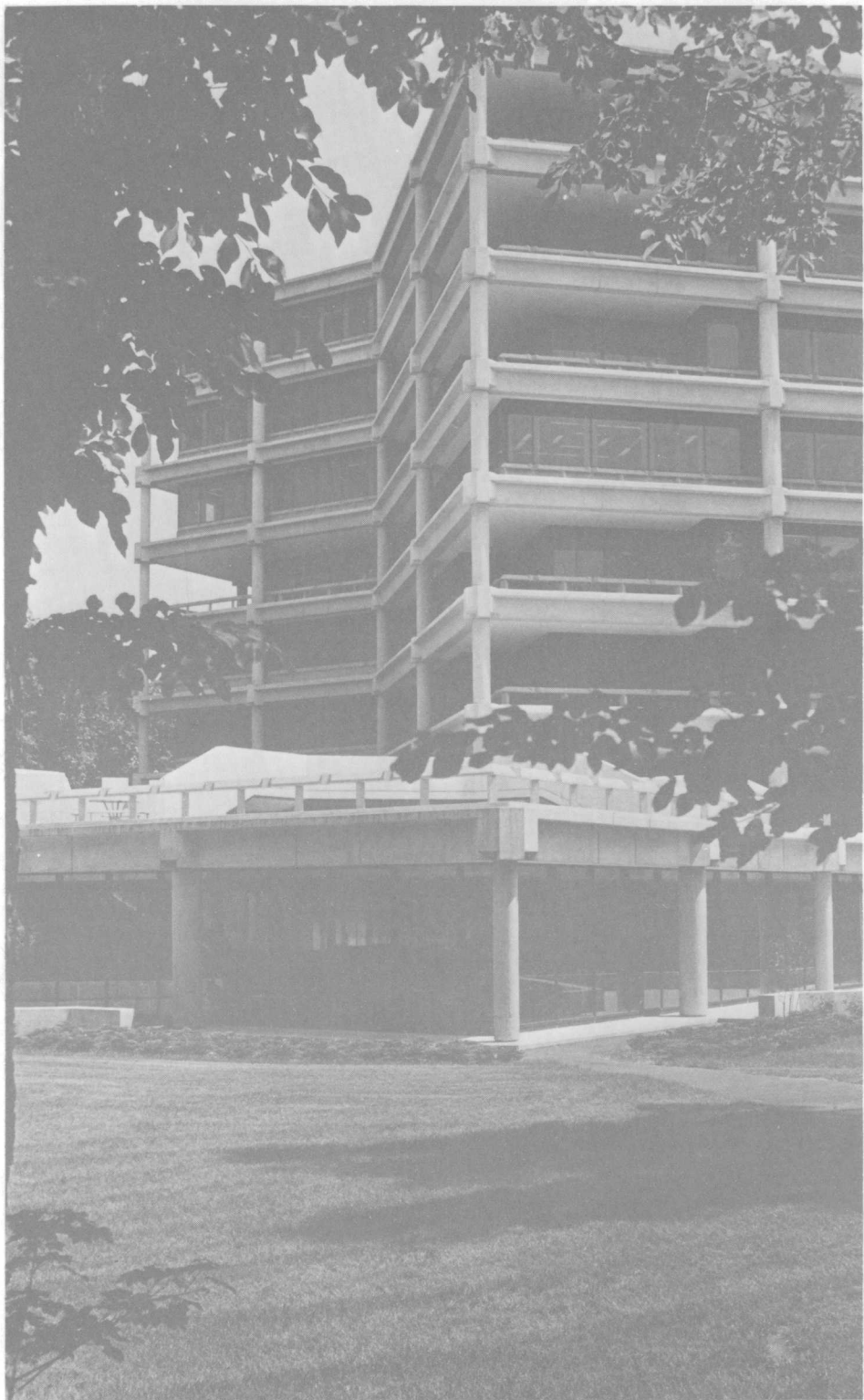
Stop 20



The cell generates electrical power from a variety of carbon-containing sources including waste products and fossil fuels. A model of a bacteriologic system to promote secondary recovery of oil from oil fields is also on display.







As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

