

information Bulletin



WESTERN ASSOCIATION OF MAP LIBRARIES

"... to encourage high standards in every phase of organization
and administration of map libraries ..."

PROCEEDINGS OF JOINT MEETING
SPECIAL LIBRARIES ASSOCIATION GEOGRAPHY AND MAP DIVISION
AND
WESTERN ASSOCIATION OF MAP LIBRARIES

June 12, 1971
Nut Tree Restaurant
Nut Tree, California

PANEL ON AERIAL PHOTOGRAPHY

Panel members: Mary Murphy (Coordinator) Chief, Analysis Branch, U. S. Army
Topographic Command, Washington, D.C.

Hyrum P. Bocker, Sales Manager, Western Aerial Photographic
Laboratory, U. S. Agricultural Stabilization and Conservation
Service, Salt Lake City

Mai Treude, Head, Map Division, Wilson Library, University of
Minnesota, Minneapolis

MURPHY: In order to supply the demands for more and more accurate and up-to-date maps, new methods of map making are constantly being developed. Most of them for the last thirty or forty years have been based on the use of aerial photography both for mapping new areas and as a source of current information to update previously compiled maps. More recently, as in the case of pictomaps and orthophoto maps, aerial photographs have been used as map substitutes.

In any case, collections of aerial photographs are increasing in size and number. In 1944 Dorothy Lewis referred to maps as problem children in libraries. Now aerial photographs have become the problem children in some map libraries. So we have assembled a panel here to discuss aerial photographs and how to handle them. After all the presentations there will be time for discussion and questions from the floor.

The Department of Agriculture is one of the chief sources of aerial photography in the United States, and we are fortunate in having a representative from the Department of Agriculture with us today. Mr. Hyrum P. Bocker is Sales Manager in the Western Aerial Photographic Laboratory of the Department of Agriculture in Salt Lake City. He is familiar with all the photographic operations of the Agricultural Stabilization and Conservation Service. Mr. Bocker.

BOCKER: I shall conserve our time by quickly going over the materials and services available from our two laboratories—one, Western Laboratory, located in Salt Lake City, Utah, covering roughly the western one-half of the nation, including complete coverage of the Hawaiian Islands; and the other, Eastern Laboratory, located in Asheville, North Carolina, covering the eastern one-half of the United States. Between these two labs we are continuously updating our photography, and contract for about 300,000 square miles each year.

The mission of our two laboratories, simply stated, is to furnish our county Agricultural Stabilization and Conservation Service offices aerial photographic enlargements to a given scale—this scale to be within 1/2 of 1% accuracy. These enlargements are used for acreage

CONTENTS

	Page
Proceedings of Joint Meeting, Special Libraries Association. Geography and Map Division and Western Association of Map Libraries, June 12, 1971	
Panel on Aerial Photography: Mary Murphy (Coordinator), Hyrum P. Bocker and Mai Treude.....	1
Procedure in Establishing Geographic Names, by Robert E. Foley...	9
A Bibliography of Selected Reference Tools in the Environmental Sciences, by H. D. Gholston.....	10
Attendance.....	13
Minutes of WAML Executive Committee Meeting, June 11, 1971	14
WAML Officers for 1971/72.....	15
Message from WAML President, by Edward P. Thatcher.....	16
Positions.....	17
New Mapping of Western North America, compiled by Mary L. Blakeley, and Maureen F. Wilson.....	17
Publications... ..	18
WAML Membership Roster as of July 1, 1971.....	20

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California, Santa Cruz, California 95060.

determinations. A public law makes these materials available to you at cost. This also applies to our sister agencies, the Forest Service and the Soil Conservation Service, as well as some other federal government agencies engaged in aerial photography.

Now, a minute of your time to see how we can save you hard-to-come-by budgeted dollars. Let me tell you about a recent order we received from a large university here in southern California. The professor had classes of 100 geography students. His need was for a sectional enlargement of a portion of a negative for each student. He had obligated over \$700.00. In talking with him it was determined that full photographic acuatance was not needed. Our suggestion—a half-tone screened film positive suitable for Ozalid, blue line, etc., reproduction. His cost—\$7.00.

I have on my desk now an order from an agency involved in preevaluation studies on a part of the ERTS (Earth Resources Technology Satellite) program. The gentleman concerned has limited funds. His order, as written, required about 600 photos with several hundreds of dollars' expenditure. Most of the photos were to be used in reports he will have to make. Again, we recommended the film positive route. He will now save several hundred dollars.

Let us hear from you if you have an unusual problem in our line. Maybe we can help.

Periodically, we must re-fly certain agricultural areas as new lands come into production, or are retired, or the farmers change their field lines. Did you know our lab copies of the contact prints for areas we have re-flown are available to you folks associated with educational institutions for simply paying the transportation costs? I'm sure your instructors and professors with classes in civil engineering, photogrammetry, geology, geography, geomorphology, research projects, etc., could make good use of these thousands of dollars worth of free materials. Forty-two institutions used these materials last year. If you are interested, let me hear from you during the question and answer period, or after the meeting is concluded.

Your requests for these materials should not be made to us. Make your requests to the State ASCS offices. If you are unable to locate these offices, drop us a line and we will supply the address to you. Informational brochures are available, telling of our activities in ASCS. Also, maps showing all of our aerial coverage in the United States, an order form, and suggestions on how to order our materials. If you have technical questions about our photography—let me hear from you.

Some fascinating things are going on in our department now. We will soon install a Super-Nova Automatic Data Processing Aerial Triangulation System. This third generation computer will allow us to electronically compute full rectification for each negative in our vaults. This is now done by mechanical means and many labor hours. The ADP will produce the usual tape that will become the activator for setting the center scale and rectifying angles on our semiautomated projection cameras. Scale accuracy will be greatly increased.

Our Western Laboratory is fast approaching a color capability. We expect that very soon these new facilities will be used in some of the programs now being planned.

Much of our regular work is now being flown at higher altitudes and at a lower cost per square mile. The state of the art has improved to the point that we can and have used photography with scale 1:90,000 successfully. We are now experimenting with 1:120,000.

To map the natural and man-planned vegetation of our land, to detect pollution and polluters, to uncover hidden resources, and to accurately predict crop yields--these are the things important to our nation's growth and survival--we are making teammates of the computer and remote sensing technologies. The Laboratory for the Applications of Remote Sensing (LARS) was established in 1966 at Purdue University, and the researchers are doing big things in this field. LARS is now involved in the Corn Blight Watch Program with agencies of the USDA, the Institute of Science and Technology (IST) of Michigan University, Extension Service personnel in the designated seven-state Corn Belt Experiment Area, and NASA in an effort to identify "southern corn leaf blight" through remote sensing techniques. This group, as well as many others, will also participate in ERTS (Earth Resource Technology Satellite) and the Skylab programs. Simulated high altitude flights for ERTS will commence in August. These simulated flights are being made by NASA and the work horse sensor will be 70 mm. film format Vinten camera. The focal length is not known to us at this time. Four test sites have been designated:

- (1) Atlantic Coastal Site
- (2) Arizona Ecological Site
- (3) California - Monterey-Los Angeles Area
- (4) California - Feather River Project

Our laboratory in Salt Lake will be provided with duplicates from the original film and will do the processing to meet our agency requirements for the Arizona and California sites.

The Earth Resources Technology Satellite (ERTS-A) will fly in 1972. This satellite is scheduled to furnish us new flights of the entire country every 18 days.

Ultra high photography used in our labs will be identified by the Universal Transverse Mercator (UTM) with a centroid grid system.

As you probably know, much of the feed corn area of the United States was severely stricken with corn blight last year. Early indications are that the spore has spread even further this year. There isn't much that can be done about it this year, of course; however, extensive mapping will be done. Several of our agencies and NASA are all organized to accomplish this end. This program has a high national priority. The first remote sensing for disease detection is scheduled by NASA on June 14 with an RB-57F aircraft at 60,000 feet. Film to be used is infra-red color. At the same time the Michigan University C-47 with a Multispectral Scanner will overfly a portion of the area. We expect to receive this infra-red film shortly. Every two weeks over

200 test sites, 1 mile wide and 8 miles long, will be re flown. These data will be compared with ground truth observations, standards set, and careful mapping of any spread of the disease which will support future decisions.

MURPHY: Thank you very much, Mr. Bocker. I am sure we will all have a better appreciation of aerial photography in the future.

Our second speaker is Mrs. Mai Treude, Head of the Map Division, Wilson Library, University of Minnesota. The University of Minnesota has one of the largest and best organized map libraries in the United States. It also has in the map library a large collection of aerial photographs. Mrs. Treude will tell us how she has solved some of the problems of aerial photographs in a library. Mrs. Treude.

TREUDE: The purpose of this paper is to share a librarian's experiences and modes of handling of aerial photographs in an academic library. The following points will be discussed: acquisition, processing, housing and arrangement, use and circulation, and weeding.

Acquisitions

The University of Minnesota Map Library has an organized collection of aerial photographs of Minnesota, in spite of inactive acquisitions. Due to an inadequate budget, aerial photographs are not purchased actively in the manner in which maps and atlases are obtained.

Most of the collection has been obtained from the Agricultural Stabilization and Conservation Service, free except for the cost of transportation. In 1965, the ASCS issued an announcement with the following title: "Disposition of obsolete double-weight contact aerial photography prints." This is an announcement of the availability of obsolete photographs to colleges and universities for educational purposes. These obsolete photos become available when they have been replaced by later flight photography.

Periodically, each ASC state office receives a listing of obsolete prints. The state office ascertains which educational institution within the state wants the obsolete prints. They must also determine priority, if several institutions are involved, before notifying an institution of what is available. The University of Minnesota has priority over other state institutions for obtaining photographs of Minnesota. After the institution has made a selection, the boxes of prints are sent collect to the institution.

The University of Minnesota Map Library has been fortunate in receiving annual shipments for the past four years. The last two shipments have amounted to 1,915 photographs of 1961 flights for nine counties, received in 1970; 2,979 photographs of 1962 flights for twelve counties received in 1969.

This is a relatively inexpensive acquisitions procedure requiring little time and effort when compared to the acquisitions procedure involved with maps. However, there is other expense involved in addition to the shipping costs. Indexes to the photographs must be ordered from the ASCS for \$2.50 each. The indexes serve to coordinate the prints

and are essential to the use of the collection. Therefore, indexes are ordered immediately by the Map Library, no matter what the cost. The cost varies according to the number of index sheets needed to cover a county. For the 1970 shipment, twenty-four indexes were ordered (\$60.00), and for the 1969 shipment, forty-eight indexes were ordered (\$120.00).

There are, of course, other ways of obtaining photographs apart from the plan described. How does a librarian find out what is available and from where? There is no central agency from which photographs can be purchased. However, the sources of information are easy to obtain from the Map Information Office, USGS, Washington, D.C. The most important item to order is an index map, named "Status of aerial photography." This map shows photographed areas in the United States by counties, and indicates the Federal or local government agencies or commercial firms holding negatives of most recent photography. The index map clearly indicates that aerial photography has been made by agencies other than the ASCS. For example, the Soil Conservation Service, Forest Service, Geological Survey, Bureau of Land Management, etc. Information on the obtaining of photography appears on the back of the index map.

Another important source of information on aerial photography is a series of pamphlets issued by the U.S. Department of Agriculture. Namely, the Agriculture Handbook no:

294. "Aerial-photo interpretation in classifying and mapping soils." U.S. Soil Conservation Service, 1966. \$.75.

308. "Forester's guide to aerial photo interpretation." U.S. Forest Service, 1966. \$.50.

315. "Uses of air photos for rural and urban planning." U.S. Economic Research Service, 1966. \$.30.

The titles of the handbooks may sound overly specialized; however, each offers basic information, such as how airphotos are made, types of airphotos, use, interpretation, availability, how to obtain and other valuable references.

A librarian, who is considering the purchasing of airphotos to supplement the map collection, should find the above named tools extremely helpful before and after the acquisition of photographs.

Processing

Processing is simple and is usually done by a student assistant. The following information is all that appears on each photograph: the month, day and year of the flight, the county code (consisting of two to three letters), and the roll and exposure numbers. Using a list of Minnesota county codes, the following steps are taken in the processing of new photographs:

- (1) Counting the total number received
- (2) Stamping the back with the library stamp
- (3) Separation by county
- (4) Pencilling the county name on the back of each photo, for quick identification (not everyone knows that "BXN" means "Aitkin Co., Minnesota")
- (5) Putting photos in numerical order, by roll and exposure
- (6) Arranging into packets of one inch thickness, held together by rubber bands

- (7) Typing a label which is placed on the shelf immediately underneath the new group to identify the section.

Records are kept in a list called the "Minnesota Air Photo Catalog." New coverage is recorded here. The entries are in alphabetical order by county, followed by the county code and the years of coverage listed in chronological order. After each year there appears a figure indicating index sheet coverage for each year. The index sheets are kept in large binders and are arranged in the same way as the photographs: by county and chronologically. Each index book is labeled with a list of the contents. However, the index sheets are not marked in any way with our holdings of individual photos.

Obviously our handling of air photos is very simple, yet we have a good working system. The Minnesota Air Photo Catalog indicates the extent of the collection, and the index sheets are used as finding tools. If time permitted, more thorough records could be kept. However, the frequency of the use of photographs does not warrant more elaborate handling.

Housing and Arrangement

The arrangement and housing are much different from the treatment of maps. Since the photographs are usually of uniform size, "9 x 9", special metal storage cabinets were chosen instead of the regular file cabinets used in earlier years. These cabinets contain adjustable shelves and adjustable vertical dividers, and have sliding doors. The outside measurements are: 15" deep, 90" high; each sliding door is 36" wide. The cabinets are available both in two-door and three-door units. The equipment is called "Netnastak" and is made by Aetna Steel Products Corporation. The advantages of using these cabinets are:

- (1) Compactness in storage: The wall space is more effectively utilized, since photographs can be filed high and are yet easily reached. Minimal floor space is used, since the cabinets extend only 15" from the wall, whereas file cabinets extend approximately 28".
- (2) Easy arrangement: When file cabinets were used, the packets of photographs were hard to manage since they tend to curve. In the new wall cabinets the curving is somewhat easier to control by metal dividers; these can be positioned every one inch, keeping the prints tightly upright.
- (3) Preservation of photos: Since only a few packets are used without disturbing others, as in file cabinets, where the whole drawer was upset by removing and adding, the photos are less apt to be damaged and order is easier to maintain.

The only difficulty in using the wall cabinets is in having to always press the photos against the back of the shelf. If this is not done, the photos will be caught between the shelf and the door.

Use and Circulation

The photographs are used by a variety of persons and for numerous reasons. The records indicate that use is nearly equal among faculty, graduate students, undergraduates, and others. Whenever the air photo interpretation course is taught by the Department of Geography, the use by students rises. Students and faculty from the Geology, Architecture, and Education Departments are noticeable

frequent users as well. Other patrons often require photographs for personal uses such as buying property, planning hunting, fishing, or camping trips, etc. Among the varied users are also individuals engaged in University and State projects. For example, recently a number of University people were engaged in work called the Lake Shore Development Project. And at this moment, a number of persons are engaged in the compilation of the land use map of Minnesota. Both projects have relied extensively upon aerial photographs, using the Library's collection.

The value of aerial photos as reference tools does not, perhaps, surpass the value of maps for most purposes, since airphotos are more difficult to work with. The difficulty lies in the bulk of material that is required to cover an area, due to the large scale; also the absence of printing (other than code, etc.) on the face of the photograph to guide and to identify, as well as the amount of knowledge required to interpret information appearing on photographs. Consequently, the library staff spends considerable time instructing the patrons in the interpretation and use of aerial photographs.

Photographs are used both within the Library as well as out. They can be checked out for two weeks with renewal privilege. For checking out, the same circulation policy is used as for checking out maps.

Weeding

No weeding of the collection is done. The main reason for keeping older photographs is for purposes of historical comparison. Another reason is the inactive acquisitions policy. The collection, in a way, is archival in nature.

In conclusion, aerial photographs have a place in a large university map library. Every state should benefit from having an institution where photographs for the state are collected and made available for study.

MURPHY: Thank you, Mrs. Treude.

We do not maintain a library collection of aerial photography at TOPOCOM, but we do file the film we collect or borrow for use on any mapping project until all the map sheets in that project have been published. A project can last anywhere from a few months to four or five years; so at any given time we may have some 18,000 rolls of film on hand. Consequently, we are faced with many of the same problems of organization, storage, and retrieval that a library has.

The aerial photographs that we keep in file are mostly in the form of rolls of film. These can be original negatives, duplicate negatives, or film positives. Prints (i.e., positives printed on paper) are not kept in file. They are used and destroyed. We may use several hundred thousand prints in a year, but it is cheaper to print them again, if needed than to provide storage space for them.

Although we don't ordinarily keep prints of aerial photographs, there is one major exception to this rule. We do keep field classification prints. The field classifications are actually annotations added to the photos in the field. The field classification prints are retained either at TOPOCOM or in an archival depository until the mapping of the area concerned has been completed. Then the prints are evaluated. Some of them are kept for future reference, but many are destroyed.

The storage area for film is kept as dust-free as possible. It is an area of controlled humidity with a constant temperature of 70 to 72 degrees Fahrenheit. Until two or three years ago the standard nine-inch wide mapping film was usually received in 200-foot rolls. Now most of the rolls are 500 feet, which is more economical but more difficult to handle. Sometimes a 500-foot roll is divided and put in smaller rolls, but only if it contains two projects or if the whole roll has not been used. If the whole roll is on one project, it is not divided.

Each roll of film is stored in a covered metal or plastic can about ten inches deep. For a 200-foot roll the diameter of the container is 5 3/4 inches. For a 500-foot roll it is 8 inches. The containers were originally all metal, but within the last two years most of them have been plastic. Plastic is more expensive but more satisfactory than metal. The metal cans often have sharp edges making them harder to handle. If a metal can is dropped, it is likely to bend making it difficult or impossible to remove the film without scratching it. If a plastic container is dropped, there is usually no damage to either the container or the film.

We store the cans of film on metal shelves about eleven inches deep and thirty-six inches wide. The cabinets are about eight feet high with two sets of double doors one above the other. For 200-foot rolls of film the shelves are six inches apart. Each cabinet is numbered and each shelf lettered. The containers are arranged by project which is usually a country area. Within each project they are arranged by whatever number has been assigned by the owner.

With the development of newer camera systems, film is being received in a variety of sizes: 9-inch, 5 1/2-inch, and 70 millimeter, which is about 2 3/4 inches wide. Each variation in the size of film adds to the storage problem.

In addition to the variations in film size, we have another storage complication. In the past the diapositives (or transparent positives) used in the multiplex and other photogrammetric equipment, were on glass plates. Although we now use film diapositives, we still have some glass plates for projects that have not yet been completed. Each plate is a 9 1/2-inch square of glass, one quarter of an inch thick weighing about three pounds. They are kept in boxes with dividers between each two plates to prevent scratching. The arrangement is determined in part by the weight capacity per shelf and per square foot of floor space. The glass plates, like the film, are sensitive and are stored in an area where humidity and temperature are controlled. Although the glass diapositives are being phased out, those we are still holding weigh about 115 tons.

Most of the records we keep on aerial photography are manual but will probably be automated eventually. Plans for automating records on information of any kind at TOPOCOM are coordinated. In developing codes and tables for the Topographic Data Library System (TDLS) which is an automated storage and retrieval system for information on maps, books, periodicals, and documents, we have kept in mind the requirements for aerial photographs too; so many of the same codes and tables will be usable for photography.

At the present time we keep two kinds of cards on aerial photography: a punched aperture card and a manually filled-in five by eight-inch form card. The aperture card is a record of the aerial photography that exists for the area covered by a particular map sheet whether we have the photographs or not. The location of each photograph is plotted on a transparent overlay to the map sheet. A miniature film negative is made of the map sheet with the overlay attached. A

standard FORTRAN coding sheet is filled in identifying the area of the photography, security classification, who took the film, camera focal length, project number, date, scale, and map sheet number. The card is punched with the coded information spelled out at the top of the card and the film in the aperture. An enlarged print can be made any time from the film. The aperture cards are filed manually by country, camera focal length, and sheet number.

The other record, a 5 x 8-inch form card called Film Record, is a record of aerial photographs we are using or have used on a specific mapping project. The card includes information about the flight and the camera as well as the film, and records the file number assigned to the film by its owner.

The back of the card is used for recording the use of the film while it is at TOFOCOM, an internal circulation record. There are spaces for the user's name, the date, the order number and the date returned.

The film record cards are filed by project, which is essentially a country area arrangement. As long as the film remains at TOFOCOM, the film record is kept in an active file. When the film is returned, the date of return is added to the card.

I have a sample aperture card with an enlarged print made from the negative and a copy of the coding sheets from which it was punched. I also have a sample of the Film Record card if any of you would like to look at them after the meeting.

PROCEDURE IN ESTABLISHING GEOGRAPHIC NAMES

by

Robert E. Foley

Chief, Maps and Surveys, California Department of Water Resources and
Chairman, Resources Agency Advisory Committee on Geographic Names

Normally a local resident, or group of residents picks a name for a prominent geographic feature. The name, which must be that of a deceased person, is usually that of a person closely associated with that pertinent geographic feature during his or her lifetime. The sponsor or sponsors of the name then clears the proposed name with the pertinent county board of supervisors and the local historical society.

Once this has been accomplished, the name, which is specifically pinpointed on a map by its latitude and longitude, is submitted to the Executive Secretary, Domestic Geographic Names, Board on Geographic Names (BGN) Room 1040, GSA Building, Washington, D. C. 20242, for its action. The Board then sends the information to the state committee on geographic names, which in California is called the Resources Agency Advisory Committee on Geographic Names (ACGN). (About 17 of the 50 states have such a state committee.) In those states not having such a committee, it would go to a state or county official.

The state committee researches the proposed name in considerable depth and makes its official recommendation at its regular quarterly meeting. This recommendation is then forwarded by the ACGN Chairman to Washington, D. C., where it is officially acted upon by BGN at the latter's regular monthly meeting. A name change is handled in the same manner.

Approved names are published quarterly under the title "Decisions on Geographic Names in the United States."

Preceding his talk, Mr. Foley showed an interesting group of slides of various types of maps.

A BIBLIOGRAPHY OF SELECTED REFERENCE TOOLS IN
THE ENVIRONMENTAL SCIENCES

by

H. D. Gholston
Chief Librarian, Chevron Research Company Library
Richmond, California

Abstract Journals and Indexes

- AIR POLLUTION TITLES v.1, 1965 -
Pennsylvania State University, Center for Air Environment
Studies, University Park, Pa. 16802
Bimonthly \$15/yr. Annual cumulation
- OCEANIC CITATION JOURNAL AND THE OCEANIC INDEX v.1, 1968-
Oceanic Information Center, 6811 La Jolla Blvd., La Jolla,
Calif. 92037
Bimonthly \$300/yr. (special price to high schools, junior
colleges and public libraries); \$95 for
journal only
Annual Oceanic Index is cumulative index to the Journal
- POLLUTION ABSTRACTS v.1, 1970-
Pollution Abstracts, Inc., 6811 La Jolla Blvd., La Jolla,
Calif. 92037
Bimonthly \$70/yr. (also special rates)
2-year cumulative index has been announced
- ENVIRONMENT INFORMATION ACCESS v.1, 1971-
Environment Information Center of Ecology Forum, Inc.,
Suite 303 East, 200 Park Ave., New York, N.Y. 10017
Biweekly \$110/yr.
Semi-annual indexes scheduled

AIR POLLUTION ABSTRACTS v.1, 1971-

Air Pollution Technical Information Center (APTIC), P.O.
Box 12055, Research Triangle Park, N.C. 27709
Monthly \$22/yr. (Available from National Technical
Information Service (NTIS))
Supersedes NAPCA Abstracts

SELECTED WATER RESOURCES ABSTRACTS v.1, 1968-

Water Resources Scientific Information Center, Washington,
D.C. 20240
Semimonthly \$22/yr. (Available from NTIS)
Annual indexes

EUTROPHICATION ABSTRACTS v.1, 1969-

University of Wisconsin, Water Resources Center, 1324 W.
Dayton St., Madison, Wis. 53706
Monthly Free
No indexes to date

WATER RESOURCES ABSTRACTS v.1, 1968-

American Water Resources Association, 905 W. Fairview Ave.,
P.O. Box 434, Urbana, Ill. 61801
Monthly (loose-leaf) \$120/yr (complete)

ABSTRACTS OF AIR AND WATER CONSERVATION LITERATURE AND PATENTS
1969-

American Petroleum Institute, New York, N.Y.
Weekly \$275/yr. to non-profit organizations (2 copies)
Starting in 1971 will be indexed as part of Abstracts of
Refining Literature (\$3000 to non-profit organizations)

OCEANIC INSTRUMENTATION REPORTER AND OCEAN ENGINEERING v.1, 1968-

Ocean Engineering Information Service, P.O. Box 989, La Jolla,
Calif. 92037 \$15/yr. Cumulative annual index
Monthly

Monographs, Handbooks, Encyclopedias, etc.

INDUSTRIAL POLLUTION CONTROL HANDBOOK

Ed. by Herbert F. Lund. New York, McGraw-Hill, 1971.
26 chapters (various pagings) \$29.50

WATER ENCYCLOPEDIA

Ed. by David K. Todd. Port Washington, N.Y., Water Information
Center, 1970
559p. \$25.00

ENCYCLOPEDIA OF MARINE RESOURCES

Ed. by Frank E. Firth. New York, Van Nostrand-Reinhold, 1969.
740 p. \$25.00

MARINE ECOLOGY; A COMPREHENSIVE, INTEGRATED TREATISE ON LIFE IN
OCEANS AND COASTAL WATERS

Ed. by O. Kinne. New York, Wiley-Interscience, 1970-
\$25.00 (vol. 1)

AIR POLLUTION

By Arthur C. Stern. 2d ed. New York, Academic Press, 1968.
3 v. (2272p.) \$95.00 for set

WATER AND WATER POLLUTION HANDBOOK

Ed. by Leonard Ciaccio. New York, Marcel Dekker, 1971-
4 v. \$95.00 for set

ADVANCES IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY

New York, Wiley-Interscience, 1961 -
vol. 1 \$15.95

Bibliographies, Directories, etc.

California. University. Water Resources Center, Berkeley.
DICTIONARY CATALOG OF THE WATER RESOURCES CENTER ARCHIVES.
Boston, G.K. Hall, 1970.
5 v. \$360.00

California. University, San Diego. Library
CATALOGS OF THE SCRIPES INSTITUTION OF OCEANOGRAPHY LIBRARY.
Boston, G.K. Hall, 1970.
12v. \$820.00

Food and Agriculture Organization of the United Nations, Rome.
LAND AND WATER INDEX, 1945-1966. 1968.
1v. (approx. 421p.) \$5.00

U.S. Defense Documentation Center
A DDC BIBLIOGRAPHY ON AIR AND WATER POLLUTION.
Washington, D.C., 1968. Available from NTIS (AD 679 210)
various pagings \$6.00

U.S. National Aeronautics and Space Administration.
REMOTE SENSING OF EARTH RESOURCES.
Washington, D.C., 1970. 665 p. Available from NTIS (SP-7036)

University of Tulsa. Information Services Department.
EARTH SCIENCE RESEARCH CATALOGUE
Tulsa, Oklahoma, 1971.
800p. \$75.00

ARID-LANDS RESEARCH INSTITUTIONS: A WORLD DIRECTORY

Comp. by Patricia Paylore.
Natick, Mass., Earth Sciences Laboratory, U.S. Army Natick
Laboratories. Available from NTIS (AD 678 638). 1968.
37 p.

OCEAN RESEARCH INDEX.

Guernsey, Engl., Francis Hodgson, 1970.
507p. \$30.00

U.S. Smithsonian Institution. Science Information Exchange.

ENVIRONMENTAL POLLUTION: A GUIDE TO CURRENT RESEARCH
New York, CCM Information Corp., 1970.
700 p. \$24.00

U.S. Smithsonian Institution. Center for Short-lived Phenomena.
NATIONAL AND INTERNATIONAL ENVIRONMENTAL MONITORING ACTIVITIES --
A DIRECTORY.
Cambridge, Mass., 1970.
292p. \$10.00 (from the Center, 60 Garden St., Cambridge, Mass. 02138)

WATER RESOURCES RESEARCH CATALOG.

Prepared by the Smithsonian Institution, Science Information Exchange
for the Office of Water Resources Research.
Washington, D.C. 1970 (vol. 6) Available from Govt. Print. Off.
\$12.25 (2 vols.)

Miscellaneous and Special Services

ENVIRONMENT REPORTER v.1, 1970-
Bureau of National Affairs, Inc., 1231 25th St. N.W., Washington,
D.C. 20037
Weekly \$296/yr.

AMERICAN ENVIRONMENTAL STUDIES, 1792-1941.
Arno Press, 330 Madison Ave., New York, N.Y. 10017
42 books \$606.00 for the set

The luncheon speaker was Robert H. Power, one of the owners of the Nut Tree Restaurant and a map collector. Mr. Power spoke on the "Cartography of Nova Albion, 1583-1846" and illustrated his talk with rare maps from his collection. It is hoped that Mr. Power's talk will be available for publication in a later issue of the INFORMATION BULLETIN.

Attendance

Mr. and Mrs. E.F. Bailey	California State Library, Sacramento
Georgia B. Bergnes	American Geographical Society, New York
Anna F. Blustein	University of California, Los Angeles
Mr. and Mrs. Hyrum P. Bocker	USDA Western Aerial Photographic Laboratory, Salt Lake City
Ed Brazee	Oregon State University, Corvallis
Mr. and Mrs. Wesley R. Catlin	California State Library, Sacramento
Anna Chiong	University of Washington, Seattle
John P. Coll	Berkeley, Ca.
Gertrude Cordts	Oakland Public Library, Oakland, Ca.
Sheila Dowd	University of California, Berkeley
Roman Drazniowsky	American Geographical Society, New York
William Easton	Illinois State University, Normal
Mr. and Mrs. Robert E. Foley	California Department of Water Resources, Sacramento
Mary Fortney	Northwestern University, Evanston, Ill.
Herbert Fox	Fresno State College, Fresno, Ca.
Mary Galneder	University of Wisconsin, Madison
Barry Gardner-Smith	Scripps Institution of Oceanography, La Jolla, Ca.

H. D. Gholston	Chevron Research Co., Richmond, Ca.
Cynthia S. Hall	San Francisco State College
Florence D. Hannabass	U. S. Department of Defense, Washington
Joanne Hansen	Eastern Michigan University, Ypsilanti
Mr. and Mrs. R. J. Hansen	University of California, Berkeley
Laurie Hildreth	University of Texas, Austin
Harriet Himmel	San Francisco State College
Phil Hoehn	University of California, Berkeley
Richard Hutton	San Francisco State College
Carol Jaffe	San Francisco State College
Frank J. Janza	Sacramento State College, Sacramento, Ca.
Kay Keener	Rice Institute, Huston
Alberta G. Koerner	University of Michigan, Ann Arbor
C.R. Krieger	California Division of Highways, Sacramento
Mary Larsgaard	Central Washington State College, Ellensburg
Beatrice Lukens	University of California, Berkeley
A. Lawrence Marshburn	University of Redlands, Redlands, Ca.
Lynn S. Mullins	American Geographical Society, New York
Mary Murphy	U. S. Army Topographic Command, Washington
Gail N. Neddermeyer	University of California, Riverside
Jeremiah Post	Free Library of Philadelphia
Robert H. Power	Nut Tree, Ca.
Lynda Reddout	Texas A & M University
Gary Rees	San Fernando Valley State College, North- ridge, Ca.
Walter W. Ristow	Library of Congress
Mary Schell	California State Library, Sacramento
Richard W. Stephenson	Library of Congress
Stanley D. Stevens	University of California, Santa Cruz
Renee Tarshis	San Francisco State College
Ed Thatcher	University of Oregon, Eugene
Karyl Tonge	Stanford University, Stanford, Ca.
Mai Treude	University of Minnesota, Minneapolis
Susan Trevitt	University of Oregon, Eugene
Theonilla Troumbly	Mankato State College, Mankato, Minn.
Mr. and Mrs. W. David Voorhees	Kent State University, Kent, Ohio
Mrs. E. Wolstencroft	Denton, England
Alan L. Wolstencroft	San Francisco State College
Evelyn Woodruff	University of California, Los Angeles

MINUTES OF WANL EXECUTIVE COMMITTEE MEETING

June 11, 1971

General Library, UC Berkeley

FALL 1971 MEETING

The Executive Committee voted to accept the invitation of Robert Sivers to hold the fall meeting at the University of California, Santa Barbara, around the third week in October. (Place of the spring 1972 meeting will be determined at the fall 1971 meeting.)

It was suggested that the program be scheduled for Friday afternoon and Saturday morning, leaving Friday morning and Saturday afternoon for travel.

Program topics suggested were:

- (1) Cataloging, since Robert Sivers has developed a uniform format for map cataloging for UC campuses, based on the MARC II program
- (2) National atlases, with a panel to discuss features of various national atlases and an exhibit of outstanding national atlases
- (3) Visit to a commercial aerial photography firm in Santa Barbara if Robert Sivers thinks this would be informative and can arrange
- (4) An opportunity, if possible, for members to meet in a social atmosphere for small group discussions, preferably in a home

EDITOR FOR INFORMATION BULLETIN

The Executive Committee considered the question of a paid editor for the INFORMATION BULLETIN since future presidents may not wish to serve as editor. Also during the past year there were production difficulties so that the Treasurer, who was receiving orders for subscriptions, could not tell subscribers when the next issue would be published. For this reason the Treasurer stated that he thought it would be desirable to combine editorial and financial functions in one office and that he would be willing to serve also as editor for a fee of \$300 per year. The Executive Committee voted to accept the Treasurer's offer on a trial basis, the arrangement to be reviewed by the Committee in one year. This decision is subject to review by the membership also, but need not be submitted to a mail vote unless the membership requests one.

The Treasurer estimated production costs for the INFORMATION BULLETIN at \$150 per year. WAML has over \$1000 in reserve now.

The desirability of improving the appearance of the INFORMATION BULLETIN was mentioned, perhaps going to photo-offset rather than mimeographing. If photo-offset is adopted, contributors would be asked to submit camera-ready copy.

COMMITTEES

There was brief discussion of the future of two existing committees, on sources of foreign mapping and on standards for map libraries. No decision was made.

PROJECTS

No action was taken in selecting a new project for WAML. A suggestion was that WAML develop or find out if there is a code for interlibrary lending of maps.

WAML OFFICERS FOR 1971/72

As a result of the recent election and the provisions of the WAML constitution, the following officers will serve during 1971/72:

President

Edward P. Thatcher
Map Library
165 Condon Hall
University of Oregon
Eugene, Oregon 97403

President-elect
(Program chairman)

Herbert S. Fox
Fresno State College Library
Fresno, California 93726

Secretary

Mary Larsgaard
Victor J. Bouillon Library
Central Washington State College
Ellensburg, Washington 98926

Treasurer

Stanley D. Stevens
University Library
University of California
Santa Cruz, California 95060

Immediate past
president

Mary Schell
Government Publications
California State Library
P.O. Box 2037
Sacramento, California 95809

Editor of
INFORMATION BULLETIN

Stanley D. Stevens
University Library
University of California
Santa Cruz, California 95060

Inquiries concerning membership in WAML, subscriptions to the INFORMATION BULLETIN, or requests for back issues should be addressed to Stanley D. Stevens.

MESSAGE FROM WAML PRESIDENT

To the membership, Western Association of Map Libraries:

From the well-mapped Willamette Valley, north of Nova Albion and beyond the Golden State, I greet the membership with considerable humility. With the Executive Committee, I look with great hopes toward our year, 1971-72, and beyond into a vigorous adolescence for our Association.

In the five years of WAML history, we have built well an organization designed to serve a profession and our several respective communities. As we plan and consult together during the coming year, I believe we will find our progress closely correlated with the depth of our personal friendships initially fostered at the semi-annual meetings.

For the next meeting of the Western Association of Map Libraries, October 22-23, 1971, at the University of California, Santa Barbara, the Executive Committee is now planning a program on the subjects of map cataloging-MARC II and remote sensing. We expect the program of two days to be well-laced with opportunities for individuals to deepen relationships and for the Association to examine its future direction toward service in response to communities demanding our help.

For the Executive Committee, hearty thanks for the challenges you have given us.

Ed Thatcher, President, 1971-72
Map Room, Library
University of Oregon
Eugene, Oregon 97403

POSITIONS

Jaswant Singh writes that he is available for a map librarian position July 1, 1971. Mr. Singh has an M.A. in geography with specialization in air photo interpretation (University of Alberta, Edmonton, Canada); M.Sc. with specialization in cartography (University of Calcutta, India) and M.S.L. (School of Librarianship, Western Michigan University) He has worked in the ARDA Project of the Government of Canada as an air photo interpreter, in India with the National Atlas of India as land use mapper, and has also taught in Canada. Mr. Singh's address is 1940 Howard St., Apt. 430, Kalamazoo, Mich. 49001.

Two openings for map librarians were announced recently at the joint SLA-WAML meeting, June 12:

- (1) The Map and Geography Library, University of Illinois at Urbana-Champaign, will replace on September 1st the retiring Map Librarian, Mr. Robert C. White. Prospective applicants may contact Mr. Robert F. Delzell, Director of Personnel, University of Illinois Libraries, Urbana, Illinois, 61801. The salary information is not available at this time.

The collections in the Map and Geography Library number over 250,000 maps, 15,000 books, 90,000 aerial photographs, and 3700 atlases. Arrangement of maps follows the Library of Congress classification scheme. Books are arranged by Dewey decimal classification. Acquisition lists of selected new maps and books are prepared bimonthly for distribution. The staff is composed of the librarian, a clerical assistant, and several part-time assistants. The library is a depository for TOPOCOM, USGS, USC, GS, and US Lake Survey. It is generally regarded as one of this country's finest map libraries.

- (2) The second opening is at the University of Illinois, Chicago Circle campus. The appointment will be made at the instructor level, salary is in the \$9,000 to \$10,000 range. Applicants should contact William Ernst, Jr., Director of the Library, University of Illinois, Chicago Circle Campus, P.O. Box 8198, Chicago, Illinois 60680. This is an entirely new position, therefore no additional information is available.

NEW MAPPING OF WESTERN NORTH AMERICA

compiled by

Mary L. Blakeley and Maureen F. Wilson

ARIZONA

Street Map of Greater Phoenix, Arizona. 1 inch = ca. 0.66 mile. 1970.
Rand McNally for Mobil Oil Company. Free

Street Map of Tucson, Arizona. 1 inch = 0.70 mile. 1970.
Rand McNally for Mobil Oil Company. Free

Green Valley, Arizona. Scale not given. 1970.
Green Valley Development Company, P. O. Box 587, Green Valley, Arizona 85614.
Free

Coronado National Forest (North Portion) Arizona. 1969.

Coconino National Forest, Arizona. 1969.

Tonto National Forest, Arizona. 1969.

all available from: U. S. Forest Service, Federal Building 6th Floor,
517 Gold Avenue S.W., Albuquerque, New Mexico 87101.
Free

Tombstone Arizona Territory circa 1881-82. 1 inch = 125 feet. 1971. Rolled.
Wyatt Earp Museum, 5th Street and Toughnut, Tombstone, Arizona 85638.
\$3.00 (including postage)

CANADA

Arctic Oil and Gas Map, 1970. 1:5,000,000. 1970. The Royal Bank of Canada,
Oil and Gas Department, 335 Eighth Ave., S.W., Calgary, Alta. Free

Beautiful British Columbia. 1:2,154,240 approx. 1971. Grant Mann, Vancouver,
for Department of Travel Industry, Parliament Building, Victoria, B.C. Free

Canada Centennial Map, Northwest Territories, 1870-1970. 1:63,360. 1970.
Department of Energy, Mines and Resources, Surveys & Mapping Branch, Ottawa 4,
Ont. Free

Canada Showing the Bay Northern Stores; the Bay Tercentennial Map.
1:100,000,000. 1970. Hudson's Bay Company, Northern Stores Department,
Winnipeg, Man. Free

Oil and Gas Activities in Western Canada. ca 1:3,000,000. 1970.
Bank of Montreal; Oil and Gas Department, Chevron Standard Bldg., 400 Fifth Ave.,
S.W., Calgary, Alta. Free

Parks of the Canadian Rockies. Scale - various; 7 maps on sheet, printed on
both sides. 1970. Mitchell Map Service, 1706 West 1st Ave., Vancouver 9, B.C.
75 cents

West Coast Trail (Vancouver Island) 1:31,680. no.1 - 1970; no.3 - 1971.
(no.2 not yet published) Department of Recreation & Conservation, Parks Branch,
Victoria, B.C. 40 cents each

Yukon Territory Official Road Map. 1:2,500,000. 1970.
Rand McNally, Chicago, for Department of Travel and Information, Whitehorse,
Yukon. Free

PUBLICATIONS

California. Division of Highways. California City and Unincorporated Place Names,
July 1, 1971. unpagged. Sold by Documents and Publications, Dept. of General
Services, P. O. Box 20191, Sacramento, Ca. 95820. \$2.50

Alphabetical list of places, giving county, elevation, 1970 population,
whether the place is incorporated, is a county seat, is on a state highway,
or has a postoffice. Limited number of copies for sale.

Association of Canadian Map Libraries. Proceedings, Fourth Annual Conference Held on June 1 to 3, 1970, at the Department of Geography, University of British Columbia, Vancouver, B.C.

Contents: Description of Display of Aerial Photographs, by Joseph Schonfeld; Historical Development of Japanese Maps, by Basil Stuart-Stubbs; The Arrowsmith Firm and the Cartography of Canada, by Coolie Verner; History of Hydrographic Surveying in British Columbia, by R. W. Sandilands; Computer Cartography and the Map Librarian, by Thomas K. Peucker; Airphotographs in the Map Library, by Hugo L.P. Stibbe; Remote Sensing of Natural Resources, by K.W.G. Valentine; To Loan or not to Loan, by Joan Winearls; Are Map Libraries Obsolete? by Kate Donkin; Maps as Sources of Historical Evidence, by Betty May; Recent Developments in Cartography at Mitchell Press, by William Salter; Minutes of the Fourth Annual Conference Business Meeting; List of Delegates to the Fourth Annual Conference

International Geographical Congress. Second Circular, Announcing the 22nd International Geographical Congress; Canada/1972. This Congress to be held in Montreal, between August 10th and 17th, 1971, will celebrate the centennial of the International Geographical Congresses inaugurated in 1871 with the Antwerp meeting. Meeting concurrently will be the 6th International Conference of the International Cartographic Association.

This Circular lists the participants, the programs, and registration details.

Either of the two preceding publications may be borrowed by WAML members (individuals or institutional members) by making a request to the Treasurer: Stanley Stevens, University Library, University of California, Santa Cruz, Ca. 95060.

Easterbrook, Ron J. and David Rahm. Landforms of Washington. Bellingham, Western Washington State College [1971] 156 p. (Order from Dr. Ron J. Easterbrook, Department of Geology, Western Washington State College, Bellingham, Wash. 98225. \$6.00

The authors divide the state into five divisions (Cascade Mountain, Puget Lowland, Coast Range, Columbia Basin, and Northern Rocky Mountains) and give a general introduction and geologic description of each. The text is written for the layman, yet will be of value to students of geology. Black and white photos, predominantly oblique aeriels, are replete throughout the book. Map inset: Geologic Map of Washington, 1:2,000,000 (USGS)

Canada. Dept. of Regional Economic Expansion.
The Canadian Land Inventory: Objectives, Scope and Organization. 2d ed. 1970. (Canadian Land Inventory Report No. 1) Queen's Printer, Cat. No. RE63-1/1970

— Land Classification for Wildlife. [1970] (Canadian Land Inventory Report No. 6) Queen's Printer, Cat. No. RE63-7/1969

— Towards Integrated Resource Management; Report of the Sub-Committee on Multiple Use, National Committee on Forest Land. [1970] Queen's Printer Cat. No. RE60-1970.

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APO San Francisco, Ca. 96201

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Eugene, Oregon 97403

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Research Geologist
Minerals Exploration Co.
Union Oil Center
Los Angeles, Ca. 90017

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Portland, Oregon 97205

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