Western Association of Map Libraries

"... to encourage high standards in every phase of organization and administration of map libraries..."
New Rates Effective July 1, 1981

The Information Bulletin is published three-times-per-year by the Western Association of Map Libraries, but opinions expressed herein do not necessarily reflect an official position of the Association.

Membership in WAML is open to any individual, institution, or business interested in furthering the Purpose of the Association, which is "to encourage high standards in every phase of the organization and administration of map libraries".

**Membership Dues:** Individual Members residing in the Principal Region, may attend meetings, serve as an Officer, vote, and receive the Information Bulletin and announcements of meetings. $15.00 per year.

**Principal Region**

<table>
<thead>
<tr>
<th>Alberta</th>
<th>Associate Members reside outside the Principal Region. They may attend meetings, serve on committees, and will receive the Information Bulletin and announcements of meetings. $15.00 per year.</th>
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<td>British Columbia</td>
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Santa Cruz, CA 95064

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WESTERN ASSOCIATION OF MAP LIBRARIES INFORMATION BULLETIN

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1982 WAML Fall Meeting

The FALL MEETING of the Western Association of Map Libraries will be held at the University of California, Santa Barbara, on Thursday and Friday, September 16 & 17, 1982. The usual schedule of 1 to 5 on Thursday and 9 to 5 Friday will prevail. The theme of the program will be Generation & Use of Remote Sensing in the Mapping Community.

The host for this meeting is Larry G. Carver, Head, Map & Imagery Collections, University Library, University of California, Santa Barbara.

The program details, housing (perhaps in campus accommodations), transportation information, and registration forms will be mailed to all Members (Principal Region, Associates, and Institutional) after the Summer.

For further information, contact Larry G. Carver (as above ZIP 93106), or phone ac805/961-4049 or 961-2779.

1982 WAML Election Results

The WAML Nominating Committee is pleased to announce the results of the 1982 Elections:

President-Elect
Susan Trevitt-Clark
Map Room
University of Oregon

Secretary
Donna Koep
Government Publications
Denver Public Library

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

These Officers, along with Riley Moffat, President, and Barbara Cox, Past President, will serve on the Executive Committee during the 1982-83 Membership Year.

The Proposed Amendment to the WAML Constitution (the addition of Article X Dissolution) was adopted unanimously.

The Nominating Committee
Herbert S. Fox, Chair
Editor's Page

Atlas & Book Review Editorship

It is with regret that I announce that Sandra Lamprecht, Atlas and Book Review Editor for the past three years, has reluctantly resigned her appointment. New responsibilities undertaken at her library will require the extra time that she has previously devoted to this editorship.

It was in June 1979 that I announced that Sandra had accepted the post, but prior to that date she had actually begun to organize reviewers, publishers, and the procedure for this time-consuming and precise art. She had been a frequent reviewer in her own right before taking on this assignment, and I am pleased that she has expressed the hope that she will be able to contribute an occasional review in the future.

The reviews that have appeared in Volumes 11, 12, and 13, have been her sole responsibility. There are some reviews "still in the hands of the authors", and I anticipate that you will see the familiar masthead with Sandra's name for at least one issue in Volume 14.

The nature of review editorship requires a period of gearing-up, and it will take some time for publishers and reviewers to become acquainted with the style of a new editor. But, fortunately for all of us, Sandra has set high standards to be followed and I expect the transition to be painless. The quality of her work will be a challenge for someone to match. She has established an excellent reputation in this field, and her editorship has enhanced the overall quality of the WAML Information Bulletin beyond my expectations. She was efficient and reliable, and I always knew that whatever inherent weakness that there might have been in any one issue, Sandra's reviews would lift the Information Bulletin up to our readers' rightful expectations.

On behalf of the Membership of the Western Association of Map Libraries and the readers of our Information Bulletin, and on my own behalf - the principal beneficiary of her work, I extend our perpetual gratitude to Sandra Lamprecht for her service as Editor of Atlas and Book Reviews.

New Editors Needed! Volunteers?

Sandra Lamprecht has offered "advice, addresses, letter samples, etc." to her successor, and it is to that I now appeal for your attention.

Although the pursuit of a replacement for Sandra is a responsibility that I intend to fulfill, the invitation to any WAML Member is hereby extended: I will appreciate hearing from anyone who would like to be considered for appointment as Atlas and Book Review Editor. A brief outline of your experience in this and related endeavors will be helpful. I will hold the vacancy open until September 1, 1982. An appointment will be announced in the Nov. 1982 issue.

In a related manner, I also extend an invitation to any WAML Member who would like to take on the responsibility for writing and/or editing a regular column on Map & Atlas Cataloging, and a regular column on Applications and Developments in Remote Sensing. The orientation of these regular features should be toward the practical needs of map and geography librarians/curators of collections of cartographic materials.
I will be happy to confer with anyone interested in volunteering to arrive at a mutually acceptable emphasis, frequency, format, and length of these columns. Also, you may have ideas for other topics that would be suitable as a regular feature; if so, please do not hesitate to make a suggestion. For an example, I personally would like to see one of WAML's Purposes addressed by having a regular column that would focus on Map Reviews. These should be analytical and critical reviews, and announcements of new maps - thematic and topographic. One of WAML's objectives is to encourage higher production standards of map manufacturers, and I believe critical reviews will help achieve that Purpose. Isn't there someone who would volunteer for each of these assignments?

Statistics

I have appended to these remarks a compilation of figures that will summarize 15-years of membership statistics, and a record of Occasional Papers sales, subscriptions to the Information Bulletin, and our expenses. I hope it will be helpful to those of you who like to keep track of WAML's business.

Constitutional Amendment

In addition, the Amendment to the WAML Constitution, presented to the Membership and adopted UNANIMOUSLY by mail ballot, is printed for the record (with the accompanying letter of justification). With its adoption and the mandate of the Executive Committee, Tax Exempt Status will now be sought. Also, incorporation as a not-for-profit organization will be filed in California.

Mailing Rates & Delivery Time

It is our practice to mail the Information Bulletin by Library Rate (within U.S.) and Book Rate (outside U.S.). The present rate is 32¢ each issue and 83¢ each issue, respectively. The total cost of mailing a single issue (about 420 copies) is now about $200. [Rates continue to rise every few months.]

Some recent examples of delivery times (via these rates) are:

Arrived at Reading, England on Feb. 15, 1982
= 2 months

Arrived at San Diego, CA. on April 2, 1982
= 2 weeks

If delivery time at your location is unacceptable, I am willing to negotiate special mailing services for those who wish to pay an extra mailing charge. For example, the Air Mail rate to Canada would cost an additional $5.25 per year ($2.58 per issue, less current rate of 83¢); Europe $3.52 per issue, less current rate of 83¢ = $8.07 extra per year; Africa, Asia & Pacific $11.67 per year extra ($4.72 per issue, less 83¢). These extra amounts, for subscribers, would replace the $3.00 per year rate now charged for mailing.

I would be interested in knowing of other examples of delivery time via the Library Rate and Book Rates. I am anxious to speed delivery of the information to our Membership and readers of the Information Bulletin, but I am not sure we can improve on the mail service except to send it a better rate - provided it is important enough for you to pay a higher rate.
### Membership Statistics 1967-1982

<table>
<thead>
<tr>
<th>Vol./Year</th>
<th>Prin. &amp; Assoc.</th>
<th>Total Members</th>
<th>Inst. Mem.</th>
<th>I.B. Increase or Decrease from Previous Tr.</th>
<th>Total Income</th>
<th>I.B. Prod. Exp. &amp; Post</th>
<th>I.B. % Increase or Decrease Cost Per Member of Total Exp.</th>
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<td>6</td>
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<td>N/A</td>
<td>unknown</td>
<td>N/A</td>
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<td>1968/69</td>
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<td>1478.51</td>
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<td>3089.17</td>
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**Notes:**
1. Does not include $1,076.16 cost of production of Occasional Paper No. 1.
2. 1973/74 was the first year Principal Members and Associate Members were separate categories.
4. Does not include $1,034.90 expenses for Occasional Papers during this Fiscal Year.
5. Does not include $1,464.35 expenses for Occasional Papers No. 4 & No. 5.
6. Does not include $1,472.26 expenses for Occasional Papers No. 6 & No. 7 & No. 8.
7. Includes Principal Members, Associate Members, Institutional Members, and Subs.

### Occasional Papers Sales

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<th>INCOME to</th>
<th>Need to Sell</th>
<th>INCOME to</th>
<th>Cost at</th>
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<td>$331.43</td>
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<td>$1,021.35</td>
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Western Association of Map Libraries

February 24, 1982

Janet Collins
Secretary 1981/82
Western Association of Map Libraries

Dear Janet:

I call your attention to your Minutes of our Executive Committee meeting on September 10, 1981, at University House, University of Alberta, as reported in the November 1981 Information Bulletin (Vol. 13, No. 1, p. 114).

Our decision to pursue tax exempt status, in relation to the establishment of an Endowment Fund, leads me to present the attached Proposed Amendment to the WAML Constitution (as it appears in Vol. 4, No. 1, November 1972, pp. 13-14, of the Information Bulletin).

The Internal Revenue Service has a requirement (Section 1.501(c)(3)-1(b)(4) of the Income Tax Regulations) that if the organization does not have an organizing instrument (a Constitution, etc.) it will not qualify for exempt status. Furthermore, the Constitution must contain a proper dissolution clause which dedicates remaining assets of the dissolving organization to one or more tax exempt purposes.

Therefore, before I pursue our tax exempt status further (by filing Form 1023, Application for Recognition of Exemption Under Section 501(c)(3) of the Internal Revenue Code), I propose that the Membership conform to the IRS rule by adoption of the amendment that is attached to this letter.

The Constitution requires (Article VIII) that The Secretary shall submit the proposed amendment to the Membership, after it is submitted in writing to the Secretary at least one week before a general meeting.

Sincerely yours,

Stan
Stanley D. Stevens
Treasurer
PROPOSED AMENDMENT TO WAML CONSTITUTION

Presented at the March 25, 1982 General Meeting of the Membership assembled at Stanford University.


Article X DISSOLUTION

Sect. 1: In the event a decision is made that leads to the dissolution of this Association, the assets remaining after all obligations have been paid, will be distributed by the Executive Committee or its successor to an organization exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1954 according to one of the following methods:

A. Donate the entire remaining assets, including title to its Copyrights, rents, and royalties, to the institution that then holds the Archives of the Association. That institution must agree to use the proceeds for the improvement and maintenance of the Archives of this Association, according to generally recognized archival practices, the ultimate objective being the preservation for research, and/or the distribution of information about the history of the Association.

B. If the institution then holding the Archives of the Association declines to accept the conditions herein enumerated, another institution will be sought that will accept the conditions.

C. If no institution accepts the maintenance of the Archives of the Association within six-months of the stated intent of dissolution, the assets will be distributed as follows:

D. The assets will be divided equally among all Institutional Members of the Association that are recognized by the Internal Revenue Service as not-for-profit organizations under section 501(c)(3). Each organization must agree to use the proceeds for the general welfare of its map collection.

Sect. 2: After the decision for dissolution is made, before final distribution of its assets is made, if there are surplus copies of the Association's publications remaining as part of the assets, the Executive Committee, its successor, or the curator of the Archives, may distribute sets or individual copies to not-for-profit institutions to complete their holdings.
Geographical Mapping of
Canada's Arctic Islands, 1880-1980
by
William C. Wonders

Geographical mapping of Canada's Arctic Islands is intimately linked with their geographical exploration of the past and with scientific research of past and present. Geographers in former times often included amongst their numbers explorers as well as general scientists and cartographers, just as to-day many geographers focus on narrower aspects of their discipline thereby bringing them into close contact with those specialists in other disciplines with spatial or geographic interests.

Maps portraying the Arctic Islands reflected initially, the naive general geographical concepts of Europeans at the time. First hand exploration of the area produced a limited comprehension of its reality which resulted in the disintegration of the myth but its replacement by a void. Gradually over the years exploring expeditions filled in a segment here and a segment there, but it was not until after World War Two that the picture was complete. Geographical mapping also reflected the limitations and problems of the means of access to this remote region and of the equipment available on which to base maps - a progression over four centuries from fragile, unbelievably small vessels to reliable, comfortable aircraft and from primitive hand instruments to the era of the space satellite.

Before turning to the development of geographical mapping by peoples of European origin, it should be noted that the Inuit, the indigenous people of Canada's Arctic Islands, made some use of maps, though our knowledge of this is still not complete. Most Inuit possessed a well developed "built in" geographical sense, or mental maps to use the currently popular term, which frequently amazed the white man. In transmitting geographic information to other Inuit, maps often were sketched on sand or snow. No skin maps have been reported or found, nor any of the wooden charts of the East Greenland Eskimo.1 Later, at the re-

Dr. Wonders is Professor of Geography, Department of Geography at the University of Alberta, Edmonton. This presentation was made at the Fall Meeting of the Western Association of Map Libraries, September 11, 1981, at University House, University of Alberta.

quest of European explorers who provided paper and pencils, the
Inuit at times produced maps which proved to be remarkably accu-
rate to assist the white men in "exploration".

It is now well established that the Vikings were the first
Europeans to discover Canada's Arctic Islands from their Green-
land settlements, with increasing evidence that their presence
may well have been more extensive than has been accepted general-
ly. Though they possessed a knowledge of astronomy, even the
most primitive form of compass was unknown to them (there being
no reference to the lodestone for example, in the old Norse hand-
book The King’s Mirror, written about 1250 A.D.) and they them-
selves "had no cartographical picture of their world". The
earliest surviving Scandinavian representation including parts
of Canada's Arctic Islands based on Viking discoveries, if one
accepts "Helleland" as part of Baffin Island, is the 1590 map of
Sigurdur Stefansson of Skalholt, Iceland, made centuries after
the fact to illustrate Eirik the Red's Saga. In this the Amer-
ican northeast is all portrayed as part of Greenland and a gen-
eral polar land mass (Fig. 1).

Fig. 1: THE NORTH ATLANTIC AS PORTRAYED ON THE
1850 MAP OF SIGURDUR STEFANSSON OF SKALHOLT,
ICELAND (THE ROYAL LIBRARY, COPENHAGEN).

Cartographic development was greatly assisted through the
recovery of Ptolemy's Geography and maps by the western world
via Byzantium at the beginning of the 15th century after the Dark
Ages. Perhaps Ptolemy's greatest contribution was in introducing
the method of names of latitude and longitude and the concept of
map projections. His reliability in these matters obscured his
weaknesses which were to trouble the trusting users of maps based upon his foundations: the underestimation of the distance between Europe and Asia, and his practice of filling in map blanks with theoretical conceptions.  

Ptolomy's map coverage of the known world arbitrarily ended at 63°N. Correction of this weakness was made by the Danish geographer, Claudius Clavus, in 1425, who prepared additions to both Ptolomy's text and map, which resulted in inclusion of the Scandinavian peninsula, Iceland, and Greenland. Later, Dominus Nicolaus Germanus, borrowing from Ptolomy and Clavus, included Erik the Red's discovery in his world map of 1474.

The exciting new discoveries from the end of the fifteenth century were paralleled by major developments in printing and engraving techniques which made possible production of collections of maps or "atlases". As attempts were made to fit in those discoveries with Ptolomy's world, his aforementioned weaknesses became more evident. Geographic realities increasingly were incorporated into the more correct maps developed in the new era in cartography which began in the mid-sixteenth century. That era generally is credited to Gerhardus Mercator with his world chart of 1569 in eighteen sheets, and to Abraham Ortelius with his atlas Theatrum Orbis Terrarum published in 1570, as the center of map-making shifted from the Mediterranean to the Low Countries.

The English had lagged behind the Portuguese and Spanish in embarking on the new discoveries. This changed about the same time as the new cartographic centers developed, and English commercial interests awakened to the profits to be made by establishing direct trading contacts with the Orient. Cosmographers maintained that navigable waters existed to the north of the northern continents. Awareness of the spherical nature of the world brought out the advantage of shorter, great circle northern routes and also these were not endangered by Portuguese or Spanish claims. The concept was strengthened greatly by support of such influential men as Dr. John Dee and Richard Hakluyt.

Though the equipment and facilities of the explorers of the time seem primitive to us now, most of the basic concepts and equipment on which navigation and mapping were based, had been established previously. These included the magnetic needle (c. 1000 A.D.) and compass, the 64-point wind rose (c. 1275), navigation charts, tables, and sand glasses (13th century), the crosstaff for latitude (14th century) and then the astrolabe and quadrant (15th century) for the same purpose. The most troublesome problem

---

* Whether the 1558 Zeno map, on which Greenland is portrayed, was drawn in 1380 by two Venetian travellers to that island, has been challenged by Hak-good and others. The so-called "Vinland map" purportedly made about 1440 and "discovered" in 1957 now is considered spurious.
remaining was determination of longitude.

The first of the English explorers whose discoveries of Canada's Arctic Islands were to begin the four-century process of geographical mapping, was Martin Frobisher. On his first voyage in 1576 he was sent out with a remarkable array of navigation and mapping gear. "He was given an equipment of 'great instruments of brass' more suited to a travelling astronomer than to a seaman who had grown up to such skill as he had in the old, tried meth- ods, by fifteen years or so at sea .... (Despite all these expen- sive items, including a clumsy forerunner of a plane-table), it is safe to say that the instruments which came into daily use were the 'staffe named Ballestella' made of wood for 13s. 4d., the 'twenty compasses of divers sorts' which altogether cost only three guineas, the eighteen hour-glasses at less than a shilling apiece, and the Astrolabium or sea astrolabe costing three guineas". He also was provided with several charts, including a printed copy of Mercator's 1569 world map whose projection is not useful in high latitudes and which still included much conjectural material.

Frobisher's voyages illustrated many of the problems confront- ing later explorers and map makers in the field, which stem from the geographic location, e.g., the frustrating barrier to ships of sea ice. George Best, who chronicled the expeditions, also noted "how the Latitudes were alwayes take in this voyage rather wyth the Staffe than Astrolabe ... bycause the long day taketh away the light not only of the Polar, but also all other 'fixed starres', and the graduations in the astrolabe were too small for accurate observations of the sun, while the Pole Star, if visible, was too high to be shot with the cross-staff."

The map of Frobisher's discoveries published in 1578 (Fig. 2), probably prepared by James Beare of his party, is the first to focus on the Arctic Archipelago. It reflects an interesting blend of persistent myth and first hand discovery. The mythical island of Frisland appeared on some early maps southwest of Iceland. Frobisher, in re-discovering southernmost Greenland took it to be Frisland and so identified it on his map.* He was convinced that "Frobissers Streights" into which he sailed separated unknown parts ("Meta Incognita") of America to the south from Asia to the north, instead of forming only an inlet now known as Frobisher Bay in southeast Baffin Island. It remained for John Davis to pursue the search free of Frobisher's obligation to mine "gold", to add fur- ther knowledge of the shorelines adjacent the strait now bearing his name.

Mercator's earlier map had included an inset of the north polar region. He expanded the latter and included the new discover- ies of Frobisher and Davis in the amended version included as a plate in his 1595 Atlas (Fig. 3). This map is particularly inter- esting as reflecting both the persistence of mythological features

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* Frisland was to persist on some explorers' maps into the 18th century.
and the portrayal of the new factual map information which soon after forced abandonment of the former. Mercator perceived the North Pole as a high, black rock of magnetic stone in the midst of a whirlpool sea through which the waters poured to the center of the world. Four large islands, mountain-ringed at 78°N and parted by great inrushing channels of sea water, separated the polar sea from the northern seas bounding the continents. These concepts were derived second hand by Mercator from a short-lived 14th century work, Inuentio Fortunatae. From the early 17th century the discoveries of men such as Hudson (whose map survived if he did not) and Baffin provided more and more factual maps of the coastal configuration of the south and east margins of the Arctic Archipelago. The unknown areas of the maps simply were left blank instead of filled with conjecture.

During the period when exploration of the Arctic Islands languished, significant developments occurred in mapping capabilities, so that when interest revived following the Napoleonic Wars the resultant maps became increasingly reliable. These developments included the invention of the sextant in 1731 thereby overcoming the errors in reckoning altitude of sun, moon and stars due to ship's motion, and of major importance, the development of the chronometer in 1735 by Harrison. For the first time, the centuries-old problem of correctly determining longitude which so often had distorted maps, was solved. Ships also were much improved over those of the early years, with steam propulsion first being introduced into the Archipelago by John Ross' Victory in 1829-33.

The British Admiralty replaced the initial commercial sponsors of the search for the North-West Passage in the 19th century. The single most spectacular voyage in terms of the additional geographical mapping resulting was that of W.E. Parry in his 1819-20 penetration of Lancaster Sound westwards to Melville Island. Not only did he discover and map the islands bordering the "Lancaster Sound line" on the north and Somerset Island to the south, but he clearly proved that Greenland was not in fact linked with North America which would have sealed off any North-West Passage. His later probes and those of the Rosses in the Gulf of Boothia area provided partial mapping of that area, while the Arctic Mainland coast and the southern shores of the western Arctic Islands to the north were mapped by both government and Hudson's Bay Company explorers (Fig. 4). Franklin was to find the link between the eastern and western approaches.  

It often has been said that Franklin's 1845 expedition accomplished more in its disappearance than had it survived. Not only was the elusive Passage effected but "by far the greatest number of Arctic Islands was discovered and mapped during the search for Franklin," with some twenty-three expeditions and

* It should be noted that whalers often operated in Arctic waters even before they may have been officially "discovered" by explorers, but sought to guard their secrets rather than map their knowledge.
thirty-three ships winterings involved. The use of man-hauled sledges in the Canadian Arctic Archipelago is generally credited to James Ross in 1829-33 in connection with his discovery of the North Magnetic Pole on Boothia Peninsula, and it became an increasingly used technique during the Franklin Search period, extending the range of survey parties beyond their ice-bound ships, and permitting additional geographic mapping. Yet the latter remained essentially coastal, as it was into relatively modern times, because of the normal practice of travelling on sea ice rather than over the irregular and often very thinly snow-covered land surfaces. In 1853 M'Clintock, who had learned his sledge travel technique with James Ross in 1848-49 on Somerset Island, "covered 1408 miles, of which 768 were on new ground, and discovered and partly explored, Prince Patrick Island". 18 (Later explorers such as Peary and Stefansson freed themselves from much of the drudgery of sledging by use of Eskimo dogs.)

Even with much improved instruments including theodolites and sextants, accurate measurements for mapping were difficult given the nature and conditions of arctic weather while proximity to the North Magnetic Pole often rendered the compass troublesome. 19 Pocket chronometers for sledge parties were compared before and after observations with shipboard box-chronometers. Sled-wheels measured distance. The principal points of the coast commonly were established by direct observations of latitude and longitude, by latitude and a solar bearing, or by the intersection of two azimuths. The infilling of lesser points was often by solar or compass bearings and estimated distances, with bays and harbours surveyed by base lines and triangulation. Prominent elevations were established by angle measurements and by use of aneroid barometers.

Map-makers were under considerable pressure to update their maps to portray the rapid expansion of geographical knowledge of Canada's Arctic Archipelago. Fortunately "a completely new system of printing was developed by Alois Senefelder about 1805, destined in time to provide the map maker with a much improved method of reproducing his maps.... ....Lithography developed very rapidly, and, by 1845, lithographic prints in colour were appearing in many countries," 20 replacing the laboriously hand coloured maps of copper-plate reproduction with cheaper and faster quality printing.

Geographic mapping of Canada's most remote northerly Arctic Islands developed out of the later phases of the Franklin Search. Discovery of the open "North Water" of Smith Sound revived for a short time the myth of the "open polar sea" which saw mainly American explorers pushing up the east coast of Ellesmere Island, spurred by a mixture of scientific curiosity and national/personal vanity with the latter embodied in Peary's drive for the North Pole. Yet national honour was not restricted to American explorers as was demonstrated in General Sabine's statement that "to reach the Pole is the greatest geographical achievement which can be attempted, and I own I should grieve if it should be first accomplished by any
other than an Englishman," and this element was present in Nares' 1875-76 "scientific expedition" to northeast Ellesmere Island. Though failing to reach the Pole they once and for all disposed of the "open polar sea" (replacing it by the "paleocrystic sea"), located the northernmost point on Canada's Arctic map (Cape Columbia, 83°07'N), and were to have their ship's name, Alert, perpetuated in the next century by our northernmost settlement.

The last major pieces in the map of Canada's Arctic Islands were put into place by the Norwegian explorer, Otto Sverdrup, and by the Canadian Vilhjalmar Stefansson. During the period 1898-1902 Sverdrup not only mapped the west coast of Ellesmere Island, but discovered and mapped new islands to the west (Axel Heiberg, Amund Ringnes, Ellef Ringnes, etc.). The final unknown sector, the continental shelf portion of the Beaufort Sea, on the nature of which Clements Markham speculated before the Royal Geographical Society in November, 1905, was investigated by Stefansson on the Canadian Arctic Expedition of 1913-1918. His discovery of new islands between the Parry and Sverdrup groups (Borden, Brock, Meighen, Lougheed, etc.) finally made it possible to complete the primary phase of geographical mapping of the Canadian Arctic Archipelago. It also resulted in corrections and improvements in previous maps - a process which was to continue until after World War Two (Fig. 5).

Transfer of sovereignty over the Arctic Islands from Britain to Canada in 1880 resulted in Canadian government sponsorship of Arctic expeditions, to "show the flag" and to collect scientific information and to improve geographical mapping of the area. The first of these expeditions, that of the D.G.S. Neptune operated in the Eastern Arctic as early as 1884. Between 1902 and 1918 seven Canadian Arctic expeditions were despatched, including Bernier's remarkable trip to Melville Island in 1906. Though government vessels were to continue annual voyages into the Arctic Islands ('The Eastern Arctic Patrol') and scientists and R.C.M.P. patrols added new map information, World War One marked the end of one era and the beginning of another. Geographical mapping no longer portrayed startling new discoveries but rather concentrated on increasing accuracy and detail. More than anything else this was symbolized by the development of aircraft and the new techniques it made possible.

Debenham, in 1921, noted both the advent of the "long-distance flying machine" and the changed focus of geography in high latitudes. "Discovery in the geographical sense, will soon be a thing of the past, for we shall shortly know, at least in outline, the main geographical features in every part of the world. But ex-

* Stefansson's maps also set off an acrimonious exchange in the Geographical Journal which reflected the personal antagonisms associated with the expedition.

** Perhaps the most famous R.C.M.P. patrol was that of Inspector A.H. Joy who covered over 1700 miles by dog team through a wide area of the Queen Elizabeth Islands in 81 days in the spring of 1929.
ploration - the more detailed examination of unfrequented tracts - is likely to provide work for geographical pioneers for the next century or longer.... In the past the keynote of pioneer geographical work has been discovery - the search after new fields; in the future it must inevitably become to a greater and greater extent exploration, with its concomitant research into the detail of geographical factors already known in outline, and into their bearing upon human polity."  

The first long distance flight into the Canadian North was that from Edmonton to Norman Wells in the Mackenzie Valley in 1921. About the same time the Government of Canada appreciated the potential usefulness of aircraft in support of its R.C.M.P. posts in the Arctic Islands. R.A. Logan accompanied the C.G.S. 

Arctic in the summer of 1922 to reconnoiter flying conditions in the Eastern Arctic and marked out a landing strip on Ellesmere Island. A change of air policy delayed any further similar work in the Archipelago for two decades. New types of aircraft made possible increasing use of commercial aircraft north of treeline in the late 1920s however, to the mainland Arctic coast. The 1927-28 Hudson Strait Expedition to establish ice conditions for navigation, made Nottingham Island (once correctly located) one of its three bases after failing to locate a suitable site on southern Baffin Island. In the Western Arctic the first use of aircraft in the Archipelago was in 1930 by L.T. Burwash of the federal government, in the Coronation Gulf-King William Island area, and by W.G. Jewitt in a geological traverse by air from Victoria Island to King William Island. World War Two and construction of the North East Staging Route through Canada's Eastern Arctic presaged the widespread postwar extension of aircraft use throughout the Arctic Islands, a process facilitated by the development of the Joint Arctic Weather Stations through the Queen Elizabeth Islands.  

New types of aircraft, such as the Otter and the helicopter, have proved especially useful in the area. On the surface, modern powerful icebreakers permit much more reliable access to many Arctic Islands while the coming of radio communications provided not only rapid communication but an even more accurate method of fixing longitude for mapping purposes.

If one had to select only one new technique that revolutionized geographic mapping in Canada's Arctic Islands it probably was aerial photography. "Canadians were amongst the first in the world to resort extensively to the camera for surveying and mapping purposes. The policy was introduced during the regime of Surveyor General E.G.D. Deville (1885-1924)," for survey work in the Rocky Mountains in 1886. During World War One the camera became airborne and its usefulness immediately resulted in its application to peacetime conditions by federal government departments and in the establishment of a photographic section in the R.C.A.F. On his 1930 Arctic trip Burwash made use of an aerial camera, resulting in some 2000 exposures over nearly 3200 kilometers (2000) miles of coastline. Photogrammetry, the science or art of obtaining reliable measurements by means of photography, and ever more precise aerial cameras reached
a high level of perfection during World War Two along with improv-
ed aircraft, with dramatic results in immediate postwar mapping of
the Arctic Archipelago.

Possessing the equipment and technology, and anticipating
a much greater postwar need for Arctic maps, "towards the close
of the war a co-ordinated Canadian trimetrogon program was de-veloped and the R.C.A.F. was engaged in flying coverage from then un-
til about 1947."34 The resultant photographs completed the air
reconnaissance of Canada and permitted production of air navigation
charts at a scale of 1:506,880. In 1947 the federal government
authorized the first Canadian long-range mapping program to cover
all Canada at a scale of 1:250,000, based upon vertical photography35
- a program completed in 19 years rather than the 26 originally
estimated.36 The final uncertainties in the geographical mapping
of Canada's Arctic Islands were resolved!

As a result of the work of the R.C.A.F. photo squadrons in
Arctic Canada significant changes were made in the coastlines of
the Arctic Islands, the most important of which were summarized
by Robinson37 (Fig. 6). Some islands were discovered to consist
of two or more islands, e.g. Cornwallis, Borden. Of greatest pub-
lie interest was the discovery of new islands, including 9600 km²
(3700 mi.²) Prince Charles Island in Foxe Basin. Considering the
difficult physical conditions under which explorers operated this
was not surprising. For the first time also a much more accurate
knowledge of the interiors of the islands was to be had. Arctic
Canada From The Air38 reflecting the combined talents of geographer
Dunbar and R.C.A.F. navigator Greenaway (who also solved some of
the troublesome air navigational problems of the Arctic Islands)
summarized this reliable new knowledge.

The much intensified scientific activity and High Arctic
resource exploration and development over the past quarter century
have demonstrated the wisdom of the government's mapping program
in the Arctic Archipelago. That program includes production of
topographic maps at a scale of 1:50,000 as the "basic maps for the
administration and development of the rural and wilderness parts
of the country."39 The cost of producing these for the far north
however resulted in the decision in 1972 that north of an arbitrary
line, a monochrome version of the coloured maps would be produced,
at major savings in production time and expense.

Production of topographical maps for Canada's Arctic Islands
in recent years has been a remarkable triumph over practical pro-
blems stemming from the geography of the area, amongst which re-
remoteness, distance, and climate bulk large. Major technical in-
novations have occurred, yet at times progress in one sector of
mapping has created problems for another. Traditionally the carto-
grapher or map maker has been able to keep well ahead of the sur-
veyor and photogrammetrist, but the great improvement in equipment
and method of the latter since World War Two changed that drastically.
Amongst such improvements can be listed such electronic aids as
the airborne profile recorder developed in Canada, Shoran, geo-
diameter, two range Decca, tellurometer, etc. The necessity for faster map reproduction methods thus led to a changeover to the new process (and new instruments) of map scribing on plastic sheets and abandonment of the traditional pen and ink drawing of manuscript maps. 40

Currently ever more sophisticated technology is in place, resulting in even greater changes in geographical mapping. The computer, remote sensing satellite, and the data bank, not only have revolutionized the roles of the surveyor and the cartographer, but make available geographic information on Canada's Arctic Islands of unprecedented accuracy and detail. On July 23rd, 1972, NASA's Earth Resource Technology Satellite, ERTS-1, was launched. Orbiting the earth at a height of approximately 965 kilometers (600 miles), it provides complete image coverage of Canada in 18 days. LANDSAT (as it now is known) now makes it possible to use low cost satellite imagery in the production of small to medium scale photo maps.

Less than ten years ago production of the first 1:50,000 sheet by automated cartography in Canada was detailed by Harris. In 1978 surveyors noted that "technology in 20 years has advanced from the parallax bar to the Gestalt automated mapping system, from the chain to the inertial survey system and the doppler satellite system. With the advances in precision of the doppler satellite system from hundreds of meters to one half a meter, one may speculate that ... systems can be produced to give the utmost in accuracy. These systems can be purchased by anyone with the funds. Thus, for the first time, the man in the street, using a black box, will be able to perform our work." 41 What a pity Martin Frobisher's equipment did not include a black box!

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Illustrations

Figure 1: THE NORTH ATLANTIC AS PORTRAYED ON THE 1850 MAP OF SIGURDUR STEFANSSON OF SKALHOLT, ICELAND (THE ROYAL LIBRARY, COPENHAGEN).

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Fig. 6: CORRECTIONS MADE TO THE MAP OF CANADA'S ARCTIC ISLANDS THROUGH AERIAL PHOTOGRAPHY, 1939-1951 (AFTER ROBINSON).
TELIDON and Historical Cartography
by Tomislav Milinusic
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One of the most exciting developments of the high technology spin-offs of the silicon chip is the videotex based information revolution. It promises to shape the way we view each other and the world around us. The potential of videotext systems is enormous. The technology will open the doors to millions of pages of stored computer information banks from around the world. It will turn television sets into viable tools for business, recreation and education.

Of the handful of videotext systems that have emerged around the world in the past few years, Canada's TELIDON system appears to be the most technologically advanced and possessing the best graphic capabilities. It is a sophisticated, easy-to-use graphics communications system which enables text and high quality animated images to be transmitted directly to television sets in homes and offices. TELIDON's practical applications span almost the entire electronic and printed communications spectrum. It's powerful graphic and text capabilities makes it ideal for map libraries as an interactive cataloguing and display system. It can also be used in many other cartographic uses where multi-leveled and multi-coloured display of data is required. Because TELIDON in such a mode is linked to a central computer, considerable data manipulation and interaction is possible. The end effect is akin to the LANDSAT remote-sensing imagery manipulation, where it is possible to manipulate digitized data to provide enhanced false-colour imagery.

In other fields of cartography, it is now possible to completely describe a map at any scale and incrementally zoom-in on certain portions of it. Since the data is in digital form, other mathematical projections and distortions can be applied and interactively displayed.

In the field of historical cartography, one such application of TELIDON's capabilities was for the first time demonstrated at the Western Association of Map Libraries' meeting at the University of Alberta, Edmonton.* The demonstration consisted of effectively delineating a time sequence view of the early cartography depicting the accuracy of the coastal outlines of Cyprus. The unique presentation techniques required of this cartographic application would have been practically impossible to simulate with other methods, or with the same level of visual impact.

TELIDON was developed by the Department of Communications Research Laboratories in Ottawa in 1978-79. It can be used in three different modes: videotex, teletex and electronic audio-visual modes.

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* This presentation was made on September 11, 1981, at University House, University of Alberta, Edmonton, when the Western Association of Map Libraries met for its Fall General Meeting. The demonstration was made possible with the assistance and participation of Don Cowper, Director, Athabasca University Computing Services, Edmonton, Alberta, using a VAX computer with Athabasca University's own TELIDON software.
In the videotex mode, TELIDON acts as an interactive or two-way system in which the user is able to carry sophisticated "conversations", by means of a telephone line or two-way cable, call-up information or engage in an electronic dialogue with computer data bases for display on modified television sets. The user can potentially access millions of pages of information on news, weather, sports, entertainment, research or business.

In the teletex mode, the user can receive text and graphics on an ordinary television receiver with a decoder. This one way delivery mode enables the retrieval of hundreds of pages of information which are broadcast on unused lines of television signals. Information is selected from an electronically, continuously revolving card file inside the decoder.

In the audio-visual mode, specially designed terminals with extra computer memory allow high-resolution animated graphics and text to be used as an effective low-cost means of presenting information interactively. It is in this mode that map library cataloguing can be most be exploited, as the creation and cataloguing of map data bases are not dependent on the resolution of the hardware, namely the television set. As higher resolution television sets enter the market, information content of data bases remains compatible with the improved imaging displays. In other words, TELIDON is not hardware dependent. It can be truly considered as an alternative to conventional print processes. A new Canadian Encyclopedia is being planned with TELIDON as the other delivery mode of its content. It is thus possible to use TELIDON in cataloguing, bibliographies, and research purposes.

In the demonstration of TELIDON at the WAML meeting in Edmonton, thirteen maps of Cyprus dating from 1477 to 1636 were compared to a modern map of Cyprus. The process involved the digitizing of all fourteen maps, mathematically manipulating the digitized data so that super-imposition of each map was maximized. The maps considered for the study consisted of Ptolemaic and post-Ptolemaic maps; they are:

MAP A. CLAUDIUS PTOLOMEAUS, COSMOPHRIA, DOMINICO DE LAPI, BOLOGNA, 1477.
MAP B. CLAUDIUS PTOLOMEAUS, COSMOPHRIA, ARNOLD BUCKING, AND CONRAD SWETZMAY, ROMA, 1478.
MAP C. CLAUDIUS PTOLOMEAUS, COSMOPHRIA, LIENHART HOLLE, ULM, 4TH ED. 1482.
MAP D. FRANCESCO BERLINGIERI, GEOGRAPHIA, NICOLI TODESCO, FLORENCE, 1482.
MAP E. BERNARDUS SILVANUS EBLENIS, ...VENICE, 1511.
MAP F. CLAUDIUS PTOLOMEAUS, COSMOPHRIA, JOHANNES SCHOTT, STRASBURG, 1513.
MAP G. SEBASTIAN MUNSTER, GEOGRAPHIA, BASLE, 1540.
MAP H. BENEDETTO BORDONE, LIBRO DE TUTTE L' ISOLE DEL MONDO, VENICE, 1528.
MAP I. MATHEO PAGANO, VENETIA, 1538.
MAP J. ABRAHAM ORTELIUS, THEATRUM ORBIS TERRARUM, GILLIS COPPENS VAN DIEST, ANTWERP, 1570.
MAP K. G. DE JOODE, SPECULUM ORBIS TERRARUM, ANTWERP, 1578.
MAP L. MATHIAS QUAD, GEOPHISCH HANDBUCH, COLOGNE, 1600.
MAP M. MERCATOR-HONDIUS-JANSSONIUS, ATLAS, AMSTERDAM, 1636.
MAP N. MODERN MAP OF CYPRUS, OPERATIONAL NAVIGATION CHART, 1980.
The subsequent analysis, based on a 72-degrees sectorial correlation analysis of the maps, confirmed the visually striking graphic superimposition of TELIDON. It showed the dynamics of the process of discovery of the coastal outlines of the island at the time it was being mapped. Benedetto Bordone's map of 1528 best fitted the modern map of Cyprus. The analysis and procedure of this finding are the subject of an ongoing project, which will act as the model for other studies in the field of the history of discoveries through the use of maps of the period. The use of TELIDON on such a study cannot be ignored, as it is by far the most powerful graphic display tool for this type of research. As to the use of TELIDON in map cataloguing, there is no doubt that it can provide easy to use, cost effective means of cataloguing cartographic material in the near future. Studies have yet to be made on the practicality of such uses. The field is wide open and a lot will depend on the acceptability of one of the many teletex systems being endorsed as the standard worldwide.

BIBLIOGRAPHY


- THEY SAID IT COULDN'T BE DONE!

Readers of this journal are advised to read the advertisement that appears on the back cover of this issue. The Hollinger Corporation, leader in the field of archival storage materials since 1945, has developed acid-free, 4 mil., clear Mylar® folders. The folders come in letter size, legal size (punched for binders), map size (24" x 36"), and newspaper size (18" x 24"). For more information, contact Thomas Mahoney at the address or phone number shown on the advertisement. *Dupont regist.mark.
Origins of Academic Geography in the United States


If you're not living on a shoestring, this Shoe String Press book is well worth the having. Admittedly, like all anthologies--especially anthologies of Conference papers--it is uneven in content and quality. As the editor points out in an unnecessarily modest Preface, geographical journals and societies, along with some significant early personalities, escape almost without a bow. But a book like this can't be judged by its omissions, and the score of papers here perpetuated form a notably solid and well-researched mosaic.

And despite that inevitable element of hop, skip and jump, the book is unusually coherent for a collection. "Academic geography" may sound a trifle stuffy, but the theme summed up in the title obviously elicited a welcome measure of concentration, and the degree of overlap between different viewpoints --on Davis and Sauer for instance--adds more zest than padding to the pages.

The sequence, too, is well organized. After the dialectic between optimism and pessimism that alternates through Mikesell's incisively Hegelian essay on "Continuity and Change," three papers under the rubric of "Preacademic Origins" deal with Amerindian antecedents, the role of geographers in the federal government 1774-1905, and the impact of public land policy and the U.S. West on the preacademic phase. Then two papers, one broad and one sharply focussed, touch on the problems (and politics) of academic "professionalization" before "the Scholars," namely Davis, Shaler, Salisbury and Sauer, come up for examination. Then come "the Schools," with the Midwest assuming the role of geocultural hearth, a potent minority of Mentors putting their imprint on student minds, and the Berkeley tradition taking shape--but never definition, please! And last (but by no means least) come "the Ideas," with Varen's Geographia Generalis revisited, Darwin shaping the evolution of U.S. geography, Davisian "ontology" responding in most human fashion to environmental challenges, a series of text books put in the philosophical pillory, Anglo-American paradigms paraded in sequential or coexistent disorder, and finally a summary view of the occasionally antagonistic juxtaposition of ecological, geological, and economic tributaries in the 1890-1914 mainstream.
This book thus covers a lot of geographical ground, though cartography per se is more peripheral than central. On occasion, papers can be as pedestrian as their bibliographies are formidable. Too often, perhaps, misprints leap up to catch the fastidious eye: "Forward' to Historical Geography" sounds a little too aggressive for Sauer's "Foreword" (p. 232) and the spelling in footnote 7 on p. 300 is a critic's delight. Yet there's delicious irony in Beckinsale's paper on Davis, illuminating paradox in Hooson's comments on Sauer, and depth of historical understanding in those papers by Speth and Aay. Indeed, the list of contributors--P.E. James and R. Hartshorne, W. Warnitz and G. Martin among others--is something of a Who's Who on the theme. But it's almost invidious to name names where interest and quality are unusually sustained... Brian Blouet and his assistant Teresa Stitcher are certainly to be congratulated for salvaging these potentially ephemeral but significant typescripts for the printing press. If you can't manage the price, let's hope your library can.

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Atlas of Ancient Egypt


As an atlas, this work is little more than average. As an encyclopedia, it is superior.

The authors, archaeologists from Oxford University, designed the work for "anybody interested in ancient Egypt." Because of this, the text is remarkably clear and free of jargon, providing a "systematic survey of the most important sites with ancient Egyptian monuments, an assessment of their historical and cultural importance and a brief description of their salient features, based on the most up-to-date Egyptological knowledge."

This statement captures the heart of the work, which is embodied in Part Two: "A Journey Down the Nile." The authors begin their survey of the monuments starting from the south at the Aswan Dam, and proceed north down the Nile, covering about 100 sites in all. The two archaeologists claim that they have done it this way, rather than the more traditional (and European) north-to-south survey, because "the Egyptians themselves used this scheme, and began their systematic lists at Elephantine (Aswan)...we have decided this so that we can see the country as far as possible from their own (the Egyptians) viewpoint."

To reinforce this ancient viewpoint are many color maps, line drawings, pictures, photographs, and site plans of the major monuments. Chapters covering all aspects of the ancient Egyptians are also included. Part One, "The Cultural Setting", describes the geography and history, using some smartly executed charts and diagrams that describe the kings and kingdoms of the Nile region, examples of art and architecture, and a brief survey of Egyptology itself. Part Three, "Aspects of Egyptian Society", covers religion, scenes from everyday life, the military, scribes and writing, woman's role in society, and
burial customs. The final section of this part includes an overview of the impact that Egypt has had on Western art, and a list of museums around the world that have Egyptian collections.

But when all this information is digested, and attention is returned to the elements that give the work its name (i.e., an atlas), the quality of the maps is just a little bit disappointing. Each map shows a lack of judgement in choosing type sizes; most appear in only two colors, giving them a very flat and unsatisfactory feeling; the symbolization used is extensive and varied, but sometimes it becomes too cluttered; some symbols are given in the legends, but never used on the maps. Moreover, there is no unity that should exist in an atlas—instead of the maps becoming the framework around which everything is built, they become isolated cartographic examples, reinforcing a point made in the text.

The book does circumvent these cartographic "burdens," and delivers its message through other graphic means. What the authors lack in cartographic judgement, they more than make up in their choice of pictures, diagrams, and photographs. What is most satisfying is that they have gone through the trouble to collect and reprint pictures, line drawings, and water colors of what the monuments looked like in earlier centuries, giving one a historical view of their enchantment. Several in-depth descriptions of the more important monuments are also given. The pyramids, for instance, are all listed and described according to location, what dynasty they were built in, the name of the pyramid and its occupant in English and hieroglyphs, and each pyramid's dimensions.

The bibliography is quite extensive and a good starting point for further reading on the topics discussed in the atlas. There is also an extensive gazetteer and index.

If the word "atlas" can be taken with a grain of salt, and this work looked upon as a misnamed encyclopedia, it would make a valuable addition to any library collection, especially at $29.95.

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Travel in the United States

Travel in the United States is the only comprehensive guide to travel literature of the United States. Books, atlases, magazines, maps, tourist organizations, travel organizations, information centers, and other agencies are included complete with addresses and telephone numbers. The majority of guides listed are concerned with outdoor recreational activities, i.e., hiking, fishing, canoeing, skiing, biking, etc. with fewer listings for guides to restau-
rants, museums, architecture, and historical markers. Full bibliographic information with short and sometimes critical annotations are given for each entry. The volume is also superbly indexed with entries being accessible by author, title, subject, geographic area, organization, and publisher. The typeface employed makes the work very readable. Geographic names and the type of material (map, organization, book, etc.) are in bold print with the actual entry in smaller print.

Entries are grouped into the following three geographic areas: (1) The United States; (2) Regions of the United States; and (3) Individual state guides. There are a few unexpected entries in the general United States section. For example, regional guides published by Fodor and Mobil are included here rather than with the section covering United States regions. The authors' use of the regions "Northeast, South, Central, and West," rather than traditional regions used by other guides or geographers seems to have been dictated by the authors' concern to have an evenly distributed number of guides per region. The authors' regions also make this section somewhat awkward to use. In comparison, Jon Heise's The Travel Book: Guide to the Travel Guides (New York: R.R. Bower Co., 1981), although not nearly so comprehensive, gives the following regional breakdown for the United States: New England, Mid-Atlantic States, Mid-South, The South, Mid-West, Plains States, Rocky Mountain States, Southwest, and Far West.

The individual state guide section comprises the majority of the volume. However, coverage in this section is sometimes uneven. For example, the entries for Michigan do not include the following titles: Michigan Historical Markers edited by Willis F. Dunbar (Lansing: Michigan Historical Commission, 1967); Detroit Architecture A.I.A. Guide (Detroit: Wayne State University Press, c1971, 1980); Detroit by Molly Abraham (Detroit: Fair Publishing Co., 1975); Historic Places in Detroit: A guide to 330 Historic Sites in Wayne, Oakland, and Macomb Counties edited and compiled by James E. Conway (Detroit: Detroit Historical Society, 1977); Detroit Bike Trips by Tom Holleman (Rochester: Tom Holleman, 1975); and Meet, Eat and Enjoy Greater Detroit by Mary Conway and Harry Satchwell (Detroit: J. Well, Inc., 1975, 1980). The sections on other states and major metropolitan areas such as New York, Chicago, Philadelphia, and San Francisco do, however, include guides to restaurants, historic places, and bike routes.

Travel in the United States has one major shortcoming and that is materials dated later than 1978 are not included. However, the work could still prove valuable as a guide for collection development. This reviewer hopes that updates will be scheduled so that it will serve as a source of both current and historical information.

Although not inexpensive at $36.00, the volume is highly recommended for general collections in public and academic libraries.

June C. Harris
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An Atlas of North American Affairs


The authors' purpose in this atlas is to portray through maps the theme of national development for the United States and Canada. The two nations are considered together because of their common interests and parallel themes of national development. In this regard the authors remind us that both nations were born of migration, and have grown to maturity through continuing mobility. The 56 maps that comprise the atlas treat a variety of topics, and the narratives that accompany them are valuable to the interpretation of the various mapped distributions. These descriptive essays vary from one to two pages in length, with two columns of text per page.

The atlas begins with a set of four maps that depict various features of the physical environment within which development has taken place. The eight maps that follow consider several aspects of the westward movement and progressive settlement of the frontier. Because the original foundations of American prosperity lay in the fertility of the soil and since agriculture persists as a source of considerable wealth, the authors continue their presentation with a series of seven maps that display selected characteristics of agricultural productivity, including crop and livestock themes. In their attempt to document the transformation incurred by large-scale industrialization, a fourth group of maps portrays the distribution of raw materials, fuel and power resources, and manufacturing industry. The final maps in this set of eleven consider the distribution of manufacturing activity by census regions, states, and major cities through the early 1970s.

Since industrialization and urbanization are almost synonymous in the development of the two nations, the second half of the atlas contains maps on a variety of themes related to urban development. The authors first turn their attention to the air, water, and ground transportation systems that serve the complex urban-industrial society. A set of seven maps documents the contemporary structural and flow characteristics of the various transport networks. Maps of city growth, including special studies of Megalopolis and the Chicago metropolitan region, are followed by several maps intended to draw readers' attention to the uneven urban and regional development that characterizes these nations. Emphasis is given to the distribution of the black population, intercensal migration by state and race, regional contrasts in wealth, and unequal educational opportunity. Finally, the atlas explores the nature of political representation in North America, and the strategic position of the two nations in a divided world. The final 25 maps, therefore, cover a considerable range of topics from transportation systems to international politics. While the progression of map themes in the first half of the atlas seems reasonable, the second half on urban development is characterized by more erratic topical coverage and awkward sequencing of map themes. The organization of the atlas could have been improved, and the abrupt transitions eliminated, had the authors more carefully integrated related map themes in sections, each preceded by an introductory statement in which they disclosed their rationale for the selection of themes.
The atlas maps are achromatic and vary in areal coverage, scale, border dimensions, and symbolism. Only a few maps, primarily those of environmental characteristics, show most of the continent north of the Rio Grande at approximately the 50 million scale. The majority of maps include only the conterminous United States and the southern portion of Canada through approximately 50° north latitude. The scales of these maps range between 25 and 35 million, with map border dimensions varying between 15 x 10 cm. and 20 x 12 cm. Most maps appear to have been compiled on the same projection, with the only noticeable exception being the map of natural gas fields and interregional pipelines (map 22) in which undesirable shape characteristics and an east-west distance exaggeration arise.

Many methods of cartographic representation appear throughout the atlas from qualitative to quantitative point, line, and area symbolization. Although the systems of representation are reasonably effective, the use of color undoubtedly would have made the atlas more interesting to readers as well as improving the overall communication. By not using color, however, the paper and cloth editions of the atlas are made available at fairly inexpensive prices.

Some cartographers will find annoying the appearance of numeric values within area patterns, beside point symbols, and along linear symbols. It is as though the authors were uncertain whether the graphic symbols would adequately convey the substantive content of their thematic maps. In those instances where two or more variables are mapped simultaneously, one of the variables usually is represented numerically rather than graphically. The use of color in the reproduction process might have lessened their reliance on numeric representation.

Most atlas maps, especially those in the second half of the volume, were compiled from statistical data published in the 1960s and early 1970s. Although the second edition of the atlas carries a 1979 imprint, the authors failed to capture the emerging form of urban and regional development in the 1970s. Important omissions include the dispersal of manufacturing activity, population redistribution including nonmetropolitan population growth, and the rise of major metropolitan regions similar to Megalopolis in scale and structure. Now that the United States and Canada are firmly established as post-industrial societies, as many writers have asserted, maps that document this transition would have been enlightening, e.g., the growth of the service sector and white-collar occupations.

Not all themes pertinent to national development can be accommodated in a volume of this size, and the map scales are too small to permit a detailed investigation. Yet the authors have produced a reasonably effective product in terms of their selection of map themes, methods of cartographic representation, and clearly written narratives. Not only should the atlas appeal to a wide audience, but it should also prove useful in secondary school curricula and in introductory geography courses at the university level.

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Weather of U. S. Cities

Weather of U. S. Cities: A Guide to the Weather History of 293 Key Cities
And Weather Observation Stations in the United States and its Island

Obsolete before it was published and costing more than twice as much as
the government reports it copies, this pair of volumes offers only two advan-
tages over the originals: a more attractive binding, and a legible explanation
of "How to read these reports."

Since 1950, monthly and annual tabulations of observations at each "first
order" weather station have been published by a federal agency as "Local Cli-
matological Data" and distributed to depository libraries and others. These
"LCDs" are the most extensive and authoritative routine tabulations of local
weather for the 300 or so places, mostly airports near large cities. The annual
summaries, in a four-page 8.5 x 11 inch (21.6 x 27.9 cm) format, are com-
bined each year into two black-bound volumes; the 1980 pair sold for $25, but
the 1981 pair, when published next May or June, will cost around $50.

The present two volumes are a commercial reprinting, after slight re-
arrangement and 12% reduction, of the 1978 reports. The tables are chopped
apart and rearranged, omitting the summary of "current" weather for 1978 and
the valuable tabular history of instruments and their locations.

Every ten years, the National Climatic Center (in Asheville, NC) of the
Environmental Data and Information Service, NOAA-USDC, computes new "normals"
of temperature, precipitation, and pressure for the 30-year periods accepted
internationally. The 1981 LCDs will carry the new 1951-1980 "normals", super-
ceding the 1941-1970 values in the 1978 tabulations reproduced by Gale. Hence
the 1981 LCDs will be more complete and up-to-date than the volumes under re-
view, and also cheaper.

Arnold Court
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The Mapmakers

414 p. $20.00 LC: 80-2716. ISBN: 0-394-46194-0.

It seems that converts to a cause always make the best and most vocal
advocates. Wilford, a science correspondent for the New York Times, has cap-
tured his excitement and wonder for cartography and its history, and transla-
ted these feelings into an utterly enjoyable account of maps and their makers.

As he states in his preface: "Parts of the story have, of course, been
told before, and without such earlier scholarship this book would not have
been possible. But the story of the mapmakers in its full historical sweep
seems to have been neglected.... The few historians of geography and cartog-
raphy seem to be more interested in the maps themselves than in the people who went into the field, often at great risk, to get the information communicated through maps; moreover, most of these historians in their writings, stop short of the tremendous advances in maps and mapping of the twentieth century. And, unfortunately, professional mappers themselves, the surveyors and cartographers, have seldom been fit to write of their work except in the professional language of the specialized journals.

Using the great, and not so great, names of surveying and cartography, Wilford traces the development of the map and its use. In this sense, the book is very traditional. Again we read of the "librarian who measured the earth" (Eratosthenes); about how Mercator developed his projection; the first systematic mapping of a country; the exploration and early mapping efforts seeking to capture the American West in the 19th century; the mapping and surveying of the Moon and Mars.

But Wilford describes these events not as a dispassionate observer, but shows them as "the ageless compulsion to reach out and, through mapping's ever-widening embrace of worlds, to reduce wonder to a scale more susceptible of human comprehension."

He sees these cartographic events as benchmarks of society's coming to grip with the world it must live in. It is one thing to say that the world is not flat, or to assert that a particular mountain or river is in this particular area; but it is quite another thing altogether to go over the rim of the world, or to go to strange areas, map them, and return with convincing evidence of their existence.

A particularly bright point of the book is Wilford's description of the technological revolution in cartography in the last few decades. Here, years of journalistic experience come into full play as he describes computer-assisted cartography, side-looking radar, photogrammetry, remote sensing, and other innovations in a manner that is completely understandable and devoid of jargon. It is clear that the author's excitement is unabated as this new technology opens up new worlds to the cartographer's craft and science, but there is also a sense of regret as he watches the "machines take over." "Gone out of mapping would be much of the hard work and tedium...when the instruments of remote sensing, photography, navigation, and computation would be so refined that it should be possible to produce many good, accurate maps without any field work." Gone will be the little amount of blood, sweat, and tears that was mixed with the draftsman's ink; the maps would be a little more accurate, but a little less human as well. Such is the price of progress.

This book would be an excellent purchase for any librarian or library.

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The State of the World Atlas


The State of the World Atlas is a natural tool for scholars and speech-makers, policy planners and pupils of foreign affairs. It invites the curious to sit down by a table, or on a rug and explore, wonder about, and ponder possible future planetary scenarios. The work is pregnant with topics waiting to be discussed and debated among family and friends. How ironic that this bright, rainbow colored atlas charts an unfolding picture of gloom and despair.

America must view herself in this mirror of maps, as a society suffering from a lack of consensus on our future purpose. No maps portray our country as a land still pursuing our historic goals--life, liberty, and the pursuit of happiness. Instead in The State of the World Atlas, America has a new face, an evil face. We are often depicted as a nation of invaders. Our technology demands wealth and tribute from Antarctica, the sea and space--the three last frontiers of mankind. (Maps #4-6). Other invasion maps show troops from the developed and developing nations occupying bases in many sections of the globe. Most of this military might is drawn from the arsenals of the U.S.A., France, Cuba, and more and more often, the Soviet Union. High military spending (#8) shows up graphically for the Soviet Union and the Middle East. Perhaps the scariest map in this atlas is the one of the "nuclear club" (#9). "Arms for the sake of profit" (#11) is also a very revealing picture of a world gone bizarre. "States at war" logically follows (#12). This map does not show, however, nations where terrorism is strong, nor states where military coups have taken place.

A dozen sections in this atlas also present the pressing problems of the global community--"bullets or blackboards", multiplication of states, rising populations, military spending, oil, food, and industrial power, urban decay, pollution, imbalances between rich and poor. "It is our contention," state the editors in the introduction, "that the destructive aspects of the state have come crucially to exceed the constructive ones." Thus, data was gathered from a multitude of official and statistical sources to sound the bell of alarm.

Some criticism should be given to the authors for their too generous use of the "data not available" symbol. Many times the unavailability of information comes from either Communist countries where one hopes for a comparison, or from the least developed countries which fail to publish or even keep the desired statistics. Sometimes the reader can think through these blank spots. An obvious example occurs on the map of "technological power" (#20) where we see no data is available for much of Africa, Nepal, China, and selected nations in South America. We can presume, however, that if Mauritania had a high number of scientists and engineers, it would have been noted. Thus, with caution, a reader is able to make certain substitutions for the abundant "data not available" symbols.

Sometimes the symbols used on the maps work well, at other times, they do not. Many countries are too overloaded with military symbols: soldiers,
tanks, missiles, warships. In fact, the map of the "nuclear club" (#9) shows the entire U.S. as a war factory without space for anything else. Other nations appear entirely swamped by nuclear reactors (#17). An example of over-bearing symbolism occurs on "oil power" (#16). Among the more striking symbols are the fists of "exploitation" (#39) and the skulls of "our daily bread" (#44). Also, some maps are needlessly complex and confusing, and cry out for simplicity: oil power (#16), panic stations (#59). Both require reading the data symbols very carefully, and trying to synthesize the information.

Many times the colors chosen for particular maps are exemplary and speak to the problem. The most striking example for this reviewer is the map entitled "fouling the nest" (#53) which appears in a smokestack gray with polluted areas a muddy brown. However, colors are not used on a constant basis. The Soviet Union is not shown as red on every map. At the same time, the symbolic colors are also variable. The reader can not presume red is a sign of danger, nor yellow an indicator of caution. Thus, each map has to be carefully read and further information is provided towards the end of the volume. It is in the reading and interpreting of the data provided that the authors tell their story, but many times it is only part of the full story, and readers are urged not to take everything presented at full face value. "Slumland" (#50) makes us aware of how maps sometimes lack the necessary detail of other statistical sources. Looking at how many people in the U.S. live without a safe water supply, it is easy to derive a figure of 20-40 million people. Yet, other readers may interpret this shading to mean no one in America lives without a safe source of water. Obviously, another gradient of percentage should have been added. The same goes for the proportion of city people living in slums or squatter settlements. America is seen as clean; yet, there are probably 20-million living in poverty, the majority in slums. "Scourges of the state" (#3]) shows sixty nations where torture is widely used and officially condoned. Yet, in a recent speech by, the chairman of Amnesty International's medical committee, the doctor claimed "torture is an approved state policy in at least 31 countries." The next map (#32) "refugees" shows Great Britain as having received no refugees during the period 1972-79, although certain sources claim that Britain has received thousands of refugees. Map (#18) "food power" must be an obvious misprint for Africa is shown on the small global map inserted near the main graphic display as an area of food surplus. Yet, we are all aware of enormous numbers of people who have barely anything to eat on that continent. Another quibble is with the spelling of the word "irredentist" (#61). Irredentist movements are usually movements of natives who had formerly inhabited an area and now seek to recover it.

It is easy to spot some of the weaknesses in this atlas, but even if this reviewer noted a dozen other discrepancies, he still praises Plutos Press for their bold, brilliant, and needy undertaking. Kudos are in order for the atlas' artistry and conception. It is a work of considerable merit, which provides a fresh look at a world which is on the verge of destroying civilization.

Perhaps the authors would consider undertaking an atlas which would show the glories of man and state in the present age, and depict lands where virtue flourishes and tradition is alive, lands where man has the highest chance of being happy, compassionate, joyful and just.

Al Fleischman
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New Jersey Road Maps of the 18th Century


A variety of reasons exist for studying old maps, whether in original or facsimile form. Historians may be interested in viewing an area as it was at a given time, noting name changes or spread of settlement. Cartographers may be interested in map styles through the years or in changing cartographic techniques. The author of this little volume attempted to make these relatively scarce maps "more generally accessible in a convenient and readily consultable form" for a variety of readers.

The book consists of four maps or series of maps primarily of the main corridor which linked New York and Philadelphia. They span the period from 1745 to 1804. The maps are reproduced in black and white lithography, which works quite well for the engraved maps of The Traveller's Dairy but is less successful for the manuscript maps, some of which were originally in color.

The two-page maps are not bound as fold outs and the gutter prevents examination of a portion of the map. Although this is a common practice, it is nonetheless frustrating to the reader. One of the more serious problems is that the scales of the maps are indicated as "slightly reduced from the original" or "slightly enlarged." Since only one of the series has a bar scale included, the user must make comparisons with modern maps and calculate a scale.

Each of the four sets of illustrations has a brief descriptive notice explaining the circumstances in which the map was produced, although there is little discussion of cartographic techniques, media or location. While it was not the author's intent to provide an exhaustive commentary on the maps, the reader is left wanting more.

If the volume is viewed as an exemplar of this genre of maps in the 18th century or as an illustrated catalog of these maps at the Princeton Library, the work is quite interesting and useful, but for the serious scholar of history or cartography the book tends to be of limited value.

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Muriel Strickland, Map Curator, San Diego State University, San Diego, California 92182, has submitted the following response and commentary regarding CARTACTUAL

The question was raised recently (Cobb, WAML Information Bulletin, June 1981, p. 346) as to how to solve the cataloging and/or indexing problems set by CARTACTUAL's unique format. In the SDSU Map Collection we treat CARTACTUAL as an in-house reference tool, much as we do map catalogs, to be consulted whenever the need arises. No attempt is made to catalog it or to absorb the contents into the map or atlas systems (we do not have periodicals).

People who know of CARTACTUAL's capabilities ask for it and we recommend it as a source beyond that it remains unidentified but definitely not overlooked. The map sheets are bound annually in a computer printout binder, together with a copy of that year's cumulative index. A complete index is kept at the reference desk of the Map Collection.

COMMENT

Recently, the San Diego Metropolitan Transit Board inaugurated a Rapid Transit rail service that runs from the downtown area of San Diego to the Mexican border. It is known familiarly as the "Tijuana Trolley". The Transit Board provides a leaflet (How to Ride the San Diego Trolley), but the only maps it contains are two simple diagrams.

So it was with some surprise and pleasure that, when checking the contents of the 1981 #3 issue of CARTACTUAL, I found listed - "Light rail rapid transit line: San Diego - San Ysidro/Border". The map is to scale (1:54,000) and details the route, the stations, and road network of the area covered.

All of this is mildly interesting and perhaps a reference to the map should be included in New Mapping of Western North America, but what is more important is that it adds emphasis to a point I would like to make: CARTACTUAL is a very useful addition to a map library.

For those unfamiliar with the publication, it can be described briefly as a six issues a year serial published by Cartographia, the Hungarian mapping agency. It is available as a multi-language edition, English included. There are two sections; one consists of fourteen loose-leaf pages of clear and effective two-color maps that vary in size from whole page (11½ x 16") to small sections. International in scope, the maps record (in four languages) such things as changes in internal administrative boundaries, current census data, new or extended roads and railroads, new bridges, reservoirs, power plants, etc. The information is timely. World-wide surveys of single industries, national pipeline systems, international bus lines - are other topics that have appeared in recent years. A five-year cycle cumulative index is included with issue #6 each year. The second section of CARTACTUAL is titled CARTINFORM.
Cartinform consists of publishers' blurbs in the language of origin. It is not so timely or useful.

The present subscription price for Cartactual is $50.00 a year and probably is worth the money, not only for the update information and additional mapping but also for determining accurate dates of change, addition, or completion. For example, the San Diego rail line was shown as being under construction; most probably, in a future issue, a completion date will be given together with a reference to the earlier map.

Issues turn up reasonably regularly and order processing and address change has been efficient, in our experience.

Address: Cartactual, H-1367, Budapest, POB 76, Hungary.

P.S. In one day recently, and after I had written the above note on Cartactual, it provided: the location of an oilfield and pipeline in northern Peru, the locations of power plants in New Zealand, quick confirmation of a line visible on a satellite image of southeastern Oklahoma as the route of a high-voltage transmission line.

The purpose of Reference Round-Table is to promote a sharing of information. You pose the questions, or, you provide the answers. Please send questions and answers direct to the Editor, they will be reported in the following issue. You may, if needed for clarification, contact the person who has posed the question, but please share the results with all of us. You may send questions or answers anonymously, if you wish.

Map Reading Tools for Map Libraries
by Dr. Gerald L. Greenberg

ABSTRACT

Engineers, navigators and military strategists employ a broad array of mechanical devices to facilitate map use. A vastly larger number of map users such as educators, students, tourists, journalists, historians, politicians, economists and librarians are unaware of the available variety of tools which can be used with maps to increase the speed and efficiency of their application and interpretation.

This paper identifies map reading tools such as coordinate readers, protractors, dividers, planimeters, and symbol-templets according to a functional classification. Particularly, arrays of tools are suggested for use in determining position, direction, distance, area and form (perimeter-shape-pattern-relief). Illustrations of selected tools are presented, and reference sources are given.

Dr. Gerald L. Greenberg, Member of WAML, is Chief, Data Acquisition, National Cartographic Information Center, Western Mapping Center, U.S. Geological Survey, Menlo Park, California. He is current President of the Map Society of California. This presentation was made at the WAML Spring Meeting, March 25, 1982, at Stanford University.

*Tool supplier references are for information only, not endorsed by USGS or WAML.
INTRODUCTION

A great number of map users obtain and employ maps regularly without ever realizing the existence of special tools which can make map reading and interpretation easier and faster. Graphic plotting and reading tools have always been used by navigators, surveyors and military persons. Map aids are occasionally mentioned in literature including textbooks, technical manuals, periodicals and catalogs. However, there are few, if any, formal publications which attempt to identify, classify and advocate commonly available tools for everyday map reading operations, especially of a cartometric nature.

The simple, inexpensive tools emphasized in this paper are particularly useful for, but not limited to, the reading and interpretation of large- to medium-scale planimetric and topographic maps and navigation charts. Map reading efficiency (amount of symbolic map information retrieved per unit time) can be gained in field, laboratory, classroom and map library situations by selectively utilizing map reading aids. A "map tool kit," including coordinate readers, protractors, scale overlays, symbol templats, color filters, dividers, etc., can easily be assembled at low cost by anyone who must acquire or plot quantities of map information in occasional or daily work.

A general scheme of classification can relate cartographic analysis or synthesis functions to particularly useful tools. Thematic and general purpose maps are employed to graphically convey a number of the following spatial relations, associations or differentiations:

<table>
<thead>
<tr>
<th>FUNCTIONS</th>
<th>FUNCTIONAL VARIANTS</th>
<th>EXAMPLE TOOLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>POSITION</td>
<td>Point, Regional, Orbital</td>
<td>Grid Plotter Overlays, Spacing Dividers, Nomographic Overlays</td>
</tr>
<tr>
<td>DIRECTION</td>
<td>Cardinal, Arcuate, Gradient</td>
<td>Protractors, Compass, Vector-Roses</td>
</tr>
<tr>
<td>DISTANCE</td>
<td>Length, Spacing, Perimeter, (Plane, Slant, Vertical), Time (Lapse, Phase, Frequency)</td>
<td>Dividers, Length Gauge, Range Overlays, Distance Tables and Nomographs, Time-Distance Graphs</td>
</tr>
<tr>
<td>AREA</td>
<td>Regional, Overlap, Density (Nodes, Gradients)</td>
<td>Area Templets, Grids, Planimeters, Dot Counters</td>
</tr>
<tr>
<td>FORM</td>
<td>Identity, Quantity, Quality, Profile, Shape, Pattern, Texture, Relief</td>
<td>Form Templets/Masks, Legend Overlays, Reticles: Size, Vector, Percent Protractor, Filters: Tone, Color, Polar, Magnifiers, Illuminators, Light Dimmer, Viewing Platforms, Optical Comparators</td>
</tr>
</tbody>
</table>
POSITION

Have you ever tried to plot or measure the positions of specific points on a map which lacks a finely-subdivided grid? Since many medium-to-large-scale planning and topographic maps do not have a well-defined grid network, a grid-coordinate "locator" templet is a handy tool to determine positions. Such aids are constructed similar to rulers or transparent overlays. They contain finely calibrated lines or ticks which depict geographic coordinates, public land survey township-range-sections, State plane grid spacing or metric graduations. These overlays can be aligned and registered with selected map grid points from which one can make precise coordinate readings or good interpolations.

Two-point and ten-point dividers can be adjusted to any marginal grid ticks which are printed on the map. The "multiple-point divider" is an excellent instrument for plotting or retrieving increments of geographic coordinates for pinpointing map positions.

DIRECTION

Directions are generally perceived on maps by observing the orientations of meridians and parallels. Protractors are quite useful to aid in determining true, magnetic and grid vectors. A transparent plastic compass with built-in protractor is highly useful for making directional determinations on large-scale topographic field maps and navigation charts. The range-azimuth "rose" overlay can quickly facilitate both direction and radial distance measurements from selected points on a scale-compatible map. Travel heading, wind direction and other phenomena-related vectors can be measured with special protractor tools containing arcuate bearings and cardinal compass directions. A parallel ruler is yet another tool which is handy for determining directions, when used in conjunction with a protractor or triangles on large-scale conformal maps.

DISTANCE

Distance-measuring devices are perhaps the most commonly thought-about map aids. The simple two-point divider and proportional divider can be quite helpful in making distance measurements on large-scale maps. These tools can be set to known distances which are determined from the map bar scale or from known distances between prominent points on the map. In the case of a proportional divider, known distances and points can be transferred from a reference map to another map with different scale and projection. The previously mentioned multiple divider is especially useful for determining partial increments of whole units of distance.

Map distance/coordinate readers contain calibrated scales of distance units and networks of map grids which have known or standardized dimensions. These tools are constructed on transparent overlays or plastic rulers, and they are made to be used with popular series of topographic maps and navigation charts. It is useful to recall that on navigation charts, the latitude grid-coordinate reader also can serve in determining north-south distances, i.e., 1 degree of latitude equals 60 nautical miles.
A less commonly known distance measuring aid is the range-azimuth overlay which has concentric range circles to indicate average distances in any direction from a central position on large-scale maps. The device must be specially constructed for use over a narrow band of scales for each specific map. If such an overlay is not readily available, then a simple bow divider can be used to plot and draw range rings based upon the bar scale calibrations of the selected map.

Another unique distance measuring tool is the device known as a map measurer gauge. This item is often employed on planimetric and topographic maps to determine distances of curvilinear features such as streams, shorelines, winding roads and irregular boundaries. A moving pointer on the dial of this instrument indicates ground-distance units traversed by a wheel being moved along the line being measured. Dial faces are calibrated for several popular map scales, as well as readings in inches and centimeters of map distance. Of course, this operation could be performed with a manual or electronic planimeter or digitizer recorder device, but at much greater cost (Frank and Reed 1954, U.S. Department of the Army 1969, U.S. Department of the Air Force 1962, U.S. Department of the Navy 1955 and 1958).

An unusual, little-known tool is the “natural map scale indicator.” This measuring aid is a finely calibrated, ruler-like nomographic device. It is used to aid layout of a graphic linear scale in feet, statute miles or kilometers. Also, it can be used to estimate the natural scale of any map containing parallels of latitude or graphic distance scale (Boggs and Lewis 1932).

The determination of travel time between close or widely separated fixed or moving points can be done on large- to medium-scale maps using simple nomographic overlays such as bar scales with corresponding speed scales. Such devices are specially produced for navigation charts. Some examples include templet for measuring time-speed-distance, ascent-descent rate, slope-intercept points, and orbit velocity (Frick, Rumer and Sharkey 1963). A divider or map measurer gauge are handy tools to aid in calculating travel time by map distance measurements. The range-ring overlay can also be used to estimate time when it is calibrated for specific range-velocity relationships. Time-zone calculators are useful for determining time-difference between distant fixed points. These slide-rule devices can serve as a check on longitudinal-difference readings calculated at 15 degrees per hour versus actual times due to irregular zone boundaries.

AREA

Area measurements made on maps can be facilitated by the use of distance rulers placed across axes of regional polygons. Scaled templets exist which indicate such areal units as acreage, square-mile township blocks and fractional sections of land. Irregular or regular shaped areas can be measured with a device called the polar planimeter. Some very sophisticated planimeters are made which contain magnifying tracer-arm heads, non-skid rollers, compensated movements to increase accuracy and electronic-digital readouts and records. Special planimeters can also be adjusted to interpret volume of an area on plastic raised relief maps. Colored, tonal or polaroid filters can be used to screen or simplify detection and measurement of multiple overlapping areas, if such areas have detectable, recurring tonal, color or textural
symbolic characteristics. Calibrated window masks, or a measuring microscope or magnifying glass with calibrated reticle can be used to aid measurement of small-size areas. Analysis of areal extent and overlap also can be aided by the use of nomographic overlays which are designed to fit the projection and scale of a given map (International Telecommunications Union 1959).

The interpretation of phenomena-related densities on maps can be difficult and consume much time if done without the use of map aids. The amount of concentration or dispersion of point or linear identities covering a given map area can be determined with the aid of a unit area graph-overlay, a density-count grid overlay, a window mask with calibrated reticle, or with a manual or electronic recording dot counter. Once a sample number of dots or lines are counted in a given map area, an extrapolation can be made for this symbol on the entire map. Density gradient can calculated after dot or line symbol counts are sampled along selected vectors or locations within a given area.

FORM

Geometric assessment of symbolized phenomena is frequently done to differentiate symbolized identities, spatial relationships, qualities and even amounts. Normally, the eye and brain have great accommodation for discerning a broad variety of forms or shapes. But on complex maps having seven or more different forms of geometrically coded symbols, a movable comparative legend will measurably speed the search for selected symbol shapes, versus dependance upon visual memory or frequent glances to the fixed-marginal legend.

Landforms and surface relief representations require interpretations of the amounts of slope or grade, especially when analyzing topographic contour symbols. A very useful slope-measuring overlay tool is available to facilitate this task, which can become burdensome if left to common methods of contour interpolation. Slope indicator scales have been precisely determined (Thrower and Cooke 1959).

Symbolic pattern analysis is done by the map reader to detect and measure related symbol orientations, connectivity, convergence, dispersion, recurrence and spatial hierarchy. Pattern matching templets can sometimes be used to help differentiate multiple pattern symbols on the same map. A lithographic screen determiner can be used to positively identify tonal value and screen orientation using Moire patterns (Oster 1964). Symbol filter templets or masks can be constructed and aligned to selectively pass or block viewing of a given symbol size, orientation, color, tone, and texture. An area measurement grid that is scaled to fit a given map can be used to quickly sample and compare the spatial extent of selected patterns.

Quantitative interpretation of point and linear symbols may be aided with the use of scaled overlays in the case of size-coded symbols. Optical magnifiers and comparators can significantly aid in measuring small dot and line symbols. The percentage protractor is a practical device to interpret "pie-symbols." Photographic screens and colored cellophane filters are excellent tools to aid in the selective interpretation of gray-tone and color-coded map symbols. Volumetric representations of three-dimensional flowline and profile symbols are more easily measured with calibrated graticules printed on templets than by visual comparison with marginal-legend scales. When templets are unavailable, a simple divider is helpful to compare legend scales with symbol dimensions.
ENVIRONMENTAL TOOLS

Final comments must be made about the use of "environmental tools" which may aid all map symbol interpretation functions. Viewing platform and distance are often neglected items. The best conditions for viewing maps are when the reader observes the object in a flat viewing plane perpendicular to the line of vision and at about 14 inches from the eyes for "desk-type" maps. Distance graphs and calculations are available for predicting viewing distance versus symbol width, height, illumination and optical projection (Berger 1944, Woodson and Conover 1966, Kodak 1969). Video displays and magnifying optics can be used to enhance perception of map images. Whenever magnifiers are used, one must accept degradation of object brightness, less detectable contrast between the object symbols and map background, some decreases in image focus (resolution), pseudo-movements of images, and decreased field of view. Optical and cellophane filter aids, and television displays may cause similar effects (Morgan, Cooke, Chapanis and Lund 1963).

Illumination direction, intensity and color are important environmental elements that can be controlled with tools. Lights may be considered to be map reading tools. The light (tracing) table is very useful in map copying, and for "backlighted" reading in low-illumination operations. Red lighting is useful for map reading at night, when preservation of dark visual adaptation is important in navigation or outdoor field activities. A light dimmer connected in series with sources of illumination can control light intensity which may change, enhance or decrease perception of symbol tones, colors, and contrasts. Similar effects can be produced by filters placed over white lights, or by combinations of direct spotlights and indirect, diffused background illumination. Ultraviolet lighting may be used to enhance colored-fluorescent symbol pigments on dark environment maps. Illusory changes, enhancement or obscuring of map symbols can be done by control of light intensity, hue and saturation. Proper manipulation of these elements of light will cause perceptual effects such as simultaneous contrast or inductive color or tonal appearances, warm-cool color or bright-dark relief impressions, and irradiance enlargement of white symbols on dark backgrounds or diminishing size of black symbols on white backgrounds (Greenberg 1976, 1974, 1971).
REFERENCES


The diagram and the accompanying text are as follows:

### Natural Scale Indicator

#### [O] Natural Scale Indicator

<table>
<thead>
<tr>
<th>Read on 1 statute mile</th>
<th>Read on 1 kilometer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale 1:1</td>
<td>Scale 1:2</td>
</tr>
</tbody>
</table>

#### [D] Laying Out Linear Scales

- The method is used for laying out linear scales on maps or drawings.
- The basic units are based on the natural scale of the map.
- Example 1: Suppose it is desired to draw a graph of linear scale on a map with a natural scale of 1:50,000. The scale 1:2 is used for the graph, with 2 mm equal to 1 km on the map. The graph is then used to determine distances on the map.

#### [A] Natural Scale Indicator

<table>
<thead>
<tr>
<th>Read on 1° latitude</th>
<th>Read on 1000 feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale 1:1</td>
<td>Scale 1:2</td>
</tr>
</tbody>
</table>

#### [B] How to Use the Scale

1. Lay the graph on the map to find the required distance (in km or miles).
2. Measure the distance on the graph (in mm or cm).
3. Multiply the measurement by the scale factor to find the actual distance on the map.

### Principal Uses of the Four Scales

- The principal indicator may be used:
  - For mathematical calculations
  - For any map of known scale
  - For any graph of known scale

### HOW TO USE THE SCALE

- The method is used for determining distances on maps.
- The principle is to multiply the reading on the scale by the required scale factor.

### Notes

- The scale may be used for any map of known scale.
- The method is particularly useful for determining distances on maps with different scales.

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Compasses and Dividers

Spacing Divider

Rotangle Protractor

Compensating Polar Planimeter

40 Acre Land Locator

Viewing Table

Dot Counter

Pocket Comparator Magnifier

Figure 1. A Collage of Map Tools
TOOL SUPPLIER REFERENCES*

*(Editor's addendum: Suppliers are not advocated by USGS)*

D B Measuring Stick (Latitude / Longitude)
Decibel Products, Inc., 3184 Quebec, Dallas, Texas 75247

Topo Aid (Latitude / Longitude)
G.R. Ganis, Stonetree, Inc., P.O. Box 335, Waxhow, North Carolina 28173

Area Measurement Grids (Standard Topo Scales)
Metric Coordinate Reader (Standard Topo Scales)

Weems Aircraft Plotter Mark II
Photo Interpreters Map Plotter, FAA-61B
Michigan Parallax Wedge
Air Photo Dot Counter
Digital Readout Dot Counter
Spacing Divider (11 point), FNA-398
Alan Gordon Enterprises, Inc., 5362 Cahuenga Blvd., North Hollywood, California 91601

Measuring Magnifier 81-34-35 (with reticles)
Bausch & Lomb, Inc. New York, N. Y.

Measuring Microscope, 10x, 20x, 40x, 50x
Du Maurier Company, Elmira, New York 14901

Color Filter Material - Roscolene
Rosco Laboratories, Inc., Port Chester, New York 10573

Tonal Screen Filters, Litho Screen Determiner
Beta Screen Corp., 341 Ninth Street, Fairview, New Jersey 07022, Caprock Developments, Inc., 475 Speedwell Ave., Morris Plains, New Jersey 07950

Polaroid Screen Filters
Edmund Scientific Co., 101 E. Gloucester Pike, Barrington, New Jersey 08007

Land Area and Slope Indicator, Michigan and Harvard Parallax Wedges, Area Scales, Acreage Grids, Land Protractor - Compass, Dot Counters, Tree Crown Density Scale, Section Land Locator, Map Measurer, Parallax Wedges, Dividers (2 point), Spacing Dividers (11 point, 6 inch and 12 inch), Engineers Triangles, Plotting Scales, Rotating Azis Protractor, Protractor Rulers, Percentage Protractor, Parallel Rulers, Compass Protractor
Ben Meadows Co., 2601-B. W. 5th; P.O. Box 2781, Eugene, Oregon 97402; 3589 Broad Street, Atlanta, Georgia 30366
Forestry Suppliers, Inc., 205 W. Rankin St.; P.O. Box 8397, Jackson, Mississippi 39204
Protractors (Degrees and %), Dividers (2 point), Spacing Dividers (10 point, 6 inch and 12 inch), Engineering Scales (English and Metric), Tracing (Light) Tables, Pantograph, Beam Compass

Dietrich - Post Co., 599 Second Street, San Francisco, California 94107
Keuffel & Esser Co., 223 Lawrence Avenue, So. San Francisco, California 94080
Eugene Dietzen Co., 2425 N. Sheffield Avenue, Chicago, Illinois 60614
Charles Bruning Co., 800 Bruning Drive, West Itaska, Illinois 60143

Map Scale Indicator, (on mylar; after Boggs' design)
Cartographic Laboratory, Dept. of Geography, Memorial University of Newfoundland, Clifford H. Wood, Director, St. John's, Newfoundland A1B3X9

Reference Round-Table

# 14 David Lundquist, Map Section, Shields Library, University of California, Davis, CA 95616, has submitted the following question and appeal for assistance:

At some time or another, the UC Davis Map Collection acquired a blueline map entitled Contour of Proposed Diamond Subsistence Homestead Project, April, 1934. The name Ray S. Carberry appears on the map, though not identified as to function. There are no coordinates given, though the elevations are 1775 to 1825 feet.

Does anyone have any information as to the location or eventual fate of this planned "subsistence" project? There are a number of sizeable plots laid out and extensive railroad lines provided for. I am sure there is an interesting story behind it, if it can only be uncovered.

Can anyone assist?

The purpose of Reference Round-Table is to promote a sharing of information. You pose the questions, or, you provide the answers. Please send questions and answers direct to the Editor, they will be reported in the following issue. You may, if needed for clarification, contact the person who has posed the question, but please share the results with all of us. You may send questions or answers anonymously, if you wish.

Reference-Round Table Question Number 13 regarding the Hungarian periodical CARTACTUAL appears elsewhere in this issue.

SEE ADDITIONAL REFERENCE ROUND-TABLE ITEM ON PAGE 289, THIS ISSUE.
New Mapping of Western North America

Contributions by: MB = Mary Blakeley, University of Arizona, Tucson
BC = Barbara Cox, University of Utah, Salt Lake City
JC = Jim Coombs, Southwest Missouri State Univ.; Springfield
LC = Larry Cruse, University of California, SD
PH = Philip Hoehn, University of California, Berkeley
ML = Mary Larsgaard, Colorado School of Mines, Golden
EP = The Editor, from Publisher's blurbs, etc.
JP = Joanne Perry, Oregon State University, Corvallis
PS = Peter Stark, Central Washington State Univ., Ellensburg
CS = Charles Seavey, University of New Mexico, Albuquerque

ALASKA

Arctic Environmental Information and Data Center. 707 A Street, Anchorage, Alaska 99501 (Phone 907/279-4523).

EP 1:1,000,000 Base Maps for the State of Alaska and Adjacent Continental Shelf.
Set of 10 maps (see accompanying index) $50. Single maps $6.50

The AEIDC pioneered the use of 1:1,000,000-scale mapping for portrayal of resource information in the Alaska Regional Profiles series. Since that time we have received many requests from both government and the private sector for copies of the profile base maps to be used for similar resource presentations.

To better meet this demand, our staff, assisted by the Alaska office of the Bureau of Land Management, refined the projection, added computer-generated control, and is completing production of a new state-wide system of base maps at 1:1,000,000 scale. We synthesized material from the Bureau of Land Management, U.S. Geological Survey, National Ocean Survey, and others and have assembled a highly effective base map system for the portrayal of resource and planning data at a regional scale.

Coverage of the adjacent continental shelf has been included to facilitate plotting offshore data.

CONTENT: Protraction Grid: The rectangular survey system (protraction) was generated by the Bureau of Land Management computer. We used this grid as the mathematical control for the base map system.

Hydrography: Rivers, creeks, lakes, and coastal features were generalized from U.S. Geological Survey quadrangle maps.
Place Names: Significant geographic features as well as cities, towns, Native villages, and other man-made features are named according to U.S. Geological Survey maps, Donald J. Orth's Dictionary of Alaska Place Names, the Alaska Native Claims Settlement Act, and other sources.

Future plans call for the production of additional overlays covering topography, bathymetry, and offshore protraction.
RELATION TO OTHER MAPPING: Computer-generated protraction means that other computer-generated data can be related to our base maps on a band for band basis. For example, data entered into a computer at various scales and projections can be mathematically converted to 1:1,000,000 scale and UTM projection and then be extracted in six-degree bands to match our base maps. Conversely, data plotted onto the new base maps can be computerized in six-degree bands and mathematically converted to any other scale or projection.

U.S. Geological Survey 1:250,000 quadrangles relate directly on a projectional basis to our new base maps. Any data plotted on the quadrangles can be scaled to fit our maps through a simple photographic reduction to 25% of original size. This reduction can be handled without camera work by using the Xerox Model 1860.

(Exaggerated for illustrative purposes)

To minimize edge curvature, UTM projections are generally limited to six-degree bands known as UTM zones (illustrated at left). AEIDC joined these bands cartographically to preserve the projectional integrity of the UTM band everywhere except along the joint, where deformation is less than one percent.

Joining points, illustrated below, vary in location to minimize distortion over land areas.
ARIZONA

Bergquist, J. R. et al.


1:48,000 100 x 124 cm. $7.50 Miscellaneous Field Studies. Map MF-1162A. Western Distribution Branch, Box 25286, Federal Center, Denver, CO 80225

Richter, D. H. and V. A. Lawrence


1:62,500 79 x 88 cm. $7.50 Miscellaneous Field Studies. Map MF-1315A. (available as above)

U.S. Bureau of Land Management


1:500,000 165 x 120 cm. $7.00 U.S. Bureau of Land Management, 2400 Valley Bank Center, Phoenix, AZ 85073

U.S. Bureau of Land Management


1:500,000 165 x 120 cm. $7.00 Also available @ 1:1,000,000 @ $5.00 (available as above)

CALIFORNIA

Luedke, Robert G. & Robert L. Smith


1:1,000,000 119 x 102 cm. $6.00 Miscellaneous Investigations Map I-1091-C OCLC: 8278576 (Map A covers Arizona-New Mexico; Map B covers Colorado, Utah, and southwest Wyoming). Western Branch of Distribution, Box 25286 Denver Federal Center, Denver, CO 80225

San Diego Association of Governments

San Diego County 1980 Regional Land Inventory Map Set. San Diego, 1981.

1:126,720 90 x 69 cm. $4.00 & $2.00 mailing. Prepay. Verso: Land ownership; Land cover from Landsat (1:253,440). Available as 2 sheet set. SANDAG, Suite 524 Security Pacific Plaza, 1200 Third Ave., San Diego, CA 92101-4194

Santa Clara County Transit (1555 Berger Dr., San Jose, CA 95112)

Santa Clara County Transit System Map. San Jose, 1982.

(scale not given) 45 x 60 cm. Printed both sides. Free.
A new colored geologic map of the Sacramento 1" x 2" quadrangle has been released by the California Department of Conservation, Division of Mines and Geology. This new Regional Map with its expanded and colorful layout and format will provide an authoritative, up-to-date source of geologic information intended to satisfy the needs of interested public, professional geologists, and researchers.

The Sacramento quadrangle, Map 1A, is the first release of the Division's new Regional Geologic Map Series. The quadrangle map packet includes four sheets: (1) a colored geologic map and a generalized cross section, (2) a detailed, colored geologic map explanation, depicting fifty-eight formational units, (3) a full-scale map index to the source data used in compiling the quadrangle, and (4) a map and chart showing localities where rocks have been dated by radiometric methods.

The new geologic map is at a scale of approximately one inch to 1/4 mile. It depicts the geology of over 8,200 square miles of central California, including parts of three geologic provinces—the Sierra Nevada, Great Valley, and Coast Ranges. Salient geologic features depicted on the Sacramento quadrangle include a large part of the Mother Lode Gold Belt, a significant part of the Sierra Nevada, and the Sacramento-San Joaquin River delta area of the Great Valley.

More than seventy-five per cent of the geologic data used in compiling the new map has been developed since the publica-

tion of the 1965 Olaf P. Jenkins edition of the Sacramento sheet. Previous geologic mapping was extensively checked and revised by Division geologists. Mesozoic roof pendants, Tertiary volcanic formations, Tertiary gravel deposits including auriferous gravels, and Quaternary glacial deposits are now more accurately located on the map.

The new Sacramento quadrangle (Map 1A) is available from the California Division of Mines and Geology for $12.00. It can be purchased over-the-counter at the CDMG District Office in Los Angeles (107 South Broadway, Room 1065), Sacramento (2815 O Street), or San Francisco (Ferry Building, Room 2022), or by mail order, CDMG, P.O. Box 2980, Sacramento, CA 95814.
THE ABOVE pictures our new map of CITY BOUNDARIES in The Los Angeles 5-Co Area. The real thing is 30" x 42" at a scale of 1" equals 2 miles. This comes as a paper print and as a mylar overlay. It shows the boundaries of all 150 cities in this area, at the same scale and configuration as our other maps and overlays. Thus it is interchangeable with our maps of Census Tracts, Zip Codes, Major Streets & Hwys, Industrial Areas, Shopping Centers, etc. The City Boundary overlay will also fit over our demographic maps of the Black Population, the Spanish Population, Population Distribution, etc. This is a valuable new tool for those wrestling with the complexities of this 5-Co Area of nearly 12 million people.

Downtown Los Angeles 1981 Edition
An aerial with names of streets, bldgs., etc. DWT Los Angeles-Lg. 30"x45" 1981 $20
Population Trends Map
Shows population counts by statistical areas in the 5-Co. Area for 1950, '60, '70 and '80. This shows trends over time for the same areas. L.A. 5-Co. Area 30"x42" 1982 $20
Hi-Rise Office Bldg. Map
A two-color map showing the location of all L.A.-Orange Co's Hi-Rise Office Gldgs (8 floors or more) built in L.A.-Orange Co's from 1945 thru 1981. L.A.-Orange Co's 30"x42" 1982 $20
Shopping Centers Map 1981 Edition
Shows the location of all shopping centers and business districts throughout the area. Names of the Dept. Stores & major discount houses shown. L.A. 5-Co. Area 30"x42" 1981 $20
Schaffer, Jeffrey P.

1 map : 51 x 57 cm. $1.75

Schaffer, Jeffrey P.

1 map : col. ; 47 x 39 cm. $1.75

Western Economic Research Co.
(see separate pages, this section)

COLORADO

Schwochow, Stephen D.

ML 1:250,000 Text & 17 maps. Not free.

U.S. Forest Service, Rocky Mountain Region.

JC 1:1,000,000 48 x 64 cm. GPO No. A13.28:C71 OCLC: 8166709 Shows established and proposed wilderness areas and other National Forest System land. U.S. Forest Service, Rocky Mountain Region, 11177 W. 8th Ave., Box 25127, Lakewood, CO 80225

U.S. Forest Service, Rocky Mountain Region.

JC 1:126,720 141 x 67 cm. GPO No. A13.28:R47 OCLC: 8310096 Includes key map, ill., text, index of recreation sites, and vicinity map.

U.S. Forest Service, Rocky Mountain Region.

JC 1:126,720 97 x 60 cm. GPO No. A13.28:S5a5 OCLC: 8268092 Includes text, col. ill., key map, Index to Geological Survey topographic maps, and recreation site directory. Forest Supervisor, San Isabel National Forest, 910 Highway 50 West, Pueblo, CO 81008 (303) 544-5277

(see also: CALIFORNIA Luedke, entry on preceding page)
IDAHO

Idaho Bureau of Mines and Geology (Department of Lands, Moscow, ID 83843)

Mines and Prospects Map Series

1:250,000 20 maps covering entire State. 1-degree x 2-degree quads.

Over 8,000 mines and prospects have been recorded. The maps detail mineral localities, mining districts, and innumerable geothermal springs, rock quarries, and sand and gravel deposits.

The main sources of information for these maps were the Computerized Resource Information Bank (CRIB) of the U.S. Geological Survey and the Mineral Industry Location Subsystem (MILS) of the U.S. Bureau of Mines.

Each map is accompanied by a book that lists the names of the mineral properties, the corresponding CRIB and MILS reference numbers, the commodities at each property, a bibliographic citation for each property, a list of commodities for each map, and a separate alphabetical list of all mineral property names on the map.

The maps may be purchased over-the-counter or by mail from the Idaho Bureau of Mines and Geology, Morrill Hall Room 332, University of Idaho campus, Moscow, Idaho 83843. The mailing charge is 10% of the order—$1.25 minimum. Idaho residents add 3% sales tax.

MINES AND PROSPECTS MAP SERIES (sheet name and price:)

Ashton ($5.00) Driggs ($5.00) Hamilton ($5.00) Pullman ($5.00)
Baker ($5.00) Dubois ($5.00) Idaho Falls ($5.00) Sandpoint ($5.00)
Boise ($5.00) Elk City ($7.50) Jordan Valley ($5.00) Spokane ($5.00)
Challis ($7.50) Grangeville ($5.00) Pocatello ($5.00) Twin Falls ($5.00)
Dillon ($5.00) Hailey ($7.50) Preston ($5.00) Wallace ($5.00)

MONTANA

Sonderregger, John L. and R. N. Bergantine


1:1,000,000 69 x 98 cm. Montana Bureau of Mines and Geology, Montana College of Mineral Science and Technology, Butte, MT 59701. Free.

OCLC: 8150141 Hydrogeologic map HM 4.

NEVADA

U.S. Geological Survey


1:1,000,000 2 maps, each 80 x 55 cm. Miscellaneous Investigations Map I-1219. Both maps are same imagery, but one sheet has enhancement with place names, roads, and boundaries; one sheet is plain imagery.

Western Branch of Distribution, USGS, Box 25286, Denver Federal Center, Denver, CO 80225.
Brownfield, Michael E.


Brownfield, Michael E.


Price unknown. Available from: Water Resources Department, 555 13th St., N.E., Salem, OR 97310, Attn: Jerry Holman.


Schumacher, C A

Index to published geologic mapping in Oregon, 1898-1979 / by C.A. Schumacher. -- Scale 1:1,000,000. -- Portland, Ore. : Department of Geology and Mineral Industries, 1981. 6 maps : col. ; on 6 sheets 51 x 66 cm. (Geological map series ; GMS-14 / DOGAMI) $7.00. Available as Brownfield.


U.S. Forest Service. Pacific Northwest Region.


UTAH

Alpentech

Wasatch ski touring; Salt Lake area; Little and Big Cottonwood Canyons, upper American Fork. Salt Lake City, 1982.

BC
1:25,000 55 x 85 cm. $6.00 Shows level of difficulty of trails, avalanche areas, facilities on topo base. On verso: oblique aerial photos showing trails. Alpentech, 2671 East 2870 East, Salt Lake City, UT 84109

Alpentech

Wasatch ski touring; Salt Lake area; Utah Mill Creek, Lower Big Cottonwood, Lambs Canyon, Park City area. Salt Lake City, 1982.

BC
1:25,000 55 x 85 cm. $6.00 Available as above.

WASHINGTON

Dethier, D.P.


Hammond, Paul E.

Reconnaissance geologic map of southern Washington Cascade Range, latitude 45°30'-47°15'N., longitude 120°45'-122°22.5'S. / Geology compiled by Paul E. Hammond. -- Scale 1:125,000. -- Portland, Ore.: Portland State University, 1980. $18.00 accompanied by text. Available from: Department of Earth Sciences, Portland State University, P.O. Box 751, Portland, OR 97207.

Minard, James P.


Minard, James P.

Minard, James P.
Distribution and description of the Maltby quadrangle, Washington / by James P. Minard. -- Scale 1:24,000. -- {Seattle?): USGS, 1980
(Open file report ; 80-2013) $2.75 with text. Blue-line print. Available as Dethier entry.

Molenaar, Dee
Oblique view map, 17 x 24. Available for $4.95 from Dee Molenaar, P.O. Box 62, Burley, Washington 98322.

WYOMING

U.S. Forest Service. Rocky Mountain Region.
1:126,720 116 x 87 cm. GP0 No. A13.281 Sh7 Includes col. ill., text, index to Forest Service recreation sites, key map and vicinity map.
OCLC No. 8310064. Forest Supervisor, Shoshone National Forest, West Yellowstone Highway, Box 2140, Cody, WY 82414. (303) 587-2274

Spencer, Charles W. and John S. Dersch
Available from Open-File Services Section, Branch of Distribution, U.S. Geological Survey, Box 25425, Federal Center, Denver, CO 80225. Price is $2.50 for paper copy, 50-cents for microfiche. Prepay to USGS.

The map shows a high potential for the discovery of oil and gas in the east-central part of the national forest, mostly in Park County and a small area in Hot Springs County, as well as in a small area in the far northeastern part of the national forest in Park County.

The main basis for this interpretation is the expected presence of (underground) structures similar to those producing oil and gas on the west flank of the Bighorn Basin to the east.

Other large areas in the east-central part of the forest are shown as having a moderate potential for oil and gas. These areas are mostly in Park County, with smaller areas in Hot Springs and Fremont Counties.

The evaluation was prepared in response to a request from the Forest Service for an oil and gas evaluation of the entire Shoshone National Forest. Evaluations had previously been made for parts of the national forest, particularly for wilderness and proposed wilderness areas.

(see also, entry CALIFORNIA Luedke)
The Pacific Coast Ecological Inventory

by

Jay F. Watson

INTRODUCTION

The Fish and Wildlife Service recently completed a mapping project entitled the Pacific Coast Ecological Inventory. It is the first comprehensive series of natural resource maps of the west coast showing fish and wildlife and their habitats and major land use designations. The series consists of 30 maps at a scale of 1:250,000 scale, that is one inch equals about four miles, extending from Mexico to Canada and including Puget Sound. The maps show important concentrations of 356 different important fish and wildlife species.

The inventory consists of the inventory maps and a User's Guide and Information Base. The guide describes the maps and their symbols and indicates how to use the maps and the grid reference system.

The maps were compiled to reduce conflicts between fish and wildlife resources and construction and energy-producing companies and agencies, and to facilitate leasing processes for Outer Continental Shelf oil and gas leasing processes, oil spill contingency planning, and other aspects of resource and coastal zone management. The first series of maps were produced for the Atlantic Coast Inventory. The second series is made up of the Pacific Coast Ecological Inventory.

The maps and user's guide were prepared under contract with Dames and Moore, located in Washington, D.C. The project cost $200,000 and was completed in one year. The Project Manager, Larry Shanks, was located at the Service's National Coastal Ecosystems Team in Slidell, Louisiana, and coordinated the work with the contractor and the Service's field offices in California, Oregon, and Washington. These offices included Refuges, Fisheries Assistance, and Ecological Service.

This presentation will describe how the work was conducted, what the maps show, how they can be used, what other work can be related to the maps, and what the future of the project looks like.

A presentation made at the Spring Meeting, March 25, 1982, at Stanford University, Western Association of Map Libraries.

Mr. Watson is with the U.S. Fish & Wildlife Service, Portland, OR.
CONTRACTOR SELECTION

One of the most important steps in completing a project of this type is the selection of a suitable contractor. Although there is a tendency to want to "get on with it," the time spent in careful selection of a contractor is well worth the effort.

As with all Federal contracts, a TPEC (Technical Evaluation Committee) was formed to evaluate the proposals that were received in response to our advertisement. Since the work involved a large geographical area and involved many different disciplines, the committee was composed of biologists, contract specialists, and map makers from several agencies and locations.

It was interesting to note that, although numerous organizations had biological or cartographic expertise, very few had both. It was also interesting to note that each discipline had to rely heavily on the other to adequately review and evaluate each proposal. For example, one company had extremely high credentials for making maps but did not list a single source for obtaining biological information on the Pacific coast. Another firm listed a biologist to collect data for the project that had just started working for the Fish and Wildlife Service. It made us suspect that they were not keeping in touch with their professional staff.

One of the most important aspects of the proposal review involved the potential contractor's ability to gather information. The list of possible information sources was particularly useful for this purpose. For example, one company listed our Regional Office in Portland at an office location that we had not occupied for three years.

Another important factor involved their awareness of existing information concerning the biological resources of the Pacific coast. After the technically acceptable proposals were selected, cost was considered. The technical reviewers were not aware of the costs associated with each project and it is not considered in the technical evaluation.

DATA COLLECTION

After selection of a contractor, the Fish and Wildlife Service sent a letter to all of the Pacific coast State and Federal resource agencies outlining the objective of the project and requesting their assistance in completing the work. Data for the ecological inventory were compiled with the assistance of numerous local, State, and Federal agencies in the three States covered by the project including: the U.S. Fish and Wildlife Service; California Department of Fish and Game; U.S. Army Corps of Engineers San Francisco and Los Angeles Districts; San Francisco Bay Conservation and Development Commission; National Marine Fisheries Service; Oregon Department of Fish and Wildlife; Washington Departments of Fisheries, Game and Ecology; and the Columbia River Estuary Study Task Force.
Before data collection actually began, a data collection strategy was developed which assisted in the compilation of information. The strategy consisted of several tiers of information cataloging. That is, the information was collected by State (California, Oregon, and Washington), by zones (Southwest Pacific and Northwest Pacific), and sections within the zones, by coastal zone boundaries, by groups of plants and animals, by status (endangered, threatened, commercial, sport and/or biological/ecological significance). Within groups of plants and animals, further divisions were used to catalog information. For example, birds were divided into shorebirds, wading birds, waterfowl, seabirds and songbirds, and others. The divisions, in a way, reflect the amount of information available for each group.

Once the classification system for the information had been worked out, the data collection was initiated. A letter was sent by the Service to all resource agencies and other contacts within the study area outlining the proposed project and indicating that the contractor would be contacting them for information. Although several field trips were made to the study area, most of the information was obtained through telephone and letter requests.

Existing information was used as much as possible to develop the ecological inventory. For example, the Atlas of California Coastal Marine Resources (California Department of Fish and Game), the Coastal Zone Atlas of Washington (Washington Department of Ecology), and the Catalog of California Seabird Colonies (Fish and Wildlife Service) were a few of the existing references that were used to complete the maps. Data review and analysis took place during and after data collection.

The data review and analysis consisted of listing the information by species, cataloging and reviewing, and a final field check of the information by site visits to the agencies providing the original information to check on our interpretation of the materials provided. The first step was to list the species by their appropriate scientific names. A list of 37 references were used to establish a list of sources for common and scientific species names. As mentioned above, the information was cataloged as: species with special status (e.g., the endangered leatherback sea turtle), valuable resources (e.g., shellfish and waterfowl), migratory routes (e.g., coho salmon and shorebirds), and seasonal habitats (e.g., overwintering habitat).

Once the information was cataloged it was reviewed to determine if it would be retained for mapping and/or analysis. The criteria used for retention included: availability of reports, the proprietary nature of the information, and finally the reliability of the information. If the source of information was in an obscure publication that could probably not be obtained on a regular basis, the information was not used. In addition, some information retained by the States and is not available for general use in resource publications. And finally, we looked at the information to determine if the source was well documented and
considered reliable by most users.

The field review of maps was conducted in two phases. First, a set of trial graphics was developed for the Columbia River and the San Francisco Bay Area. These maps were taken to the various agencies for their review. The reviews were conducted after a short introduction to the objectives of the study and the techniques used to gather the information. Corrections and additions were made directly on the maps and additional sources of information listed for further research by the contractor. Approximately fifteen reviewers looked at each of the trial graphics to determine if the format was suitable for their use and to determine if the information was correct. In most cases the information mapped was accurate and the corrections made were additions to the existing map. If in doubt, the contractors were directed to omit the information from the mapping effort. Therefore, we have found very few errors in the information mapped. Most of the errors are errors of omission.

The last step in the process was to carefully inspect the final maps prior to printing. To date only one printing error has been brought to our attention and this error occurred during the correction process.

The analysis of the information collected is presented in the User's Guide and Information Base. Each zone and section of the coast described and a resource overview is presented. The description includes a physical description and a listing of special land use areas under Federal, State, local and private ownership. In addition, Class I air quality areas are listed as shown on the maps.

The resources overview describes the species of special status and aquatic and terrestrial resources of the area by groups. For example, the fish are listed by freshwater, anadromous, estuarine-dependent, and oceanic species.

MAP COMPILATION

The maps used in this study are the U.S. Geological Survey National Topographic Map series with a scale of 1:250,000. These maps contain the Universal Transverse Mercator (UTM) grid system. The 10,000-meter centered UTM grid system is used on the maps as an aid in locating specific point and area features. The use of the UTM system is explained in the user's guide.

The USGS supplied the separation plates for each of the base map sheets used in this study. Each map sheet generally consists of a series of separation sheets that show drainage, open water, contour, road, and cultural features. The individual separation plates composing each base map were aligned and pin registered before being used for the inventory graphics. A black and white composite of each base map was reproduced on a stable base mylar. These individual prepunched mylar maps then were used as the data base during the synthesis and compilation of the biological and
land use resources of the study area. Special land use delineations were compiled directly on the mylar base. The terrestrial and aquatic resources were compiled on separate mylar overlays and pin registered to each of the mylar base maps.

The cartographic effort involved a series of coordinated tasks leading to the production of 30 color-coded maps showing the ecological resources of the Pacific coast. The tasks included negative engraving (scribing process), preparation of negative open windows (peel coat process), composition of type nomenclature, placement of type, and photo laboratory processing.

All linework and map unit boundaries were prepared by scribing to ensure consistent line weights and close tolerance. The resulting scribe plates subsequently were used to make press-ready negatives for printing by contact photographic methods. In addition, the scribe plates provided the capability for applying special colors to specific map unit boundaries. For example, this process made it possible to separate and portray aquatic map unit boundaries in blue, terrestrial map unit boundaries in brown, and species with special status map unit boundaries in red. The peel coat process allowed large areas to be portrayed with special tints. For example, yellow highlights the sturdy area limits, and light green shows the extent of special land use areas.

Each map contains an average of 14 separate pin-registered flats—a single flat represents a specific set of similar items, such as base map information, symbols, patterns, linework, and nomenclature. Flats with the same color code were combined and photographed individually to produce a final press-ready negative. A total of five press-ready negatives were produced for each map sheet; each negative represents one of the five colors depicted on the map. The press-ready negatives subsequently were placed into a frame collar prior to printing.

Symbols

The Pacific Coast Ecological Inventory uses several different symbols, colors, and patterns, instead of multiple overlays, to display the features on each map. There are eight different items shown on each map: (1) aquatic organisms, (2) terrestrial organisms, (3) land use—land cover, (4) point and area feature, (5) habitat use, (6) legend, (7) Universal Transverse Mercator Grid, and (8) notes box.

Three broad categories of natural resources are shown on the maps: aquatic, terrestrial, and land use/areas of special concern. The five other categories listed above are used to enhance the information listed for the broad categories.

The aquatic organisms are shown in blue, with the exception of species of special status, which are always shown in red. Local concentrations of fish, shellfish, and marine mammals are designated by a solid blue dot, whereas more generalized areas
of concentration are delineated by a blue boundary. Estuarine and river habitats are represented by different line widths that are either solid, dashed, or dotted, depending upon the water's salinity.

Terrestrial organisms are shown in brown, again with the exception of special status species shown in red. Local concentrations are designated by a solid brown dot, whereas larger areas of significant concentrations are shown by a brown boundary.

The study area is bounded by a wide, hatched line with the terrestrial portion of the area shown in yellow and the aquatic portion in blue. Special land use areas (National Wildlife Refuges, National and State parks, State wildlife management areas) are designated in light green, either by a small circle or by the official boundary, depending on the area's size. Areas of special biological concern include marshes, beaches and dunes, eelgrass beds, and reefs. Marshes are identified by screen patterns printed in light blue. Beaches and dunes, eelgrass beds, and reefs are depicted by individual patterns printed in gray.

Features unique to a particular quadrangle sheet, for example, endangered species or Class I Air Quality Areas, are listed in the Notes Box.

<table>
<thead>
<tr>
<th>Table 1. Summary of information shown on Pacific Coast Ecological Inventory Maps.</th>
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<tr>
<td>1. Aquatic Organisms</td>
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<td>a. Plants</td>
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<td>b. Invertebrates</td>
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<td>c. Fish</td>
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<td>d. Reptiles and Amphibians</td>
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<td>e. Mammals</td>
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<td>2. Terrestrial Wildlife</td>
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<tr>
<td>a. Plants</td>
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<tr>
<td>b. Invertebrates</td>
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<td>c. Birds: 1. Shorebirds</td>
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<td>2. Wading Birds</td>
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<td>3. Waterfowl</td>
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<td>4. Raptors</td>
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<td>5. Seabirds</td>
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<td>6. Songbirds &amp; Others</td>
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<td>b. Special Land Use Areas</td>
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<td>c. Subdivision of Special Land Use Area</td>
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5. Habitat Use
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   b. Nursery
   c. Commercial Harvesting Area
   d. Adult Concentration
   e. Overwintering Area
   f. Sportfishing/Hunting Area
   g. Migratory Area
   h. Nesting Area
   i. Unusual Distribution or Specimen

6. Legend
   a. Populated Places
   b. Railroads
   c. Boundaries
   d. Roads

7. Universal Transverse Mercator Grid

8. Notes Box
   a. Species with Special Status
   b. Aquatic Organisms
   c. Terrestrial Organisms

CRITICISMS

During the review process and after completion, we have encountered two criticisms. First, some users think that the scale is too small. We counter this criticism with two comments. First, the 1:250,000 scale maps are the largest scale maps available for the entire continental United States. And second, the experts are not as willing to show the distribution of plants and animals on a larger scale map. The second criticism involves the amount of information provided concerning each species shown on the maps. Several users thought that the maps and/or information base should include more information concerning population numbers. Also it was thought that the Service should have provided more detailed information concerning the citation and/or authority for each data point shown on the maps.

INVENTORY IMPACT

DISSEMINATION

Copies of the Inventory Maps and the User's Guide have been provided to all Department of Interior and Fish and Wildlife Service Regions and Area and Field offices along the Pacific Coastal Region. Also included in the distribution were other Federal agencies, State and local agencies, universities, industry representatives, map repositories, and the public. Special emphasis was placed on directing the maps and User's Guide to decision makers involved in siting and assessing the impacts of energy related facilities.

MAP USES

The ecological inventory was designed to assist Federal, State, local, and private organizations in planning activities in the coastal region of California, Oregon, and Washington.

We believe that the maps are particularly useful to industry because they show important resource areas at a glance, are available for a large area suitable for first initial planning purposes,
and can be obtained easily from a central location. The maps were also developed to assist resource agencies with the management of fish and wildlife species by aiding in the coordination between various resource agencies. In addition, the maps are useful for educational purposes in outlining areas of ecological importance. Also the maps are useful in locating species for recreational purposes like bird watching, photography, and hunting.

The Ecological Inventory is an integral part of an information system consisting of numerous data sources which complement each other and can be used in a variety of ways to develop reports, fill information requests, or evaluate various activities and/or proposals for work in the Pacific Coastal Region.

OTHER EFFORTS

Some other projects that complement the Pacific Coast Ecological Inventory include: other ecological inventories, the National Wetlands Inventory, ecological characterizations, Community Profiles, and other related studies.

OTHER ECOLOGICAL INVENTORIES

The Pacific Coast Ecological Inventory follows last year's Atlantic Coast Ecological Inventory and is the second in the series. The Fish and Wildlife Service has recently awarded a contract for a Gulf of Mexico ecological resource inventory and map series. Completion of the Gulf of Mexico project is scheduled for August of 1982.

NATIONAL WETLANDS INVENTORY

The Fish and Wildlife Service also has a National Wetlands Inventory Project. This project is designed to develop and disseminate a technically sound comprehensive data base, concerning the characteristics and extent of the Nation's wetlands. The Service has developed a new wetlands classification system which incorporates such factors as dominant animal and plant life, soil type, and water chemistry to define and group wetlands. The hierarchical classification system is used in developing wetland maps for the entire country. The NWI has classified and/or mapped wetlands for approximately 20% of the mainland United States (approximately 600,000 square miles). The inventory is conducted using aerial photography ranging in scale from 1:60,000 to 1:130,000 with 1:80,000 quad-centered color infrared being the preferred scale and type of imagery.

From the wetland data delineated on the aerial photographs, the NWI produces large scale wetland maps based on the largest scale USGS map available for the area. The map scale most often used is 1:24,000 (USGS 7-1/2 minute quad), but the 1:62,500 (USGS 15 minute quad) is also used. The goal is to provide a map product that possesses enough detailed information to be useful to the decision maker on a site-specific basis. Intermediate small
scale maps (1:100,000) are prepared from the final large scale wetland maps. That is, each large scale wetland overlay is photographically reduced on a copy camera, composited, and paneled to a USGS base map. Each 1:100,000 scale map covers an area equal to 32 7-1/2 minute quad sheets. Along the Pacific Coast wetland maps have been completed for all areas except the extreme northwest corner of Washington. These maps can easily be used in conjunction with the ecological inventory maps.

In addition, the NWI is also developing: measurements of wetland areas, lists of hydric soils and plants, regional and State reports, and a trend analysis to document the changes that have occurred to the Nation’s wetlands during the past 20 years.

ECOLOGICAL CHARACTERIZATIONS

Two ecological characterizations have been completed for the Pacific Coast, a Pacific Northwest characterization and a Central and Northern California characterization. These five-volume studies integrate current information concerning coastal ecosystems from Point Conception in Southern California north to Cape Flattery in Washington. These studies synthesize available environmental data that identify and describe important resources, ecological processes, and their interrelationships within the study area and provides an analysis of their functional relationships. These two studies, used in conjunction with the ecological inventory maps, describe the coastal region in a manner suitable for use by resource managers, fish and wildlife biologists, planners and others.

COMMUNITY PROFILES

Community profiles are a developing series of documents that describe the structure and ecological function of particular communities of plants and animals in the coastal regions of the United States. Although no profiles have been completed for the Pacific Coast, several are nearing completion and will be available in the near future. The profiles will describe the hypersaline marshes of Southern California, the tidal flats of Central California, and the tidal channels and salt marshes of the Pacific Northwest. Again, these profiles used with the ecological inventory maps provide a handy reference to the voluminous scientific literature concerning these various communities.

OTHER STUDIES

The last group of studies that can be used in conjunction with the ecological inventory include special studies to answer particular management problems. One particular study that refines the information presented in the inventory is the Compilation and Mapping of Available Biological, Ecological and Socio-Economic Information Bearing on the Protection, Management and Restoration of the Southern Sea Otter.
MicroCartography

Seventh in a Series.

by

Larry Cruse

Map Section C-075p
University Library
University of California-San Diego
La Jolla, CA 92038 (714) 452-3338

MAP SEPARATIONS

Map separations have long been available from various mapping sources, and it has always been possible to create them using photography and color filters. Generally produced on translucent or transparent Mylar plastic, they are to photolithography what etched and scribed metal plates were to earlier map printing. And, in the same sense, the originals remain archivally important documents. Depending on the finished map, they consist of a series of same-size or oversize sheets* which have been punch-registered so that any combination can be overlaid, one on top of another, on a set of pins to create a final map. The system allows a wide variety of maps to be generated, and for any portion to be changed without effecting the others. Thus, rapid change can be accommodated where new roads, urban sprawl, or natural processes demand. Also, as new topics are mapped, such as land use, or important farmlands, these can easily be accommodated without going through the full process needed to create a map.

I have seen fairly large examples of this type of material—on the order of 4 x 6 feet—acceptably reduced to a microfiche size of 4 x 6 inches. While this project never went into production, the reasons were purely financial. Two reasons why it is still under consideration are its ability to backstop the originals in case they were somehow damaged or destroyed. The second rationale is that, if generated annually, the microfiche would also act as a freeze-frame historical record for what was an otherwise continuously evolving product. This is especially important where all of the separations are not necessarily used regularly to make maps, so their changes are not regularly printed, and where the Mylar originals represent a significant investment, particularly for local governments. Costs associated with a local plan are $2 per original microform negative. Two, first generation negatives are needed, one to be stored archivally, and the other to act as a printing source for microform duplicates and Mylar blowbacks to original size. For this job, the first generation negative would be used to make second generation masters, the actual working microforms.

* For instance, many USGS 15' quadrangles were scribed at a scale of 1:48,000, then photo-reduced to 1:62,500.
Standards

Since Mylar separations are created using registration holes, the microforms are made to do the same. Just how to do it is an issue currently being addressed by the National Microfilm Association's committee on standards for cartographic microforms. The problem confronting them is that there is no accepted industry practice in this area which can be drawn on for standards. If you have any inspirations about how such a microform should be hole punched for registration, please pass them along, either to me or to Ralph Ehrenberg, Assistant Chief, Library of Congress, Geography & Map Division, Washington, DC.

A further note about cartographic microform standards is that they were discussed at the NMA's annual meeting in St. Louis, May 3-6, and are very near to publication, perhaps by the end of the year. They will provide a useful baseline for everyone: producers will have a necessary set of criteria for producing the microforms, and users will finally have a means of evaluating what they receive. Cartographic microform standards will be especially helpful to the neophyte since they provide a systematic and quantified set of guidelines for having microfilms made. And best, they represent the collective experience of numerous professionals, so applying them will be much the same as having a consultant at your elbow.

Adding a section on registration of images to the standard could open up a whole new area which could benefit producers and users in several ways. In addition to the preservation, back-up insurance and time-slice advantages for producers, there can be added the benefits of integrating such microforms into production of the Mylars, such as scissor drafting, cleaning up worn or dirty originals, and other uses not obvious until such a system is tried. Map librarians and their clientele would also gain in the process. The principal advantage would be versatility. Any number of map series might be collapsed into such a system as a set of oversays rather than as overprinted sheets. While each element would still require a separate microform—including the initial set to form a base map—the space required would still be insignificant compared to paper maps carrying the same aggregate of information. The increase in versatility would then multiply from that point. Configurations would depend only on need.

Obvious applications for such a system include all of the thematic material associated with national surveys worldwide. In addition to their basic, mapping functions, these surveys are regularly asked to supply mapping for other governmental units at regular and irregular intervals; the experience of the U.S. Geological Survey is typical. And many national-level maps which these surveys do not make now could easily be merged with them; in the U.S., Census Bureau maps are examples of this type which are bucking the trend to integrated mapping at the national level. The same trend also holds for state and local governments.

Digitization

Users have also pointed out some new possibilities: in the last installment I discussed the maps of the 1980 census. We have a corporate client who is currently digitizing civil boundaries from USGS quads because the digital base is not yet available from the Census Bureau. There would be greater econ-
omies all around if they were able to work from the USGS civil boundary and geo-coordinate separations. In such work "it is assumed that colour separation sheets are available with well defined and clear cartographic line presentation. No attention is given...to the 'possible' automatic digitization of composite paper maps."* Digitization would be simpler yet if feature separations could be substituted for color ones. Color separations carry several classes of feature as often as not, and these must be discriminated as input. Thus feature separations remove at least one step from that process.

But even within the context of color separations, diazo microforms can be substituted for digitization to some extent for computer analysis.

Diazo transparencies are diazonium salt-based film positives, which are available in a variety of colors. In image processing, diazo transparencies are commonly used to construct color-composite images from black and white film by the color substrative process. These color composite images are constructed by using a different color transparency for each black-and-white film image and overlaying the diazos. The resulting image displays a continuous gradation of colors.

Once an image is produced, ...extraction of thematic information may be accomplished either visually or by computer-assisted...digital classification.

[But] locational accuracy...may be reproduced during the transfer of data from image to base maps.**

Of course these problems would be overcome if the maps and images were part of a uniformly punch-registered product line. And the diazos could be produced locally at little cost, at whatever size was needed. In a fit of hubris, I mentioned some of these possibilities to the NOAA User Affairs Office, which has been soliciting advice on the formatting of Landsat images for when they take over services from the USGS.*** Why not Landsat microfiche, half-scene, quarter-scene, multi-scene or whatever?

The Visually Handicapped

Another potential use for micro map separations could be read-into a recent report on embossed copying by LC's National Library Service for the

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Blind and Physically Handicapped.* It consists of a two-stage photocopying process which first "reproduces images in black and white and shades of gray on chemically treated paper. A second adapted photocopier uses this paper and heat to emboss the images in different heights.... The secret is in the paper. It's a plastic foam that responds to heat. The amount of heat absorbed determines the height of the image. Darker areas absorb more heat and are in higher relief. White reproduces flat, black is at least the height of a braille dot, and grays are in between." Consequently, "...two dimensional illustrations such as simple maps...are easily comprehended."

Advantages of micro map separations in this system include a means of simplifying maps which are too complex otherwise. Prints from a standard reader/printer could be used as a source for the process, thus controlling scale and, to some extent, gray level. Contrast control could be tailored to the embosser's characteristics for further emphasis or de-emphasis. Also, a reader/printer with the common capability to reverse black and white relationships would add more capabilities. An embossed map of drainage patterns, for instance, would be more natural if printed in the negative, so that the pattern would fall below the surface, rather than rise above it. Then, there is the issue of hypsometric tints, where the darkest colors are used for the lowest elevations, just the reverse of what the embosser needs as input. These relationships can be simultaneously reversed and enhanced on an appropriate reader/printer. Imagine the effect if this embosser could be made to achieve significant raised relief; it would be possible to make terrain models for the sighted as well as the blind.

Readers for the Visually Handicapped

While on the topic of equipment for the visually handicapped which might also be useful to the sighted, there are a number of electronic reading aids on the market which are useful on microforms, especially those of unconventional format or of low contrast. Functionally, we are all visually handicapped when trying to use such sources.

One pet peeve concerns a product called microcards. These are photo-reductions on opaque, white photographic stock. While they have a beautiful appearance to the naked eye, with images appearing a bit like Belgian lace, they are beasts to read and difficult to photocopy. Since they are opaque, they are viewed on special readers which operate on principles of reflectance rather than transmission of light. The reader equipment is characterized by low brilliance and poor image contrast. Room lights must be turned off so that users have some hope of reading the image.

Popular micropublications using this format include the U.S. Government's Serial Set of early documents, which includes all of the exploratory expeditions in the western U.S., early American newspapers, "Landmarks of Science"—which includes important works on earth sciences and geography, and some of the Sabin set of early Americana, which includes atlases.

A second, "unconventional" microform is "ultraliche", a label attached
to microforms reduced anywhere from about 70X to 200X. While these are trans-
missive like microfiche, the thick optics needed to magnify them back to the
visual threshold also makes them a low contrast problem. Both microforms are
also difficult to print, primarily because, being unconventional, it is hard
to justify special equipment for them. And, in the case of microcards, there
is simply not a unit on the market at present.

A possible solution to these problems is the use of high-gain video cam-
eras, such as those available from companies like Visualtek.* Equipment con-
sists of various combinations of integrated and component cameras/CRT viewers.
One line, capable of variable magnifications up to 60X, is designed for printed
works. The other, with magnifications of 200X to 600X, is intended for micro-
forms. All systems feature contrast enhancement, black and white reversal,
and some of the component systems include vertical/horizontal split screen
viewing from multiple sources. There is probably no reason why a multiple
hookup could not be accomplished to superimpose multiple separations, too, or
a stereoscope be mounted on a monitor for use with stereo photos. The basic
microform system is just short of $2,000 for camera and monitor. While not
cheap, considering all of the possible uses, and all of the difficulty poor
microforms can cause, the price does not seem excessive. Of course, if it was
capable of color, such a system would be more useful still. Black and white
prints can be made from such monitors using a special copier from Honeywell,
or using Polaroid's new color transparency film: Type 891 Colorgraph 8 x 10
Projection Film. It might be possible to make some colored map products us-
ing this film, careful registration, color filters, and multiple exposures
to "accumulate" a map.

* Visualtek, 1610 26th St., Santa Monica, CA 90404 (213) 829-6841
Cataloging

The Library of Congress published a policy statement last year regarding the cataloging of cartographic microforms.* If the microform is a photograph of an already printed work, the cataloging description will be of the original, with the microform characteristics carried as a note. In the event the original work was not printed—this would apply to manuscripts such as map separations and the National Archives' microfiche of manuscript maps—cataloging description will be of the microform, with description of the original material reduced to notes.

It is the intent of this policy to reverse the tradition of always describing the microform, using the "item in hand" rule from AACR 1, which was carried forward into AACR 2. This made it appear that many works were "published" by the microfilmer, when in fact they were only reproduced.

LC's new "interpretation"—it is not a "revision" of AACR 2—seems to give short shrift to manuscript maps, air photos, and map separations. Since each of these products had an absolute existence before microfilming, it would be more to the point if they also received the benefit of an "interpretation". Let us say, for instance, you had a standing order for microfiche from Canada's National Map Collection, and the U.S. National Archives. The two sets would be cataloged in two different ways; yet, neither archive would have held a relationship with its holdings different from the other.

Film Longevity

The last time we dealt with film longevity was in November, 1981. The issue then was a flap at the National Archives concerning the archival stability of microfilm. This is just one more area of total reliance we have on the work of archivists (they're doing most of the map microfilming, too.) Initially, there was alarm at the cost of the microfilming program at the U.S. National Archives, but also some question as to just how long the microfilms (and archival digital tapes) would hold up. Perhaps this simply represents the education of a new generation of archivists, or it may have merit. Certainly, whatever their findings, they will have an impact on libraries. When it arrives, the next report will be issued by the National Bureau of Standards, which has been assigned the task of studying deterioration in microfilm.**

Ironically, I saw mention recently that as a consequence of current environmental law, current papers manufactured in the United States are almost completely acid free. If this significantly alters the longevity of standard papers, it would remove one of the primary motivations the Archives has for microfilming their records. If this should lead to a policy change, coupled with findings on the deterioration of microfilm, the whole technology would be forced to stand on its other attributes: it would still be cheap, compact and versatile. But without the source of a good product, such as the exemplary quality of archival filming, map microforms might sink in a sea of despondency.

* Further details will be issued in the Cataloging Service Bulletin.

Custom Fiche on Updateables

If such a micro separation file were launched, it would be possible to exploit "updateable" technology to produce a final, tailored microform. Since this is an emerging area of micro technology, some of the most promising approaches are not on the market yet. Already available is Bell & Howell's Microx, which "uses electrophotography to establish a latent image which is then developed thermoplastically and can be erased by heating the film."*

Another updateable, the MicroOvonic system, uses a special, cumulative intermediate film which can be amended, deleted and updated, then transferred to a standard microfilm. The latter is the distribution copy, or, in the case of micro separations, would act as the finished product. The Ovonic master would act as the accumulator of the separations, absorbing the information from them one at a time. [*Colonel Leonard S. Lee, "Update on Updateables", Information & Records Management 16(4):44.]

Further Reading

Most of the background reading needed to take advantage of the map separation technique is available in modern drafting texts. A particularly digestible and timely short introduction to the technique appeared in Drafting & Repro Digest 5(11): 24-27, Nov. 1981. It is part of their "Primer Series" of instructional aids, most of which are useful to cartographers. This particular example is on "Blazo Intermediates".

Correcting Microfiche Headers

Whether launching into a local microform program, or dealing with those issued by someone else, there is at least an occasional need to change the header of a microfiche, or to superimpose eye-legible information where none exists. The following information was distributed to depository libraries recently as a mimeo insert.

MICROFICHE HEADER CORRECTIONS

The Depository Library Council asked Library and Statutory Distribution Services to compile a listing of ways to correct microfiche header errors.

The Chief of the Micrographics Section, Duke Spence, telephone number (703) 557-1100, looked into this and discovered the following:

There are two ways to correct microfiche headers, both of which work very well.

1) The first method is to purchase permanent self adhesive white labels measuring 6" x 1/2" in rolls of 1,000. These labels can be typed onto and cut to any size necessary, eg. 1/2" for class corrections or can be used in total if entire header information would like to be changed.

966 Hungerford Drive Suite #13
Rockville, Maryland 20850
Attention: Mr. George Anthony
Telephone Number (301) 424-9200
This is a stock item and Mr. Anthony assures us that this material will be shipped same day. Minimum order is $25.00. Cost is $12.50 per roll of 1,000 6" x 12" labels.

2) The second method will be better for libraries who need to produce additional diazo copies from their diazo.

The first step is to purchase a sheet of clear Molex Product No. 410, Microfiche Title Strips 1" x 5 3/4". This company will provide free samples of these upon request. These can be typed onto and cut to any size necessary, or used as is for entire header replacement.

CONTACT: Molex Microfilm Products, Inc.
Box 175 - Inwood Station
New York, New York 10034
Telephone Number (212) 569-5340/5393

This is a stock item and they assure us that satisfaction guaranteed. They will ship same day. Minimum order is for 1,000 labels at a cost of $45.00.

The second step to be used in conjunction with the Molex Product is to purchase catalog # 201-Diazo and Vesicular Film Print Eraticator. This comes in 1 oz. bottles with an applicator brush in the cap and if rubbed onto any area on the film will delete all fiche information it touches, so please be careful. It works with one swipe. After removing you simply apply the Molex strip with correct information.

CONTACT: Michelin Chemical Corporation
9045 Vincent Street
Detroit, Michigan 48211
Attention: Mr. Akers
Telephone Number (toll free) (800) 521-3240

This is also a stock item and Mr. Akers assured us they will ship same day. Minimum order is $50.00. Price is 1 dozen, 1 ounce bottles for $36.00

It might be a good idea for 2 or 3 libraries to order together to avoid minimum order problems.

The above are products that the Library and Statutory Distribution Service has used with no problems. These are the manufacturers that we have used, but there may be others; if you discover others please write and let us know so that we may share them with the library community.

Yet another need is for adding information by hand, or suppressing items in the header. For such jobs, you might try Sanford visual aid pens. Their Vis-à-Vis line is designed for writing on film. Pens are available in fine or broad tips, washable or permanent, transparent ink, with a color choice of Black, Blue, Red, or Green. They are available from the Highsmith Company, Inc., P.O. Box 800A, Highway 106 East, Fort Atkinson, Wisconsin 53538. Ask for catalog 24A, "Essential Office and Audiovisual Products".
MICRO PUBLICATIONS

GPO has just sent a microfiche version of LC's new Fire Insurance Maps in the Library of Congress to depository libraries. Call number is LC 5.2: F 51. This fiche is not available for purchase from GPO.

Australia's Division of National Mapping has issued their "Master Names File" on microfiche. This includes all names on the 1:250,000-scale national maps, and is updated periodically to include names shown on the 1:100,000-scale map series. Latitude, longitude, map number and state are included for each name. Price, in 1980, was $5.00A, a bargain compared to the out-dated print equivalent which was $23.00A in 1968. For more information: Division of National Mapping, P.O. Box 31, Belconnen, A.C.T. 2616, Australia.

USGS has now issued 29 state microfiche sets in the Geographic Names Information System (GNIS). At last count, the cost was $43.50. There will be a hiatus of some length before any more are released. Available are AR, CO, CT, DE, DC, FL, GA, ID, IL, IN, IA, KS, KY, MD, MA, NE, NH, NJ, NY ND, OK, RI, SD, UT, VA, WA, WV, WI, WY, all from NCIC, 507 National Center, Reston, VA 22092.

1970 Census District Maps for California

U.C. Berkeley has microfilmed a set of maps showing 1970 census enumeration districts in California:

California. Division of Highways.
Road system ... County, California. -- Scale 1:126,720.
397 maps on 72 microfiches; 105 x 154 mm.

Overprinted by U.S. Bureau of the Census to show enumeration districts and census county divisions.

The entire set is available for $36 plus postage. Individual fiches cost 50 cents. Copies are diazo negatives containing approximately six 35mm images each. When ordering (from the address below) do NOT enclose payment with order; you will be billed upon completion of work. A word of caution: some district boundaries do not show clearly on fiche copies or in blue line prints from which the fiches were filmed. A sample fiche is available for examination. A second, larger set showing enumeration districts within cities and towns is currently being microfilmed.

Map Room - Library
University of California
Berkeley, CA 94720

NHAP

Microfiche Index, National High Altitude Photography (Sioux Falls, SD 57198. User Services Section, EROS Data Center, 1981). $25. for national coverage.

Another microfiche index from EROS, this one limited to the National High Altitude Photography (NHAP) program, a kind of graphic national census of
black-and-white and color infrared air photos. Both the program and its index serve as complements to the other photography held by EROS, graphically presented in the Micro (GRAPHIC) catalog already reviewed in these pages.

The set consists of 131 microfiche. Each fiche carries from one to six 35mm frames. Each frame is one 1:250,000-scale USGS quadrangle with photo outlines superimposed. The arrangement is by frame number, 1 - 86 for black & white and 101 - 186 for CIR. Not all frames have been issued, since the NHAP program is not complete, and not all fiche are full, for the same reason.

Also eye-legible on the header is the IMW quadrangle name. Since each fiche covers one-half a quadrangle, there is also a north or south designation in parenthesis. There is also the IMW quadrangle number, with 1:250,000 sheet identifiers. Thus, for a given IMW quadrangle, two fiche will be necessary in each sequence for full coverage, for a total of four. Unfortunately, the IMW sequence and the "frame" sequence are in opposition: IMW's run south-to-north, frames run north-to-south; both progress from west to east.

Additional information on the header includes program (NHAP) and, on an optimistic note, date. As in the Micro (GRAPHIC) catalog, headers are colored white for bw, red for CIR. Eye-legible above each 35mm image is the IMW designator for that 1:250,000 quad. Which brings up the question of how this set should be filed.

Use of the frame numbers, as suggested by the set's packing order, is logical enough. While the numbering is "open" and not absolute, the original sequence telegraphs anything missing pretty well.

An alternative is to file by IMW sequence, then sub-file by 1:250,000 (1° x 2°) quad number 1 - 12. A third alternative is to use the sheet names and file alphabetically, an arrangement encouraged by the arrangement of the header, where sheet name is at the extreme top left. Yet a fourth possibility is to superimpose numbering over the sheet name using Molex strips. Fifth, if the set is placed in a binder, arrangement can be detailed on a guide sheet, or if it is housed in a file drawer, index cards can be inserted. Only for consistancy's sake, we are using IMW arrangement in a binder with a guide sheet, especially since the actual quads have IMW numbers above them. We might go so far as to try highlighting the filing element we use; actually, we may try to suppress the other elements using one of the vis-à-vis transparent pens.

There might be some temptation to merge this index with its complement, the Micro (GRAPHIC) EROS catalog. The arrangement would consist of the Micro (GRAPHIC) full IMW quadrangle fiche, followed by the NHAP quadrangle fiche, then the remaining Micro (GRAPHIC) fiche, each devoted to a single 1:250,000 quadrangle. This might work especially well if the complete set of Micro (GRAPHIC) fiche is held. Since we have only the NI-11 block, we will file the two adjacent, but in separate binders.

I've spent so much space detailing the arrangement of the set, there is little left to devote to the set's content. Therefore, the following illustrations will, I hope, speak for themselves: EROS has done another exemplary job. At $25 the set, this is the cheapest source of 1:250,000 topo quads around, with the NHAP outlines a bonus.
It would be nice if this were possible world-wide. Then all map series could be arranged according to it, regardless of origin. But, as Newsletter No. 4 of the 1:250,000 Unified Hemispheric Mapping Series points out, North America uses a 1° x 2° format, Central and South America use 1° x 1°30'; and that is just for starters.
News Notes!

- An article by Katie Leishman, "Maps, a world of discovery," appears in the April 1982 Connoisseur (pp. 98-102).

- To collectors of maps-on-other-materials, J.B. Post of The Free Library of Philadelphia has brought to our attention the following:

  from Pot-pourri (Spring 1982) (Department P112A, Wellesley, MA 02181):

  Porcelain plates from California. Each is decorated with the map of a different wine growing area in that state, showing the vineyards. Plan future trips or reminisce about past journeys as you sip your wine and nibble a cheese, salad or dessert. The set of four 7½" plates is beautifully gift-boxed in a wooden crate tied with a cord. A great gift to give or to receive and one which will be long remembered. #58502 - crate of four vineyard plates ...$57.50

  "Your Neighborhood". No one escapes the eagle eye of the U.S. Geodetic Survey [sic.] team. The entire country has been mapped in detail and sections are constantly being updated. Tell us exactly where you live and we will send the appropriate map mounted on this attractive black metal waste basket or umbrella stand, 9" diameter x 18" high. A fun gift, too!! Please allow up to four to six weeks. 58932 ..........$26.95

Order by phone toll-free: 1-800-225-4127.

- WAML is pleased to be included -

  "I will be teaching a class in "Special Libraries" this spring and would like to share with my students any promotional or membership brochures that you might have available for distribution. Probably around 25 students will enroll."

  A sufficient quantity was promptly sent.

  Marcy Murphy
  Associate Professor
  School of Library and
  Information Science
  Indiana University
  Bloomington, Indiana 47405

- At the Spring WAML Meeting at Stanford, Vlad Shkurkin - a member of WAML and an independent map producer (of out-of-print Sanborn Maps) - reported his experience with the Xerox 2080 machine. It enlarges or reduces, and has the capability of enhancing the image by cleaning the background greys of old maps. It is an expensive machine, not found in very many places, but it is worth using if the objective is the production of clean copies.

  He also reported his find in the California town of Grass Valley (in Nevada County - 45 miles W. of Lake Tahoe - in the Mother Lode) a library of old mining maps. Maintained by Mr. Van der Pas, the library is the Pacific Library for the History of Science and Technology.

Barbara Cox, WAML President 1981/82 - Map Librarian, University of Utah, has offered the following Duplicates:

ASCs Photo Mosaics ca. mid-sixties
Most states west of the Mississippi available (except UT)
Will send to interested map collections. Prefer those who can send large boxes for packing.

Barbara Cox
150 Marriott Library
University of Utah
Salt Lake City, UT 84112

A Call for Papers has been issued by Brian W. Blouet, Director, Center for Great Plains Studies, for a conference on Mapping of the North American Plains:

In the spring of 1983, the Center for Great Plains Studies will sponsor a conference on mapping the plains in the eighteenth centuries. The conference will take place at the time of the publication of the Atlas volume of the new edition of the Lewis and Clark Expedition Journals, edited by Dr. Gary Moulton.

The conference will also coincide with the opening of an exhibition of cartographic materials in the Center's art gallery in Love Library. Jon Nelson, Curator of the Center's Art Collection, will assemble the exhibition, which will include both native-American and Euro-American material.

Papers are being solicited for the conference on the following themes—the cartographic work of various expeditions, methods of survey employed, the evolution of cartographic techniques, promotional and commercial depictions of the cartographic work of expeditions, maps derived from the fur trade, the cartographic work of indigenous inhabitants of the plains region, treaty maps, the depiction of the plains region in French and Spanish maps, and vernacular representations of the region. The program committee will be happy to receive additional ideas. Papers will be accepted for presentation through October 31, 1982. However, potential contributors are urged to write immediately to:

The Program Committee, The Center for Great Plains Studies
1213 Oldfather Hall, University of Nebraska, Lincoln, NE 68588-0314

Roy V. Boswell, Curator for the Collection for the History of Cartography at the California State University, Fullerton, has announced plans for the Fall Meeting of the Patrons of the Library:

The Fall Meeting of the Patrons of the Library, California State University, Fullerton, will be in the University Library on Sunday afternoon October 24, 1982. The time of day and the room location can be ascertained by telephoning the Library at (714) 773 2724.

Prof. Norman J. W. Thrower of the University of California, Los Angeles, will give an illustrated talk: "A Buccaneer's Atlas: The South Sea Waggoner of Basil Ringrose, 1682."
This meeting will also mark the opening of an exhibition by the Library's Collection for the History of Cartography of antiquarian maps given by the Patrons to the Collection since its inception on November 19, 1971.

The GIS Newsletter (published bi-monthly by the Geoscience Information Society) Number 74, February 1982, issued a Call for Papers for their October 18-21, 1982 annual meeting in New Orleans. The meeting will include a half-day symposium on the topic of Geologic Hazards Data. The symposium will include five thirty-minute presentations by individuals actively involved in the collection, storage and retrieval of geologic hazards data. They will discuss bibliographic and numerical data files, maps, and other sources of information. More information may be obtained from Program Chairperson, Regina Brown, Orton Memorial Library of Geology, The Ohio State University, Columbus 43210 (telephone 614/422-2428). She is also Editor of the GIS Newsletter and Vice-President/Pres.-Elect.

The Newsletter of the National Cartographic Information Center (USGS) for Winter/Spring 1982 (No. 12) includes the following items:

We are currently reviewing the effectiveness of the USGS Map Reference Library depository program with the objective of improving accessibility to and availability of USGS map products. We would appreciate any comments or suggestions for improvement of that service. Please direct comments to U.S. Geological Survey, Information and Data Services, Chief, Office of Product Distribution Policy, Mail Stop 508 National Center, Reston, VA 22092.

* Markham Produces USGS Maps on Microfiche  
* Map Dealer Program

* Public Inquiries Office  
* The State Cartographic Information Program

* New U.S. Geological Survey Maps and Products (a welcome feature of this article is the notation for each product whether the item is a USGS Map Reference Library depository item).

A handout distributed at the WAML Spring Meeting at Stanford by Gerald L. Greenberg (NCIC-Western, Menlo Park) is a package of five order forms and accompanying explanatory sheets (These are experimental Order Forms). Included are:

- Original Material Order Form (1:24,000 & 1:48,000)
- T.G. Material Order Form (1:24,000 & 1:62,500)
- 1:100,000 Scale Material Order Form
- Final & Advance Composite Order Form (1:24,000, 1:62,500 & 1:100,000)
- Orthophoto Material Order Form
- Pricing Form

Included on these forms are explanations of some of the cartographic terms used by USGS: T.G., B Sheets, T Sheets, C Sheets, etc. Available from: U.S.G.S., NCIC-W, MS-32, 345 Middlefield Road, Menlo Park, CA 94025 ATTN: GDM (Phone 415/323-8111 ext. 2866)
The University Library, 5th Floor Reading Room, California State University at Long Beach is the site of the Saturday, June 12, 1982 meeting of the Map Society of California.

Dr. Judith Tyner, Department of Geography, Calif. State Univ. Long Beach, is the organizer of this meeting. Dr. Gerald L. Greenberg, USGS Menlo Park, is President of the Society for 1982.

The program includes welcoming remarks by Peter Suyers-Duran, Director, University Library, and Simeon Crowther, Dean, School of Social & Behavioral Sciences.

Patricia Caldwell, Caldwell & Associates, will talk on TELEVISION NEWSMAPS.

David Hornbeck, Professor of Geography, Calif. State Univ. Northridge, will present CALIFORNIA DISEÑOS: MAPPING THE EARLY CALIFORNIA LANDSCAPE

A tour of Rancho Los Alamitos will be conducted in the afternoon.

1:250,000 UNIFIED HEMISPHERIC MAPPING SERIES - Another Update

The last Information Bulletin (Vol. 13, No. 2, March 1982, p. 179) reported to you that letters dated 20 October 1981 and 14 January 1982 from Robert L. Senter, PAIGH Program Manager for this series of maps (The Americas), had been received. Subscriptions to the series are still open, and invited. Two new letters from Mr. Senter, 17 March 1982 and 5 May 1982, have been received.

An index to the series has been created by the National Geographic Institute Tommy Guardia of Panama. They are being sent to the Defence Mapping Agency Distribution Center in Clearfield, Utah, and will be distributed to subscribers (no cost) with a future map shipment.

Produced to date are the following: Costa Rica NC 16-8 & NC 16-12

Haiti NE 18-4

**Mexico** NH 13-1, 13-2, 13-4, 13-5, Mexico NI 11-11 & NI 11-12

NH 13-8, 13-9, 13-10, 13-11, NH 11-2, 11-3, 11-5, 11-6, 11-9, 11-12

NH 13-12

NH 14-7, 14-10 NI 12-10

NG 13-2, 13-3, 13-5, 13-6, NH 12-1, 12-2, 12-3, 12-6, 12-7, 12-8, 12-9, 12-10

NG 13-9, 13-12

NG 14-1, 14-2, 14-4, 14-5, 14-7, 12-11, 12-12

NG 14-8, 14-10, 14-11 NG 11-3

NF 13-3, NF-13-5, 13-6, 13-8, 13-9, NG 12-3, 12-4, 12-5, 12-6, 12-7, 12-8, 12-9, 12-10

NF 13-11, 13-12 12-11

NF 14-1, 14-2, 14-4, 14-7, 14-10

NE 14-1 NE 15-5 About 60 more sheets will complete Mexico.
NORTH AMERICAN CARTOGRAPHIC INFORMATION SOCIETY

1982 ANNUAL MEETING

WASHINGTON, D.C.
OCTOBER 21-24, 1982

CALL FOR PAPERS

The goal of NACIS is to promote communication, coordination, and cooperation among the producers, disseminators, curators, and users of cartographic information. The NACIS Annual Meeting will include paper sessions, speakers, workshops, exhibits, and tours of cartographic facilities.

The NACIS Program Committee invites papers dealing with all aspects of cartographic information -- both past and present. Those interested in presenting a paper should submit a title and short informal summary sufficient for review no later than August 1, 1982.

FOR GENERAL INFORMATION
CONTACT:

Donald Daidone
Newman Library
Virginia Tech
Blacksburg, VA 24061
(703)-961-6308

FOR EXHIBITS CONTACT:

Daniel M. Garnett
c4x42
National Ocean Survey
6001 Executive Blvd.
Rockville, MD 20852
(301)-443-8881

SUBMIT PROPOSALS TO:

Barbara Hartman
7506 Bluff Spring Road
Austin, TX 78744
David Deckelbaum, UCLA Map Library, has inquired of Robert L. Senter, Program Manager of the 1:250,000 Unified Hemispheric Mapping Series (under production - auspices of the Pan American Institute for Geography and History) whether an index to the series is available. Mr. Senter replied (22 April 1982) that he is currently working on having an index printed. He also brought to our attention the country index of Mexico and Haiti (which are reproduced here for your information). The plans are to provide each subscriber one country graphic for each country that is producing maps in the program. For further information, the address is: Robert L. Senter, PAIGH, Program Manager, DMA IAGS, Bldg. 144, Ft. Sam Houston, Texas 78234.

WEI T'o® ASSOCIATES ANNOUNCES AN IMPROVED NONAQUEOUS DEACIDIFICATION

Wei T'o Associates announces that Dr. Richard D. Smith, President of Wei T'o Associates, was awarded U.S. Patent No. 4,318,963, entitled "An Improved Treatment of Cellulosic Materials," on March 9, 1982. This invention makes possible the preparation of many different kinds of nonaqueous deacidification solutions using magnesium alkoxides which scientists have heretofore considered insoluble. These new solutions can be used to protect books, documents, and works of art on paper against aging; i.e., to prevent the embrittlement and yellowing caused by acid attack.

For archives, libraries, and museums, Dr. Smith's new patent improves the technology of preservation in four important ways. (1) It makes available more safe nonaqueous deacidification solutions because less hazardous solvents, e.g., ethyl alcohol, can now be substituted for methyl alcohol. (2) It makes possible special formulations which rarely affect highly soluble inks including ball point inks. (3) It allows the formulation of solutions with greater penetrating power to use for protecting thicker papers and stabilizing paper boards on which prints or works of art on paper already mounted. (4) It makes possible more economical mass deacidification systems in which only the solvents and chemicals carried away in the books and records must be replaced.

In other words, Patent No. 4,318,963 discloses a breakthrough which increases the choice, efficiency, and effectiveness of the nonaqueous deacidification techniques available to archivists, conservators, collectors, and librarians. This technology for preserving books, records, and works of art on paper was pioneered and developed by Dr. Smith during the 1960s at The University of Chicago. Throughout the 1970s, Wei T'o Associates continued development of the solutions and technology which now are widely used and form the basis for the successful Wei T'o® Nonaqueous Book Deacidification System at the Public Archives of Canada. In this same decade, Mr. George B. Kelly, Jr., Preservation Research and Testing Office at The Library of Congress, further stabilized the original solution.

Dr. Smith's new process has been used successfully for several years and has made it possible for Wei T'o® Associates to introduce and improve three different pairs of deacidification solutions and aerosol sprays. Wei T'o® Solution No. 2 and Spray No. 10 are intended for use by professionals, dry rapidly, and seldom affect even fugitive inks. Nos. 3 and 11 offer improved safety characteristics; have intermediate working properties, and are intended for use by collectors and in less well ventilated work areas.
Nos. 4 and 12 have the greatest penetrating and sterilizing power, dry more slowly, and can be used to treat larger objects. Custom formulated solutions are also available to satisfy special needs, e.g., for Wei T'o Deacidification Systems and for deacidifying documents with unusually sensitive inks.

Additional information is available from Wei T'o Associates, Inc., P.O. Drawer 40, Matteson, IL 60443, (312) 747-6660.

A feature of the WAML Spring Meeting, March 26th was a tour of the new Records Annex of the Western Mapping Center, U.S. Geological Survey, Menlo Park. Tour host was Gerald L. Greenberg of NCIC-Western who summarized the features of this recently completed 11,000 sq. ft. facility for map reproduction materials, which have now been moved from their problematical storage at the National Archives at San Bruno (near San Francisco).

WESERN MAPPING CENTER, RECORDS ANNEX, U.S.G.S., MENLO PARK

Computer Inventory Tracking System - Products Video Display, Printout Bar Codes on Materials Containers, Remote Order-Change Out Terminal

Multiple-Function Work Area: Loading Dock; Telephones
Special Ladders including motorized ladder; Intercom
Water Fountain (Refrigerated); Control/Security Desk
Standard Materials-Requisition Forms; Emergency Lighting
Climate Control-Humidity, Temperature, Dust; Industrial Lighting; Extra-wide aisles (4 ft.); Fire Control: zoned sprinkler system; smoke ion detection, heat detection, alarm system, high pressure water hydrant, supplemental fire extinguishers; Restroom - Toilet & Wash Basin (Unisex); First Aid Kit

The estimated total value of the contents of this Records Annex is $340,080,000.

The approximate total internal floor area is 11,200 sq. feet.

Cost of building construction (Butler pre-assembled design, fully insulated, including major utilities) $518,775.

Cost of add-on construction - utility items - ladders $26,000.

Cost of open shelving (incl. consulting, transport, erection - Unicor - Federal Prison Industries) $71,249.

Cost of closed drawer-shelf file units on hand: $299,400.

Cost of materials move from previous locations: $45,251.50.

Dorothy McGarry, Lifetime Member of WAML, Physical Sciences Library, UCLA, has an article "On The Cataloqing/Cataloqing Front" in base line (Vol. 3, No. 2, March 1982), the newsletter of the Map and Geography Roundtable of the American Library Association (Mary Larsgaard, Editor).

David Cobb, on temporary duty in England, in the same issue writes on the controversy in England over the proposed transfer of the Ordnance Survey to operate as a publicly-owned company rather than government operated.

Base Line is free to Members of MAGERT. $12.00 subscription. It's worth it!
DATE CODING OF MAPS - This subject continues to draw interest from Members of WAML, and it is with a great deal of pleasure that we are able to add two contributions to the subject. For previous items please refer to the following:

"Date-coding of automobile club maps," by Bernice Kimball, 6:3:15 J '75

"Road Map Dating - Another Clue to Unraveling the Mystery". [A News Notes contribution from Larry Cruse via Robert W. Karrow.] 13:2:180 M '82

Maureen Wilson, Head, Map Division, Library, University of British Columbia, Vancouver, contributes the coding of two publishers: John Bartholomew & Son, and Geographia.

GEOGRAPHIA (Maureen Wilson contributed this item to the ACML Bulletin and it appears in No. 40 / September 1981, p. 57) (She indicates that I picked [it] up at The National Library of Scotland last year.)

Did you ever wonder how to date those Geographia town plans? For those of you who have not already discovered the secret, the code word is CUMBERLAND.

At the bottom left hand corner of each map (usually) are some letters. If you substitute 1 2 3 4 5 6 7 8 9 0 for letters of the word CUMBERLAND, you have the month and year the map was published. For instance, L. BR means the map was published in the 7th month of (19)46. Neat, isn't it!

Once you know how.

BARTHOLOMEW (The following is a letter that Maureen Wilson received in response to an inquiry, it is dated 27 Aug 1968.)

Here are some general rules to help you with the dating of our earlier half-inch to the mile maps:-

1. Bartholomew Address on cover:-
   If Park Road, then 1889 - 1911
   If Duncan Street, then 1911 - today

2. Scotland and England & Wales as separate series:-
   Scotland sheets 1 - 29)
   England sheets 1 - 37) up to 1936

3. Scotland and England & Wales as separate series but in new lay-out of 25 sheets for Scotland. Maps coded, e.g., D4 as well as sheet number. 1937 - 1942

4. Great Britain lay-out as under (3) but sheets now numbered from 1 - 62. 1942 - today

From 1911 until 1945 there should be a clue as to the date of the map. This is in the form of a code, i.e., A14, which means that the map has been printed in the first half of the year 1914. This code is found either in the top left hand corner, the bottom left hand corner, or immediately centrally at the bottom of the map. From 1946 onwards, the date of printing should be shown at the bottom of the map, usually under the colour note.

P. H. Bartholomew, Managing Director
John Bartholomew & Son Ltd., Edinburgh, Scotland
DATE CODING OF MAPS (continued)

James B. Case, Member of WAML, Editor of Photogrammetric Engineering and Remote Sensing (American Society of Photogrammetry, Falls Church, VA), was prompted by the News Notes item in the last issue of the Information Bulletin because he had just recently gone through an exercise in trying to date some recent road maps.

GENERAL DRAFTING CO. I had no problem with the Exxon road maps, prepared by the General Drafting Co. and still available free, because a copyright date is given in the map legend.

RAND McNALLY & CO. The Rand McNally maps were a little more difficult to decipher. I did find a group of very small digits along the lower edge of their maps among which the leading two digits obviously indicate the year of publication. A letter from Mr. Mel Pofahl, Manager, Versailles Cartographic Department of Rand McNally, elicited the following information:

"... Indeed, the leading two digits basically correlate to the edition date. A 79 or 80 respectively will tell you that we last updated this map(s) in 1979 or 1980. The next two numbers or digits tell you what year we compiled or drafted this map as a new map. Therefore, a 67 would equate to 1967. The next two numbers or digits tell us how many maps we completed new during a given year. A 40 tells us this is the 40th map we produced during 1967, for example. The last two digits after the hyphen tell us how many times we entered the map elements to revise the map."

H. M. GOUISHA COMPANY. Dating the road maps of the H. M. Gousha Company remains a challenge. Again, there is a series of very small digits along the lower edge of the map, including numbers, two letters, and more numbers. A response from Mr. Harry L. Elliot, Jr., of Gousha, ... consisted of the following:

"Now that maps have an inventory value, our customers do not want the date to show, because they do not throw the maps away just because the calendar has changed. We do, of course, have a code that tells the date. AC = 1980. More recently than that I do not know because it is policy not to reveal the codes."

Gousha does sell their Gousha/Chex-Chart maps directly by mail (Rand McNally does not), so I purchased 25 (the minimum allowable). I came up with the following count of the alphabetic code: XX = 2, YY = 3, ZZ = 3, AB = 1, AC = 7, AN = 7, one map no code, and one map missing. If AC does equal 1980, then I would guess that XX = 1976, YY = 1977, ZZ = 1978, AB = 1979, AC = 1980, and AN = 1981 (but what happened to the intervening combinations, i.e., AA and AD through AM?)

What this means, of course, is that road maps that I obtained directly from the publisher were as much as six years old. This is, needless to say, somewhat distressing when one considers the importance of currency of road maps.

I thought that the above might be of interest.

Indeed it is! Thanks to Maureen Wilson and James Case for these Map Dating Codes. Other contributions on the subject are welcome, and/or citations to published sources of information on the subject.
Publications of Relevance

Contributions by:

BC = Barbara Cox, University of Utah, Salt Lake City
JC = Jim Coombs, Southwest Missouri State Univ., Springfield
LC = Larry Cruse, University of California, San Diego
DD = David Deckelbaum, University of California, Los Angeles
PH = Phil Hoehn, University of California, Berkeley
DL = David Lundquist, University of California, Davis
ML = Mary Larsgaard, Colorado School of Mines, Golden
SM = Stephen Mullin, Oakland, California
EP = The Editor
MS = Muriel Strickland, San Diego State University, CA

WASHINGTON REMOTE SENSING LETTER WRSL, P.O. Box 2075, Washington, DC 20013 $120. yr. individual; $210. yr. institution

WRSL is increasing its frequency of publication to semi-monthly (2 per mo. except 1 per mo. Jan. & Aug.). WRSL monitors and tracks all Federal remote sensing activities through Congress and civilian and military agencies, as well as foreign activities. Included are listings of new pamphlets, circulars, books, maps, and other publications dealing with remote sensing, including named sources for aquisitions. Editor is Dr. Murray Felsher.

ATLAS NACIONAL DEL MEDIO FISICO

Publication elaborada por la DGGTN, Dependiente de la Coordinacion General de los Servicios Nacionales de Estadistica Geografica e Informatica de la S.P.P., que contiene un conjunto de documentos cartograficos a escala 1:11,000,000, que muestran las caracteristicas de los recursos naturales del pais, a traves de los siguientes temas: Geografica, Imagenes Landsat, Topografia, Hidrografica, Geoestadistica, Climas, Temperaturas medias anuales, Precipitacion total anual, Geologia, Edafologia, Uso del Suelo, Turistica, Nomenclator.

This is the National Atlas of Mexico that was reported to the WAML Spring Meeting at Stanford by Steve Mullin. We appreciate his extra effort to provide the ordering address, especially in view of the current difficulties of obtaining cartographic materials from Mexico.

The price is 3,500 pesos, which at current rates is about $85.00.

Here is the ordering address:

Secretaria de Programacion y Presupuesto
Coordinacion General de los Servicios Nacionales de Estadistica, Geografia e Informatica
Direccion General de Integracion y Analisis de la Informacion
Centeno 670 08400 Mexico, D.F.
Smith, Robert


This manual is designed primarily as a general reference work for the archivist who lacks specialized training but who requires some knowledge of maps, architectural drawings, and related materials such as aerial photographs. While there are no fully agreed upon conceptual or methodological standards for the administration of these special formats in archives, practical guidelines are suggested for their arrangement, description, conservation, storage, and reference service. It is also my hope that this manual will encourage archivists and archival institutions that have not previously acquired maps and architectural drawings to consider initiating appropriate accession programs in order to contribute to the preservation of our cartographic and architectural heritage. For this reason, a section has been included on accession and appraisal.

from the Author's Introduction

Included is a Glossary, a Selected Conservation and Storage Supplies and Suppliers list, and a Selected Bibliography.

DEALERS CATALOGS

The following catalogs are among those recently received:

Map and Atlas Catalog 1982. UNIPUB, 345 Park Avenue South, New York, New York 10010. UNIPUB is the exclusive dealer for many maps and related publications issued by international agencies of the United Nations; subjects include geology, climatology, land-soil & vegetation, oceanography, natural resources, and related books.

W. Graham Arader III, Catalogue 35 (March 1982): A selection of maps/America, Canada, United States, European Countries, Scandinavia, Russia and Eastern Europe. 1000 Boxwood Court, King of Prussia, Pennsylvania 19406.


Robert Douwma (Prints & Maps) Ltd. New in stock list 3 (March 1982); New in stock list 4 (April 1982). 93 Great Russell Street, London WC1B 3R L.

Capt. K. S. Kapp (Antique and Decorative Maps and Prints), Catalogue XIX
The Americas/maps & prints. Box 64, Osprey, Florida 33559


Includes reproductions and descriptions of:

- 1544 world map from an Agnese atlas
- 1559 portolan chart of the Mediterranean
- Champlain's own map of the Northeast Coast of North America, which he drew in 1607
- The first map of Manhattan, drawn on site in 1639 for the West India Company of Holland

These were described, in part, in the March 1982 *Information Bulletin,* page 207.

**CARTOGRAPHIC MATERIALS: A MANUAL OF INTERPRETATION FOR AACR 2**

An Editorial Correction is required! In "A Very Select Listing of Resources for Map Librarianship Including Articles on Recent Developments" by Constance M. Pisciotta (*Information Bulletin,* Vol. 13, Number 1, Nov. 1981, pp. 101-103) the Editor stated that the forthcoming publication of the Anglo-American Cataloguing Committee for Cartographic Materials (to be published by the American Library Association) was to be *AACR 2 for Cartographic Materials: a Manual of Interpretation.* The Editor was using the Library of Congress *Information Bulletin* (June 19, 1981) as a source.

Subsequently, the Minutes of the Second Meeting of The Committee, recorded by Barbara Christy, appeared in the *ACML Bulletin* 41 (December 1981, pp. 46-52). Quote: A title for the published version of the manual was decided upon: *Cartographic materials: a manual of interpretation for AACR 2.*


Confirmation of that information was sought by Roy Boswell, Curator of the Collection for the History of Cartography at California State University, Fullerton. He telephoned ALA in March. He was told that the manual is scheduled for publication in August 1982.

Whatever the title, you may be confident that its appearance will be reported promptly in these columns.

**Everts, Craig H. (Craig Hamilton)**

Over 3,500 lakes have been mapped since the early 1930s. The Department of Natural Resources, Division of Fish and Wildlife, cooperates with the Department of Administration to make them available to the general public as a special service. Prices are $2.25 per map. Prepayment required, checks payable to State of Minnesota.

PELLENNORATH is an amateur periodical devoted to the geographical settings of fantasy and science fiction (and other) works. It is edited and published by Rod Walker, "Alcala", 1273 Crest Dr., Encinitas, CA 92024. Subscriptions are 5 issues for $4.00. Checks payable to R.C. Walker.

PELLENNORATH was issued April 1982 as a special issue, available on order only, $2.00. This is a Bibliographic Checklist of fiction set in invented nations, countries, lands, worlds, what-have-you. The assumption (often unproved by reading the work) is that enough geographic detail is provided to do a map of the said places. - from the words of R.C. Walker

PELLENNORATH No. 5 (Jan 1982) covers The Little Kingdoms of Romance (1894-1924). An original map of Central Europe, 1901, features these places: Graustark, Ruritania, Wallaria, Livonia, Kravonia, Helianthus, Neopalia, Rheta, Axphain, Dawsergen, Karnia.

Emile Van Der Vekene

LES CARTES GÉOGRAPHIQUES DU DUCHÉ DE LUXEMBOURG, ÉDITÉES AUX XVIÈME, XVIIÈME, ET XVIIIÈME SIÈCLES. DEUXIÈME ÉDITION. Centre des Arts et du Bouquiniste Maison KRIPPLER-MÜLLER, 52a, boulevard Grande-Duchesse Charlotte, Luxembourg. Le prix de vente après la parution sera de 2,600 F lux. plus de 400 pages, environ 200 illustrations, relié pleine toile, format 26 x 21 cm.

Subscriptions to the above work are being solicited. The first edition was published in 1975, and a companion work by the same author is: Les Plans de la Ville et Forteresse de Luxembourg, édités de 1581 à 1867.

Vlad Shkurkin, Publisher, 6025 Rose Arbor, San Pablo, California 94806

Sanborn Map Company city plans reprinted in microfilm and hard-copy eds.

Map Sets:
Virginia City, Nev. 1890 13 sheets (includes Gold Hill)
Benicia, Cal. 1886 6 sheets
Vallejo, Cal. 1886 12 sheets
Reno, Nevada 1879 5 sheets
Microfilm reels:
Nevada cities & towns 1885-1906
Mother Lode, Calif 1884-1906
Nevada Cities & Towns 1906-1943
Western Colorado Towns 1883-1904
San Francisco 1899-1900
MAP SOURCES DIRECTORY 2ND REVISION. 1982.

The second set of revised sections for the Map Sources Directory is now available and includes updated listings for sections: Canadian Municipal Dept.; U.S. Fed. Government Dept.; Agencies; U.S. State Government Dept.; Universities; and, Journals of Interest to Map Librarians. The Index is revised, also.

The original Directory and Revised Sections are published in loose-leaf format, punched for a three-ring binder, intended for expansion and revision. PRICES: Map Sources Directory (inc. 2 revisions & new index) Canada $9.25 U.S. $9.75; 1st revision & rev. index Canada 4.75, U.S. $5.00; 2nd revision & rev. index: Canada $4.00, U.S. $4.25; 1st & 2nd revision & latest index: Canada $6.50, U.S. $7.00. Send orders to: Map Library, Room 115 Scott Library, York University, 4700 Keele St., Downsview, Ontario M3J 2R2, Canada. (all prices quoted in Canadian funds & include first class post.)

The Directory, first published in 1978, contains over 1500 addresses of map agencies and other publishers around the world, of interest to map librarians. Sections include: International Sources, Canadian Sources, U.S. Sources, Miscellaneous, Index.

TOPO-T-SHIRT


CO- EVOLUTION QUARTERLY

A new map has been published by CoEvolution Quarterly: Devolving Europe: Nations Re-Emerging from States (These nations are part of a worldwide movement for regional autonomy. They are actively pressuring for independence or home rule to assure the survival of their unique cultural and historic realities.) by Bruce McGillivray. 15 x 11 inches. $5.00 Free with a new or renewal subscription to CoEvolution Quarterly (offer expires June 21, 1982.) The map has two explanatory articles by Peter Berg and Jon Stewart sent with it.

Other maps are: One Million Galaxies Maps $5.00; Biogeographical Map $3.50.

CoEvolution Quarterly, Box 428, Sausalito, California 94966.

Sharp, Harold S.


vii, 153 p.; 23 cm. LC No. 79-26860
EP ARABIAN PENINSULA 1:4,500,000; 69 x 71 cm., folded 10 x 23 cm. $15. 1982. Arabic and transliterated Arabic (English). No. SM05


H. M. Goushā Co. / Goushā/Chek-Chart, P.O. Box 6227, San Jose, CA 95150

MS City Map Library: 64 city maps covering the nation's 75 largest cities, plus hundreds of adjoining towns and suburbs. File carton included. $49.95 postpaid (include sales tax for Calif., IL, NJ, NM, TX).

SILICON VALLEY (CALIFORNIA)

LC A pictorial map of the Santa Clara Valley, California, made famous by the concentration of computer firms either producing or utilizing the silicon chip, hence the nickname. This delightful 24 x 36-inch colored map by cartoon artist Corbin Hillam is $9.95 ea. No. 4055KB. from Inmac, as below:

Inmac, U.K., Ltd.
18 Goddard Road, Astmoor Industrial Estate
Runcorn, Cheshire WA7 1QF, U.K.
Telephone: (United Kingdom) 09285 67551

All other international customers should direct inquiries to:

Inmac International Sales
2865 Augustine Drive
Santa Clara, California 95051, U.S.A.
Telephone: (U.S.) (408) 727-1970
TWX: 910-338-2091

To order, call the closest number within your region.

1. Sunnyvale, CA (408) 737-7777
2. Los Angeles, CA (213) 852-0973
3. Denver, CO (303) 825-6566
4. Grand Prairie, TX (214) 641-0024
5. Schaumburg, IL (812) 685-8383
6. Detroit, MI (313) 961-6665
7. Boston, MA (617) 536-9141
8. Hudson, NH (603) 889-4900
9. Norwood, NJ (201) 767-3601
10. Washington, DC (202) 362-8214
11. Atlanta, GA (404) 441-3041

MOUNT KOLVIR AREA OF AMBER

JP The well-known science fiction & fantasy artist Diane Duane has produced an interesting map of an imaginary place. Based on the stories by Roger Zelazny, her offering is a topographic map in quadrangle format for the Mount Kolvir area of Amber, an imaginary country. The 56 x 46 cm. map is attributed to the Amber Geological Survey (AMIGS 2151-893 FJ/7) and is rather good. Looked at closely one can detect production flaws, but from a distance it is super.

Distribution price is $3.00, by Merlin's Closet (355 South Main St., Providence, RI 02903) in the East, and by Bruce Pelz (15931 Kalisher St., Granada Hills, CA 91344).
Fulton, Patricia and Harold Johnson, assisted by W. L. McIntosh, Margaret Eister, Lawrence Balcerak, Donald Hanson, Richard Thoensen, and Pearl Porter.


To facilitate the publication of its geologic index maps, the U.S. Geological Survey has turned to computer-assisted techniques. The major objective of the project is the creation of a data base and data-base management system that has three distinct functions. The primary function provides for the rapid generation of geologic index maps for publication. The second provides immediate access to all items in the data base, and the third provides nationwide summary information. This automatic data processing (ADP) system is complete and in production.

Lipman, P.W. and D.R. Mullineaux (editors)


In this hard-bound book, sixty-two separately authored reports summarize results through 1980 of studies of volcanic events, etc. Illustrations consist of 470 figures, including many photographs and line drawings in color, 117 tables, and a colored geologic map (scale 1:50,000) showing proximal deposits and features of the 1980 eruptions. Nontechnical introductions to each major section, in conjunction with the extensive illustrations, make the volume useful for readers lacking formal geologic training.

U.S. Geological Survey

**Geographic Names Information System. (GNIS) (USGS, Manager, GNIS, Reston.)**

The GNIS currently consists of approximately two million name entries for States of the United States with feature names, feature category, geographic location by coordinates, county, and USGS topographic maps. The name file was developed from published 7.5-minute topographic quadrangles, 15-minute, and 1:250,000 quads.

Presently available are Alphabetical Finding Lists, eventually a state-by-state gazetteer will be published as Professional Paper 1200 sometime in 1982 - on a part-by-part basis. Unedited computer printouts, specialized searches, and computer tapes may be purchased (magnetic tapes at $100. ea.).

**February 1982 Products Available: (this list only includes WAML region) for other States consult the February issue of New Publications of the Geological Survey (List 883)(pp. 7-8)):**

<table>
<thead>
<tr>
<th>STATE</th>
<th>PRINTOUT</th>
<th>MICROFICHE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>$20</td>
<td>not available</td>
</tr>
<tr>
<td>Colorado</td>
<td>$20</td>
<td>$2</td>
</tr>
<tr>
<td>Idaho</td>
<td>$20</td>
<td>$2</td>
</tr>
<tr>
<td>Montana</td>
<td>$20</td>
<td>not available</td>
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<tr>
<td>Utah</td>
<td>$20</td>
<td>$2</td>
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<tr>
<td>Washington</td>
<td>$20</td>
<td>$2</td>
</tr>
<tr>
<td>Wyoming</td>
<td>$20</td>
<td>$2</td>
</tr>
</tbody>
</table>
U.S. Defense Mapping Agency

EP  1:50,000 Scale 15-Minute Topographic Maps. These maps cover selected areas of the United States and are prepared on a cooperative basis by USGS and DMA. The multicolor topographic maps are available through the U.S. Geological Survey Distribution Centers @ $2.00 each.

Quads have been published for areas in several States, 103 in western States. These have begun appearing in the monthly New Publications of the Geological Survey (see List 883, February 1982, p. 27-28).


Using APSRS Microfiche. (Aerial Photography Summary Record System)
Reston, VA., 1981. 1 leaflet; 28 cm. folded.

America's Place Names. Reston, VA., 1981. 1 leaflet; 28 cm. folded.

These are three informational leaflets distributed by NCIC or USGS Distribution Centers.

U.S. Fish and Wildlife Service, Biological Services Program.

LC  Pacific Coast Ecological Inventory: User's Guide and Information Base 
    by Angelo D. Beccasio, J.S. Isakson, A.E. Redfield, et al. Washington, 
    167 p.; ill. Catalog No. GPO: I 49.6/2Ec 7/2/Pacific. Biological 
    Services Program No. FWS/0BS-81-30. Perfect Binding? Paper. Price as of 
    09/21/81 $5.50 non-priority- domestic mail; $6.90 non-priority - foreign. 
    GPO Stock No. 024-0 0-00596-3

All depository libraries for GPO, received a copy of this item in Micro-
    fiche. A limited number of copies may still be available (to Institutions) 
from: Information Transfer Specialist, National Coastal Ecosystems Team, 
Boulevard, Slidell, Louisiana 70458.

For a description of the Pacific Coast Ecological Inventory, see article 
in this issue of the JIB by Jay F. Watson.

California Coastal Commission

LC  Coastal Access Guide. Sacramento?, 1981. $7.95
    How to get to the beach - shows legal access routes.

California. Dept. of Fish and Game.

DD  Atlas of California coastal marine resources / State of California, 
    1, 134 leaves: chiefly maps; 61 cm. Scale mostly 1:24,000.
350

- **Energy resources in California** / Prepared by the Engineering and Environmental Division, California Energy Commission. Sacramento : The Division, 1981. 1 atlas (45 p.)

  1st copy available free from: Energy Commission Publications Office, 1111 Howe Ave., MS-50, Sacramento, CA 95825

- **Ontario. Ministry of Natural Resources.**

  **Canoe routes of Ontario / Ontario Ministry of Natural Resources. -- Scale ca. 1:2,100,000. -- Toronto : The Ministry, c1981.**

  1 map : col. ; on sheet 109 x 77 cm. folded to 27 x 20 cm. text (110 p.) : ill., col maps : 30 cm. Includes text, indexes, ill., and location map. LC No. 81-691297

- **Anchorage coastal resource atlas / Municipality of Anchorage. -- Anchorage, Alaska : Municipality of Anchorage, Planning Dept., Physical Planning Division, 1980-**


  1 v. (loose-leaf) : ill., maps (some col.) ; 43 cm. Issued in pts. "Ouvrage réalisé avec le concours du Ministère de l'Université du Bujumbura-Burundi."

  Cooperation Française pour le compte de

- **Atlas of Utah / Deon C. Greer, project director ; Klaus D. Gurgel, cartographic editor ; Wayne L. Wahliquist, editor ; Howard A. Christy, associate editor ; Gary B. Peterson, photography. -- Ogden, Utah : Weber State College, 1981.**

  xvi, 300 p. ; ill. (some col.), col. maps ; 32 cm. Biblio. p. 281-287. LC No. 81-675069

- **Atlas Slovenskej Socialistickej Republiky. -- Bratislava : Slovenska akademia vied, Slovensky urad geodezie a kartografie, 1980.**

  1 atlas (23, 20, 296 p.) : chiefly col. maps ; 52 cm. loose-leaf in case. Slovak, Russian and English. Includes index.

- **Atlasul județelor din Republica Socialista România / Vasile Cucu et al. -- București : Editura Didactică și Pedagogică, 1978.**

  139 p., 1 leaf of plates : col. maps, port. ; 35 cm. Includes bibliog. ref. LC No. 80-675018


  xxii, 959 p. : map : 28 cm. "Names approved by the United States Board on Geographic Names with financial support from the National Science Foundation." "NSF 81-5."
Geographics

Nuclear power reactors and prevailing wind patterns in the continental U.S.A. Cincinnati, Ohio, Geographics, 1979.

1 map; 42 x 56 cm. ca. 1:9,350,000 Text on verso. OCLC: 7637390 $5.00 Geographics 124 East McMillan St., Cincinnati, OH 45219.


ML 1 map; 72 x 110 cm. 1:500,000 GP0 Depository No. C55.22/2iN81d Free. Publisher: University Station, Grand Forks, ND 58202.

India. Agricultural Meteorology Division.

Agroclimatic atlas of India. -- Pune: India Meteorological Dept., Division of Agricultural Meteorology, 1978. 91 leaves: col. ill., col. maps: 38 cm. Based upon Survey of India map. P.DGO.103/500. LC No. 79-905323

McEvedy, Colin


National Geographic Society.

The Heavens. Washington, D.C., 1982. 55 x 84 cm. $3.00 An updating of planetary data, previous edition 1978. [address as below]

National Geographic Society.

The World. Washington, D.C., 1981. 110 x 162 cm. 1:25,000,000 $6.00 This is the huge wall version, not the one that came folded in the 12/81 National Geographic Magazine. NGS, P.O. Box 1100, Dept. 82, Washington, D.C. 20036

National Geographic Society.

World ocean floor. Washington, D.C., 1981. 121 x 173 cm. 1:26,928,000 $6.00 This is the enlarged version of the map which appeared in the 12/81 National Geographic Magazine. [address as above]

New York (State). Dept. of Transportation.


45 p.: 39 col. maps: 28 x 44 cm. Scale of maps 1:250,000 or one inch to four miles. First ed., produced in 1975. LC No. 80-620029

Snead, Rodman E.


ix, 301 p.: col. ill., col. maps: 29 cm. LC No. 77-28009
THE ARIZONA ATLAS
Information Center, Office of Arid Lands Studies, College of Agriculture, University of Arizona
Melvin Hecht, and Richard W. Reeves
845 North Park Avenue, Tucson, AZ 85719

As previously mentioned (see Publications of Relevance, p. 109, Vol. 13, No. 1, Nov. 1981), this atlas has a price tag of $12.95. The address given above is more specific than the previous citation.

CALIFORNIA STATE UNIVERSITY, FRESNO. HENRY MADDEN LIBRARY.

MARTIN, ROBERT S.

This is an impressive documentation of the author's brilliantly executed presentation on the subject at the June 11, 1980 Contributed Papers Session, Geography and Map Division, Special Libraries Association. That Session included four of the best presentations given in recent years (see Bulletin No. 121, September 1980, p. 35, SLA Geography and Map Division), and Bob Martin's impressed this Editor to the extent that an open invitation was extended for the publication of his research on Austin. The Texas State Historical Association has done a magnificent tribute to him in the manner in which it has reproduced six maps (some of which are manuscript maps rendering reproductions difficult in any medium), nineteen pages of text, and thirty-seven notations. Stephen F. Austin's place in the cartographic history of Texas has been well served by this appropriate publisher. Robert S. Martin is a PhD candidate at the University of North Carolina, Chapel Hill. (P.O. Box 108, Chapel Hill, NC 27514)

UNITED STATES. CENTRAL INTELLIGENCE AGENCY.

1 pamphlet : 27 x 21 cm. : 6 p. Includes fold-out city map @ 1:63,360 and shaded relief key map of China as inset.

UNITED STATES. CENTRAL INTELLIGENCE AGENCY.
1 pamphlet : 23 x 20 cm. : 53 p. 38 map pages & 13 p. Index. Includes summer palace & Ming Tombs areas.

Soil resource inventory : atlas of maps and interpretive tables : Willamette National Forest / Pacific Northwest Region, Forest Service. -- {Portland, Ore.?} : Dept. of Agriculture, Forest Service, Pacific Northwest Region, {1980}
{49} leaves : maps ; 57 cm. Maps at scale 1:63,360.


Appalachian Trail. 1 map : 114 x 75 cm. 1:2,000,000 (verso) ; strip maps @ 1:600,000). Harpers Ferry, WV; The Office, 1981. Originally accompanied the Appalachian Trail Comprehensive Plan (GPO Depository Item) but available separately from source: Appalachian Trail Project Office, National Park Service, Harpers Ferry, West Virginia 25425. Free.

United States. War Dept.

{41}, 175 (i.e. 350) p. : ill. (some col.), col. maps ; 42 cm. Scale of maps are reduced 10 per cent from the original edition. Reprint edition published in 1958 under title: The official atlas of the Civil War. Reprint of the 1891 ed. of the Atlas to accompany the official records of the Union and Confederate Armies published by the Govt. Print. Off., Washington. LC No. 78-16801

Smith, Clark and Don Watkins

107 p. $25 for veterans; $50 for non-veterans and community based organizations; $100 for institutions. Winter Soldier Archive, Box 1251, Berkeley, CA 94704; or, Agent Orange Veterans s Advisory Committee, 1027 University Avenue, Berkeley, CA 94710; phone (415) 540-6175.

Gene Ulansky (who reviewed this 3.5-pound book in the San Francisco Chronicle Thurs. March 11, 1982, p. 43) indicated that the Defense Dept. would send to veterans who inquired about where herbicide spraying had been done in Vietnam a xerox copy of a map of Vietnam (in nine pieces) on a scale of 1:1,000,000. Smith and Watkins provide a Vietnam Map Book with more than 6,000 spraying missions by area, date and gallons of chemical (and type), with quadrangle maps and plastic overlays.

The medical problems caused by the exposure to these chemicals in Vietnam is one of the most serious consequences facing anyone who served there. It is such a widespread problem, this atlas ought to be available to any veteran by any public library and any public supported academic library.

WESTERN REMOTE SENSING NEWSLETTER Vol. 1, No. 1, April 1982. Published eight times per year. $20. personal, $36 Corporate/Institution Editor: Michael Sheehan. WRSN, Box 706, Saratoga, CA 95071
Takes place of defunct Plain Brown Wrapper and Reflections.
Bench Marks!

GARY FITZPATRICK, member of WAML, and senior reference librarian at the Library of Congress, Geography & Map Division, is the author of the section on maps of Hawaii in Historical Dictionary of Oceania (Greenwood, 1981).

MARGARET SOWERS, collector of antiquarian maps, President of The Friends of the Library (University of California, Santa Cruz), is a consultant to the Stanford University Department of Special Collections on maps. She recently helped organize the exhibit From Wilderness to Nation: The Cartographic Development of the United States, 1587-1856. It was held at Stanford University, Department of Special Collections, Exhibit Gallery, Green Library (March 1- April 15, 1982). As a Member of WAML, Mrs. Sowers helped coordinate notices of the Exhibit to the attention of Members of WAML attending the Spring Meeting at Stanford on March 25-26.

ROXANNE-LOUISE NILAN, KARYL TONGE, and PHILIP HOEHN, all Members of WAML, advised and assisted on the above mentioned Exhibit. Ms. Nilan is with Stanford University Archives, Karyl Tonge (Host of the WAML Meeting) is Map Librarian of the Central Map Collection, and Philip Hoehn is Map Librarian, University of California, Berkeley. (Eight maps in the Exhibit were from The Bancroft Library, UCB; seven are from Charles Tanenbaum - organizer of the Exhibit; two from Margaret Sowers; and, four belong to Stanford. An Exhibit catalog is available from Federico Cheever, Exhibit Coordinator, Department of Special Collections, Green Library, Stanford U., Stanford, CA.)

FRANCES WOODWARD, Member of WAML, Map Librarian, Department of Special Collections, University of British Columbia, Vancouver, has completed her compilation of the Index to the Information Bulletin of The Western Association of Map Libraries, Volumes 1 through 10, 1969-1979. Frances volunteered this effort upon invitation of the WAML Executive Committee and the Publications Committee. It will be published by WAML in the near future.

JAMES COOMBS, Map Librarian, Member of WAML, Southwest Missouri State University, will speak on Online retrieval of geoscience maps at the Second International Conference on Geological Information, Golden, CO., May 25, 1982.
Meeting of the Executive Committee
Western Association of Map Libraries (WAML)
Spring Meeting - March 25, 1982 at
the Map Library, Stanford University

A meeting of the Executive Committee was called to order at 10:12am by
President Barbara Cox at the Map Library on the Stanford University Campus.

Members present were President Cox; Riley Moffat, Vice-President; Stan Stevens,
Treasurer; Janet Collins, Secretary; David Lundquist, Past-President; and
Donna Koepp, Cataloging Committee.

FUTURE MEETINGS

The Fall 1982 meeting will be held September 16 and 17 at U.C. Santa Barbara.
Larry Carver will be the host. The Spring 1983 meeting has not been set. The
Executive Committee are looking for possible meeting sites for the Fall 1983
meetings.

TREASURER'S REPORT

Stan Stevens gave the Treasurer's Report, reviewed the number of members, and
noted the effect of increasing dues to $15.00.

TAX EXEMPT STATUS AMENDMENT

The Amendment was discussed and the committee determined that after presentation
and discussion of the amendment at the general meeting, a ballot will be sent to
WAML members for approval or disapproval. The ballot will be included with the
Nominating Committee Ballots.

INCORPORATION STATUS

Stan Stevens suggested that WAML also pursue Incorporation Status. As it currently
exists, under common law, WAML members are liable for debts of the organization.
By incorporating, members "would not be responsible for omission or commission
of debts of the organization." Stan mentioned that costs would be minimal; on
committee recommendation, he will draw up the paperwork and consult with a lawyer.

CATALOGING COMMITTEE

Donna Koepp reported that the WAML Cataloging Workshop has been delayed again,
until the AACC-CM ( Anglo-American Cataloging Council for Cartographic Materials)
is published, hopefully in September. The Committee is looking towards a Spring
1983 workshop in conjunction with the WAML meetings.

PUBLIC RELATIONS

A number of suggestions were made and will be explored. They included: announce-
ments of our meetings through other organizations; publish a calendar of maps;
explore the possibility of producing facsimiles similar to those done by the
Association of Canadian Map Libraries.
PROJECTS

A number of projects were also discussed. President Cox recommended that a Procedures Manual for the organization be drawn up. It would include duties of officers and a section on procedures for hosting meetings. A statistical survey of Map Libraries was also suggested indicating use of facilities, etc. Compilation of a directory of map collections for the WAML principal region was also suggested. It would include not only academic collections but others as well. Those interested in working on any of these projects should contact Barbara Cox, Riley Moffat, or Stan Stevens.

The Executive Committee meeting was adjourned by President Cox at 11:55am.

Respectfully submitted,

Janet Collins
Secretary

ATTENDANCE

SPRING MEETING - MARCH 25-26, 1982
STANFORD UNIVERSITY

MEMBERS

Jean Bock
Janet Collins
Barbara Cox
Joe Crotts
Larry Cruse
Jerome DeGraaff
Charlotte Derksen
Pam Enrici
John Petros
Herbert Fox
Gerald Greenberg
Steven Z. Hiller
Phil Hoehn
LaVonne Jacobsen
Ed Jestes
Chisu Kim
Donna Koepp
Sandra Lamprecht
Beatrice Lukens
David Lundquist
Dorothy Mewshaw
Suzanne E. Mikel

Arizona Historical Society, Tucson
Western Washington University, Bellingham
University of Utah, Salt Lake City
California State University, Chico
University of California, San Diego
Portland State University, Portland, OR
Stanford University, Stanford, CA
San Jose State University, San Jose, CA
San Francisco Public Library
California State University, Fresno
U.S. Geological Survey, Menlo Park, CA
University of Washington, Seattle
University of California, Berkeley
San Francisco State University
University of California, Davis
California State Poly, San Luis Obispo
Denver Public Library, Denver, CO
California State University, Long Beach
University of California, Berkeley
University of California, Davis
Los Angeles Public Library
University of the Pacific, Stockton, CA

(continued, see after Minutes of General Meeting, next page)
MINUTES
General Meeting
Western Association of Map Libraries (WAML)
Spring Meeting - March 25 - 26, 1982
Stanford University, Palo Alto, California

The meeting was convened Thursday, March 25, 1982 at 1:20pm in the Forum Room of Meyer Library on the Stanford University Campus. Barbara Cox, WAML President, welcomed the participants and thanked Karyl Tonge, Stanford Map Librarian for hosting the meetings.

WAML BUSINESS MEETING

The general business meeting followed. Minutes of the Executive Committee Meeting were read by Janet Collins, Secretary. Stan Stevens followed with the Treasurer's Report. He discussed publications, membership dues, and the Information Bulletins. In terms of membership, he noted the following: increase in institutional members by one; decrease in others, 8% in the principal region, 3 and 1/2% in associates, and a 1/2 of 1% decline in subscriptions. Stan also noted that with the increase in dues, we have a healthy fiscal situation. Income for this fiscal year was $8,600 while expenses last year were $7,200. Stan then followed with some background on the Tax Exempt Status Amendment. He noted that it resulted from the Edmonton Meeting and a donor wanting to give funds to WAML. There are no costs for filing for tax exempt status. In discussing filing for tax exempt status, Stan noted that the constitution must have a section on dissolution. This is to avoid distribution to members of tax exempt funds; therefore the proposed amendment. The ballot on the amendment will be included with the upcoming elections ballot. It was also noted that donations of maps as well as money are tax deductible. Stan also discussed incorporation of WAML in order to protect members from lawsuits. He will draw up papers and submit to a lawyer for review. Following that, the papers will be submitted to the Secretary of State of California.

In other business, San Jose State has agreed to host the Spring 1983 meetings. Dates have not yet been set. Suggestions for location of the Fall 1983 meetings should be forwarded to Barbara Cox. Barbara then discussed various projects brought up in the Executive Committee Meeting. The first is a directory of Map Collections in the WAML Region to be compiled on a state by state basis. It will include non-academic collections as well. The second project mentioned by Barbara is a statistical survey including user stats, money spent, staff, etc. The third project is a procedures manual including information on the duties of officers, and a section on hosting meetings. Anyone interested in working on any of these projects should contact Barbara Cox, Riley Moffat, or Stan Stevens.

MAP READING TOOLS FOR MAP LIBRARIES

The first presentation was given by Dr. Gerry Greenberg, Chief of Data Acquisitions, NCIC, USGS, Menlo Park. He opened by noting that map users seldom realize the tools that can accompany maps and assist in map reading and interpretation. Dr. Greenberg also noted that there are few formal publications on tools to assist
in map reading. As a result, he has compiled a "map tool kit" which includes coordinate readers, protractors, planimeters, and dividers, in addition to others. Dr. Greenberg then discussed functions shown on maps (such as position, direction, distance, area, and form) and identified tools which could be used to determine aspects of the functions, (such as gradient, spacing, perimeter, density, shape, texture, and others). He accompanied the presentation with illustrations of various tools. Dr. Greenberg concluded by noting limitations of certain tools and by noting special effects, such as enhancing, which can be created by using colored filters, polarizing filters, and screening.

MAPPING THE COASTAL ECOLOGICAL INVENTORY

The next presentation was given by Jay Watson, U.S. Fish and Wildlife Service, Portland, Oregon. It primarily dealt with the recently published 1:250,000 map series titled, "Ecological Inventory of the Pacific Coast". (This map series followed on covering the Atlantic Coast.) The Pacific Coast Series is composed of 30 sheets covering 356 species of fish and wildlife. According to Mr. Watson, the map series was developed to reduce conflict between developers and the Fish and Wildlife Service. He noted that the first step was to select a contractor to produce the map. They looked at those with biological expertise, personnel, information sources, and cartographic experience. F & WS then divided the area into units; Northwest Pacific Zone, Southwest Pacific Zone, and special areas such as Puget Sound and San Francisco Bay. Following that, a classification system was established and information from existing sources were transferred onto maps. One of the most important aspects of the program was the documentation and substantiating of all data. As Mr. Watson pointed out, F & WS was concerned that if they had to go to court, could they go back to the source of information. As a result, the series is fully documented and all of the information summarized in the Pacific Coast Ecological Inventory - User's Guide and Information Base. Mr. Watson noted a number of uses of the series; for interagency cooperation (oil spill efforts), local planners, and individuals locating good recreation areas. Mr. Watson concluded his presentation by mentioning current F & WS projects. The third Ecological Inventory is underway. It will cover the Gulf Coast and it is anticipated that mapping will be completed by August and the series printed sometime in September. F & WS has also developed a classification of wetlands and is currently working on a National Wetlands Inventory. (It was also noted that the California Department of Fish and Game has published a series of 58 maps for the State of California. The series is titled, "Areas of Special Biological Importance" and costs $100.00.)

A REVIEW OF NEW U.S.G.S. - NATIONAL MAPPING DIVISION PRODUCTS, POLICIES AND PRICES

The final presentation for the day was given once again by Gerry Greenberg. Dr. Greenberg reviewed the purpose of the National Mapping Division, and discussed types of feature separations. He then discussed the provisional maps - better known as "P" maps. Dr. Greenberg explained that 7.5 minute maps will be prepared
to National Map Accuracy Standards, and hopefully mapping completed by 1988 at less cost. There will be no final scribing and they will include 4 or 5 colors depending upon whether public lands are being shown. Prices will remain the same and legends will be available within a few months. He also noted three categories of P maps; those not yet started, those which they have received advance field notes for, and those which will have the standard content and finishing. Dr. Greenberg also mentioned that the "P" maps will speed up digitizing of maps and make more maps available. Other notes: there will be no more double format maps, 7 1/2' by 15'; U.S.G.S. - Denver P.I.O. has 105 DMA 1:50,000 sheets of selected areas in the Western Region. The P.I.O. in Denver does not have an index of those but NCIC - W does; 25% of the 1:100,000 series in the Western Mapping Region have been completed and 25% of those are being revised to include metric contours; U.S.G.S. plans to convert the 1:250,000 series to metric symbols along with adding bathymetry; the 2nd edition of the National Atlas is still subject to funding. As a result, U.S.G.S. has been unable to start production and the project has been deferred. Dr. Greenberg also discussed the availability of digital data; information included in the National Gazetteer (to be published as PP 1200); the benefits of the Geographic Names Information System in that it establishes uniform name usage; High Altitude Photography coverage includes one-third of the Western Mapping Region with another one-third contracted. At this time, only one the new state indexes of map coverage has been published, Ohio. Mapping Centers are under orders to work on them. Dr. Greenberg closed his presentation by mentioning the new price list for U.S.G.S. products. The following information was generated from questions asked by the audience. The old state indexes of map coverage are being updated until the new format indexes are off the press. Advance copies of the "Indexes for Intermediate Scale Mapping" are available from NCIC Regional Offices - Branch of Program Plans and Management. Some sheets in the 1:100,000 series will be published in a P format. A proposed large scale city mapping program is more on paper than implemented. U.S.G.S. plans to complete descriptive editions of geographic names for all states.

The Thursday session adjourned and most participants later met for an enjoyable dinner at a Swiss Restaurant.

SUB-SURFACE SOUNDINGS FOR NEW ARCHAEOLOGICAL MAPPING

The first presentation Friday was given by Roger Vickers, SRI International (Stanford Research Institute), Menlo Park. He opened by saying that SRI has developed techniques that will produce information from the subsurface. The company uses ground-penetrating radar for making profiles. Soil types are important; some soils have a small frequency range so penetration is small. Mr. Vickers noted that underground radar applications include archaeology, mine safety, and prospecting. He continued by discussing a number of their projects. They have flown the Alyeska pipeline twice looking for buried pipeline; have mapped the subsurface of parts of Chaco Canyon, NM; have tried to determine if a tunnel exists between the Sphinx and one of the Pyramids; and are currently working on a mapping program in Indonesia. Mr. Vickers noted that they are trying to make maps of tropical regions through jungle canopy instead of using photos.
He noted that long wave does penetrate through trees, so the maps should be more accurate than those currently used. Mr. Vickers also mentioned other projects. SRI has worked in Antarctica determining Ice Sheet Thickness and has also been tracing the retreat of the Columbia Glacier in Alaska. He concluded his presentation by noting the areas of application; topo-mapping for governments, military, and commercial. He also mentioned that the mapping system should be available commercially within a year.

**THE USE OF MAPS IN EXPLORATIONAL GEOLOGY**

The following presentation was given by William Beatty, also of SRI. Mr. Beatty opened his talk by describing types of maps used by geologists into three categories; geographic, topographic, and geologic. He mentioned the 1:250,000 geologic map series of California and reviewed some of the U.S.G.S. products. Mr. Beatty noted that specialized maps first used were oil maps and weather maps. He then discussed geo-chemical maps which show base metals and uranium. Mr. Beatty also examined a study area near Chico, and the possible existence of subterranean channels that may be transporting gold. He concluded his presentation by noting the improvement of map accuracy through laser beam surveying and other techniques.

**SOUNDING BOARD**

Nominations were accepted for officers and as a result the following were nominated: Steve Hiller, University of Washington, and Sue Trevitt-Clark, University of Oregon for Vice-President; Donna Koepp, Denver Public Library, and Pam Enrici, San Jose State for Secretary.


**A Guide for a Small Map Collection** published by the Association of Canadian Map Libraries was recommended.

It now looks like the AACR - Manual of Interpretation for Cartographic Materials will be published by ALA this fall.

A warning on the outline map series published by FACTS ON FILE. Many present indicated displeasure with the accuracy of the series.

The Xerox 2080 will run blue-line copies on paper or vellum.

Steve Hiller, University of Washington, mentioned the State Mapping Advisory Committee meeting in Washington State. He noted the 5 year National High Altitude Mapping Program and that Washington State Department of Natural Resources is working on air photo coverage of the state at 1:40,000.

It was noted that U.S.G.S. is moving towards self sustaining programs; reproducibles and film.

Steve Mullin noted that a new National Atlas of Mexico has been published. It sells for 3500 pesos, approximately $87.50. Individual sheets may be purchased for 100 pesos.
Sue Trevitt-Clark, University of Oregon, mentioned that they are selling University of Oregon T Shirts. They are available in brown, light blue, tan, and white.

The session then recessed for lunch.

GUIDEBOOKS TO AMERICA: THE FEDERAL WRITER'S PROJECT

The first presentation of the afternoon was given by Peter Stark, Central Washington University. Peter opened his presentation by tracing the Guidebooks back to the 1930's and the Works Progress Administration (WPA). The Project was designed to put the many unemployed back to work. Peter noted that Project publications also included city guides, special places (such as Mt. Hood and the New York Zoo) folklore, and place names. WPA determined that guides were to be written for each state. The Guides were to be divided into three divisions: 1)essays and history 2) Guides to the cities and 3) highways and walking tours. Peter noted that the third division was the most important feature of the book. Standards such as form, content, and quality were set by the WPA and directors were appointed for each state. He also mentioned that no publishers ever lost money on the project and that the last state published was Oklahoma in late 1941. The Project was dropped because of WWII. Peter then followed with slides showing examples of the Guidebooks. He noted that they included maps, photos and most of the national parks. The eastern states assisted in completing the western states. According to Peter, some of the western states had not been completed because of political problems. He concluded his presentation by mentioning that first editions of particularly Idaho, North Dakota, and South Dakota are valuable and should be taken off of the shelf.

USING LANDSAT DATA

The next presentation was given by Ronald Lyon, Applied Earth Sciences, Geology Departments, Stanford University. Dr. Lyon opened the presentation by discussing Stanford's facilities and Landsat holdings. He noted that a very small percent of NASA's budget is spent on Landsat programs. The earth can be mapped every 18 days with a resolution of one acre. When Landsat D is launched, it will be cabable of a 1/4 acre resolution in color. Dr. Lyon pointed out that on the objects of Landsat Imagery is determining the world's wheat crop. He mentioned that crop growth can be studied and by knowing the previous year's yield, the current year's yield can be predicted. Dr. Lyon also noted that it is easier to estimate yields in Russia instead of India because there are large parcels of land utilized in Russia instead of the small parcels found in India. He then presented a series of slides indicating future capabilities and concluding by noting the use of magnetic tapes and the increase in computer capabilities.

RECORDS ANNEX - WESTERN MAPPING CENTER - U.S.G.S.

The final item on the Meeting Agenda was a tour of the new Records Annex Facility at the Western Mapping Center in Menlo Park. Gerry Greenberg was the host and guide. The 11,000 square foot facility has recently been completed for storing
map reproduction materials. According to Gerry, planning for the facility began five to six years ago. The Records Annex has a number of special features including a Computer Inventory Tracking System, special ladders including a motorized ladder, emergency lighting, industrial lighting, climate control, fire control, and extra wide aisles. (four feet) Gerry also mentioned special folders developed by Crown Zellerbach. They hold up to 7 - 8 plates and are especially durable. In addition, he provided participants with handouts on space, storage units, cost, and materials content in terms of quantity and value. The tour was interesting as well as informative, and reflected a well planned facility.

The meetings adjourned following the tour.                        Janet Collins
                                                     Secretary

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**ATTENDANCE, SPRING MEETING, MARCH 25-26, 1982 (continued)**

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<thead>
<tr>
<th>Name</th>
<th>Institution/Location</th>
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<tbody>
<tr>
<td>Rosanna Miller</td>
<td>Arizona State University, Tempe</td>
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<td>Riley Moffat</td>
<td>Brigham Young University, Provo, UT</td>
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<tr>
<td>Steven C. Mullin</td>
<td>Oakland, CA (Importer, Mexican maps)</td>
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<tr>
<td>Linda Newman</td>
<td>University of Nevada, Reno</td>
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<tr>
<td>William Sanders</td>
<td>U.S. Geological Survey, Menlo Park, CA</td>
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<tr>
<td>Robert Sathrum</td>
<td>Humboldt State University, Arcata, CA</td>
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<tr>
<td>Vlad Shkurkin</td>
<td>San Pablo, CA (Publisher, Sanborn facsimiles)</td>
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<tr>
<td>Paul Simonds</td>
<td>Western Economic Research Co., Sherman Oaks</td>
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<tr>
<td>Margaret C. Sowers</td>
<td>Santa Cruz, CA (Map collector-consultant)</td>
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<tr>
<td>Peter Stark</td>
<td>Central Washington State University, Ellensburg</td>
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<td>Stanley D. Stevens</td>
<td>University of California, Santa Cruzburg</td>
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<tr>
<td>Muriel Strickland</td>
<td>San Diego State University, San Diego, CA</td>
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<tr>
<td>Karyl Tonge</td>
<td>Stanford University, Stanford, CA</td>
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<tr>
<td>Susan Trevitt-Clark</td>
<td>University of Oregon, Eugene</td>
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<td>Konrad Waibel</td>
<td>Arizona State Library, Phoenix</td>
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**GUESTS**

<table>
<thead>
<tr>
<th>Name</th>
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<tr>
<td>William Beatty</td>
<td>SRI International, Menlo Park, CA</td>
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<tr>
<td>John A. Creaser</td>
<td>University of California, Berkeley</td>
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<tr>
<td>Brenda Crotts</td>
<td>Butte County Library, Chico, CA</td>
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<td>Gladys Krohn</td>
<td>Sacramento, CA</td>
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<td>Harold Lukens</td>
<td>Orinda, CA</td>
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<tr>
<td>Ronald Lyon</td>
<td>Geology Dept., Stanford University</td>
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<td>Tommy Miller</td>
<td>Tempe, AZ</td>
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<td>Jim O'Donnell</td>
<td>University of California, Los Angeles</td>
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<td>Robert Pincus</td>
<td>Exploratorium, San Francisco</td>
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<td>Anne Terrell</td>
<td>University of California, Berkeley</td>
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<td>Roger Vickers</td>
<td>SRI International, Menlo Park, CA</td>
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<td>Jay F. Watson</td>
<td>U.S. Fish &amp; Wildlife Service, Portland, OR</td>
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<td>MAP</td>
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<td>San Francisco (sect. 10x11) 2,400 1919</td>
<td>Grand Canyon topographic, west half 48,000 1927</td>
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<td>California shaded relief 1,000,000 1955</td>
<td>San Diego Co., Calif census tracts 120,000 1970</td>
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<td>Survey along the Severn River, MD 161</td>
<td>Tule Lake Irrigation Dist., Calif. 50,000 1978</td>
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<td>Calvados et Eau-de-Vie de Cidre 197-7</td>
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<td>Lands of the Oregon Improvement Co., Powder River Valley, OR 63,360 19-7</td>
<td>Davao City, Philippines 250,000 1969</td>
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<td>Weber's township &amp; County map of California, Nevada &amp; southern Oregon 900,000 1907</td>
<td>South Africa: Christiana no. 274</td>
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<td>District of Columbia 35,000 1891</td>
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<td>Santa Clara Co., Calif. 40,000 1929</td>
<td>Spanish Calif. 1,300,000 1956</td>
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<td>Topographic &amp; Geologic atlas of the Black Hills of South Dakota 1879</td>
<td>Drainage basins in the 17 western states 6,336,000 1944</td>
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<td>Commercial map of Nevada 600,000 1930</td>
<td>Calif. road map showing pioneer towns, ghost towns &amp; mining claims 1,300,000 1969</td>
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<td>Irrigation map of Central California 506,880 1922</td>
<td>World 1:5,000,000: Salzburg 1964</td>
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<td>Indiana Territory 500,000 1902</td>
<td>U.S.: status of aerial photography 1954</td>
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<td>Albany &amp; vicinity, NY 62,500 1902</td>
<td>Glenn &amp; Colusa Counties, CA 130,000 1908</td>
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<td>San Mateo Co., Calif. (sheets 1,283 only) 31,680 1910</td>
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<td>San Francisco Bay Region, south sheet 130,000 1873</td>
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<td>Stanislaus Co., Calif. 63,360 1906</td>
<td>Asia 13,812,480 1971</td>
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<td>Butte Co., Calif. 63,360 1901</td>
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<td>Butte Co., Calif. 63,360 1913</td>
<td>Canadian petroleum highlights 2,500,000 1979</td>
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<td>Contra Costa Co., Calif. (3 sh.) 48,000 1914</td>
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<td>Military map of the Isle of Luzon (2 sh.) 900,000 1901</td>
<td>World atlas of Agriculture plate 35: North America (northern part) 12,500,000 1970</td>
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<td>Africa (16 sheets) 2,000,000 1968</td>
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<td>Caribu National Forest 125,000 1981</td>
<td>New Caledonia geology: Nouméa + text</td>
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<td>Mendota, CA land use 100,000 1976</td>
<td>Operational navigation chart K-26 50,000 1970</td>
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<td>Surface mineral status: Kern Mtns., Nev. 100,000 1976</td>
<td>Land use in Northeast China 600,000 1973</td>
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<td>Tuniesia: Gabès &amp; Kebili sheets 190-200,000 46</td>
<td>Europe 5,000,000 1970</td>
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<td>Jerez de los Caballeros, Spain 100,000 1964</td>
<td>South Asia 5,000,000 1964</td>
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<td>North Korea 1,220,000 1972</td>
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<td>Principal electric facilities U.S. (11 sh.) 1,600,000 1978</td>
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<td>Central Calif. major streets &amp; highways 250,000 1981</td>
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<td>Miller &amp; Lux San Joaquin Valley Lands, CA 200,000 1935</td>
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<td>Karonga, MalaWqi geology 100,000 1978</td>
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<td>Ukiah, CA planning units vaires 1960</td>
<td>World 1:1,000,000 sheets:</td>
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<td>Lewis &amp; Clarks track 4,500,000 1954</td>
<td>NE47 (1963) NE47 (1965)</td>
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<td>Peach Tree Possessions of Miller &amp; Lux 63,360 192-7</td>
<td>NE48 (1960) NE18 (1963)</td>
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<td>New Hebrides 1,000,000 1944</td>
<td>MCT47 (1972) MTU3 (1962)</td>
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<td>Saskatchewan &amp; Manitoba 2,000,000 1979</td>
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<td>Eastville, VA 250,000 1965</td>
<td>NE14 (1972) NTU4 (1967)</td>
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<td>NE46 (1965)</td>
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Duplicate maps from the University of California, Davis (Cont.)

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<th>MAP</th>
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<tr>
<td>Waco, Texas</td>
<td>250,000 1967</td>
<td>Connecticut</td>
<td>1974</td>
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<td>Johnson City, Tenn.</td>
<td>250,000 1968</td>
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<td>Keauau Ranch, HI</td>
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More duplicates, see second page of News Notes, this issue.

(1.e., page 334)

See also, pages 365 - 373.
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Army Map Service: United States 1:50,000

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- Ottawa 1925 Sheet 10 S.W.
- Windsor 1912 1 S.W.

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<td>3324</td>
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Abbreviations:  
A&BBR = Atlas & Book Reviews  
GP = A Geological Perspective  
MC = MicroCartography  
NMWNA = New Mapping of Western North America  
PR = Publications of Relevance  
R R-T = Reference Round-Table  
WAML = Western Association of Map Libraries

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