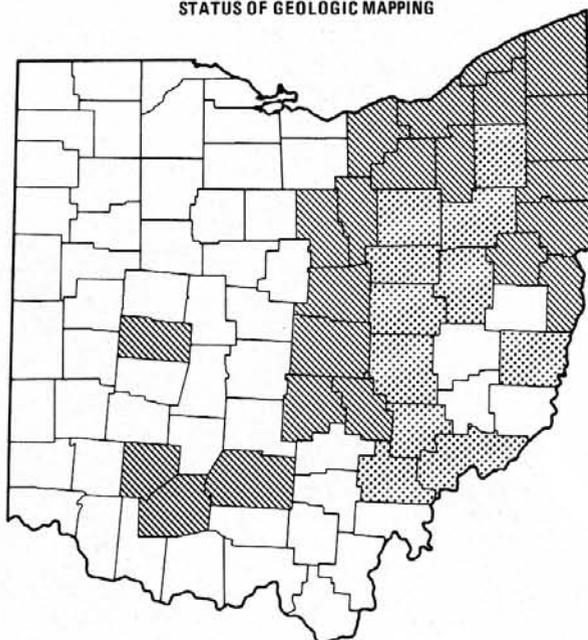


SURVEY TO BEGIN MAPPING PROGRAM

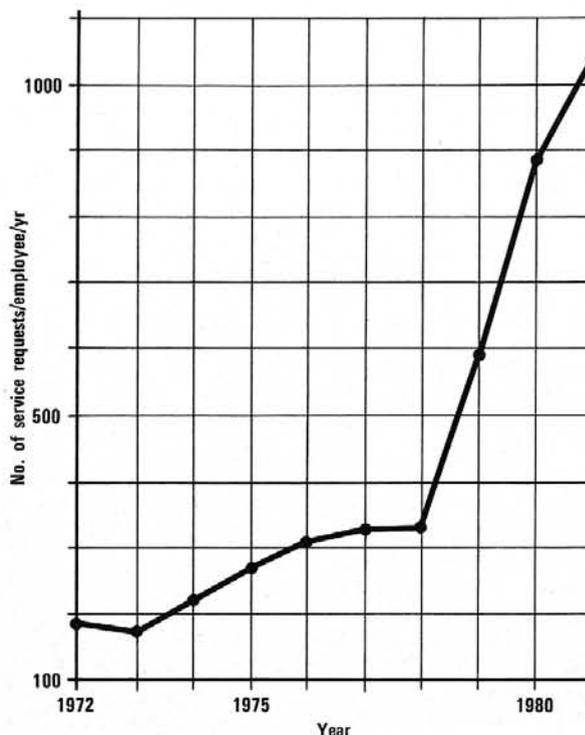
Perhaps the most significant legislation to affect the Survey in modern history was the passage of House Bill 385 by the 114th General Assembly. The bill was signed into law by Governor James A. Rhodes on December 16, 1981. This bill provides that a small portion of the mineral severance tax be set aside in a Geological Mapping Special Account in order to fund a program designed to complete, on a county basis, the geological mapping of Ohio. This law is effective for a period of 10 years. HB 385 also carries provisions for the Survey to compile mineral production statistics for Ohio, a function previously handled by the Ohio Department of Industrial Relations, Division of Mines. In addition, a portion of the severance tax monies provided to the Survey is to be used to increase personnel and upgrade facilities in the Subsurface Geology Section, which has been particularly strained by a tremendous upsurge in the rate of acquisition of data and requests for information.

STATUS OF GEOLOGIC MAPPING



-  County mapping completed
-  County mapping partly completed; some maps subject to revision
-  No recent county maps or reports

The mapping program will focus on preparation of bedrock and glacial geologic maps for each county of the state that currently lacks such maps. In



Number of service requests, 1972-1981.

addition, various derivative maps such as top-of-rock, drift thickness, mineral resources, and geologic hazards will be prepared where applicable.

Geologic mapping, mostly on a county basis, has been a principal objective of the Survey since the beginning; however, progress towards the goal of detailed reports for each county of the state has been slow because of funding and staff levels available to carry out this objective. In recent years mapping progress has been particularly hampered by the demand for geologic information by a wide segment of Ohio's citizens, including mineral industries, planning organizations, professional geologists, educators, students, and a diverse group of people who have geologic questions ranging from localities to collect fossils or minerals to information on mineral resources that may occur on their property. This demand for information has been efficiently and promptly handled by Survey staff; however, the volume of these demands has meant that Survey geologists have had to devote increasingly more of their time to public service requests and consequently less of their time to collection of basic geologic data. The graph above dramatically demonstrates this point.

continued on next page



Chief's corner by Horace R. Collins

As mentioned elsewhere in this issue an important event occurred for the Survey with the passage of House Bill 385. The legislation is especially significant in that it provides a funding source for the completion of county-by-county geological and mineral resource mapping.

The importance of geology and mineral resources to the state is emphasized by the fact that Ohio is a major mineral producer. Eighty-seven of Ohio's 88 counties have reported mineral production in recent years. The latest information available from the Ohio Department of Economic and Community Development places the value of Ohio's annual mineral production at over \$2.7 billion. Nevertheless, adequate evaluations of mineral reserves, their physical and chemical characteristics, and their distribution are not available for the overwhelming majority of our counties. Mineral resources are not uniformly distributed throughout the state but rather occur in distinct deposits. As demand for land from competitive uses grows it becomes increasingly important that the potential of our land to produce minerals be known. Activities in the public sector to manage, zone, and plan land use must obviously be based on reliable, objective data. Mines can only be sited where mineral deposits occur. Unfortunately, very little detailed information is available for large portions of Ohio.

Many other areas of our society also need detailed geologic data. The siting and design of dams, highways, bridges, commercial and industrial installations, as well as private residences are greatly influenced by the geologic stability or hazards in an area. Private citizens wanting to acquire or sell property may face questions regarding the presence of minerals. Attorneys may need geologic data to represent their clients in matters concerning property, taxes, or litigation. Educators from grade school teachers through university professors frequently use information available through the Geological Survey. Mineral producers use reports, records, and maps relating not only to the commodity they are mining but to overburden and other conditions important to mining and reclamation. Governmental policies related to hazardous-waste disposal, protection of the environment, and reclamation all ideally make extensive use of geologic data.

It is obvious that the rewards to Ohioans from this program are many. Wise use of minerals, well-formed public policies, healthy productive mineral industries, adequate protection of the environment, planning and zoning ordinances, and information to assist individual citizens, private industry, and governmental agencies all depend on reliable, objective geologic and mineral resource data on which to make informed decisions. Although individuals or agencies may disagree on the best course of action to follow on many of these matters, almost no one disagrees on the need for gathering information on which to formulate opinions. The program launched by the passage of HB 385 moves the Geological Survey much closer to meeting the ultimate geologic needs of the citizens of Ohio.

1982 marks the 145th anniversary of the beginning of the Survey in 1837.

OHIO GEOLOGY

A newsletter published quarterly by the Ohio Department of Natural Resources, Division of Geological Survey, Fountain Square, Columbus, Ohio 43224.

Editor: Michael C. Hansen
Assistant editor: Karen J. Van Buskirk
Secretary: Donna M. Swartz
Layout and design: Philip J. Celnar
Phototypist: Jean M. Leshner

News items, notices of meetings, etc. should be addressed to the attention of the editor. Change of address and new subscriptions should be addressed to the attention of the secretary.

continued from page 1

The addition of scientific and support staff whose principal responsibility is the gathering of geologic information and the preparation of geologic maps will allow the Survey not only to deal with the day-to-day requests for information handled by current staff but also to provide new and up-to-date information for many areas of the state—some of which have had no detailed geologic study for more than a century.

The job of completing the geologic mapping of Ohio will not be an easy one, but the potential rewards to the state more than justify the effort. Of Ohio's 88 counties, 54 have no modern countywide reports or maps available and many of these counties have had almost no detailed geologic investigations. Twenty-three counties have some maps or reports but still lack a comprehensive investigation. Only 11 counties can be considered as completed, but even some of these will probably require some reinvestigation of certain aspects of the geology because of new information and approaches developed in adjacent counties during the mapping program. (See accompanying map.)

The core-drilling rig recently acquired by the Survey will be used in conjunction with the mapping program to aid in stratigraphic control and in detailed mapping of various mineral resources. This equipment provides a capability never previously available for county mapping projects in Ohio and it is anticipated that the rig will be critical to the accurate mapping of many counties, particularly those in western Ohio that have little or no bedrock exposed at the surface.

It is impossible to predict the new discoveries that may result from the mapping program, but it seems inevitable that the reserve base of many mineral commodities will be increased, considering the scanty information now available for many parts of the state. In addition, known resources will be much better defined. Mineral industries, planning agencies, and indeed all of Ohio's citizens stand to gain immensely from the mapping program. It is an exciting time for the Survey!

CHANGE OF ADDRESS

Moving? If you wish to continue receiving *Ohio Geology* please notify the Survey of your new address. Owing to the comparatively high cost of address correction by the U.S. Postal Service, the Survey will no longer continue this service.

LAKE ERIE SECTION

The Lake Erie Section, one of six sections in the Geological Survey, has a short but complex history. It began in 1949 as the Lake Erie Geological Research Group in the Division of Beach Erosion (changed in 1950 to the Division of Shore Erosion); F. O. Kugel was division chief. Under the leadership of Professor H. J. Pincus of Ohio State University, geologists from the division and graduate students from OSU investigated lakeshore processes, particularly processes related to shore erosion, and the lake bottom sediments. A significant work, *Engineering geology of the Ohio shoreline of Lake Erie* (Division of Shore Erosion Technical Report 7, 1960), was published from these studies. In 1961 the Division of Shore Erosion was disbanded by the Ohio Legislature. The scientific responsibilities of the division were taken over by the Division of Geological Survey; R. J. Bernhagen was division chief at the time. Thereafter, the Survey's Sandusky office was known as the Lake Erie Section.

The section was involved in a wide variety of short-term projects during the low lake levels of the 1960's, including limnologic studies of currents and water masses. In the early 1970's the section began to investigate shore erosion on a county-by-county basis in order to document and measure the historical changes that have taken place along the lakeshore since the mid-1870's. These reports have proven to be very valuable in providing assistance to the public in developing structures for abatement of shore erosion, in evaluating structure design, and in developing long-range policies related to abatement of shore erosion.

In 1977 the Survey began a cooperative seismic reflection and vibrocore survey with the U.S. Army Coastal Engineering Research Center to evaluate in detail the subbottom sediments within 6 miles of the Ohio shore, particularly sand and gravel resources which could be used for beach nourishment. In 1980 a small, 10-foot-long vibrocore was used by the Survey to take cores farther offshore in the western and central basins. In the next 2-3 years the Ohio portion of the lake will be cored on about a 3-mile grid. Future work will include the development of a sand budget for the beach and nearshore zones and studies in wave refraction and sand transport, particularly as these processes relate to shore erosion.

—Charles H. Carter
Head, Lake Erie Section

SURVEY RESEARCH VESSEL, GS-1

The GS-1 is the 48-foot research vessel used by the Lake Erie Section. The steel-hulled boat, designed especially for scientific work on Lake Erie, was built in 1953 for \$37,000 by Paasch Marine, Erie, Pennsylvania. Today's replacement cost would be about \$250,000. The vessel has enclosed welded decks to provide protection from Lake Erie windstorms and is propelled by a 275-horsepower 660-cubic-inch General Motors diesel engine. The bow contains the head, galley, and 4 bunks; amidships the main cabin overlies the engine compartment; and the stern provides a large open working deck with a derrick boom and a removable transom.

The vessel has been used largely for bottom-sediment investigations. In the 1950's surface sediments of the entire Ohio portion of the lake were mapped and subbottom sand and gravel deposits were studied. In the 1960's and 1970's more subbottom work, which included seismic reflection



The GS-1 in operation on Lake Erie.

profiling, and physical limnology were done from the boat. Although most of the GS-1's work has been for the Ohio Department of Natural Resources, there have been several cooperative lake projects with agencies such as the U.S. Army Corps of Engineers, NASA, and Ohio State University.

The vessel, which still has its original engine, has undergone little structural change; however, interesting technical changes have occurred. For example, in the early days the vessel was navigated by dead reckoning and sextants, whereas today LORAN-C and radar are used. Also, in earlier years subbottom sampling was done by jetting, a discontinuous method of sampling in which sediment is displaced by water forced through a pipe; today a vibrocorer provides a continuous core of the bottom sediment. Lastly, in spite of the relatively long history of the vessel, there have been only two skippers, W. R. "Walt" Lemke, who piloted the boat from 1953 to 1976, and D. L. "Dale" Liebenthal, who succeeded Walt.

—Charles H. Carter
Head, Lake Erie Section

SAND AND GRAVEL RESOURCE MAPPING

The Survey is mapping sand and gravel resources in several northeastern Ohio counties. Two county reports have been completed and published: Report of Investigations 114, *Sand and gravel resources of Portage County, Ohio*, by Dennis N. Hull, and Report of Investigations 119, *Sand and gravel resources of Medina County, Ohio*, by Michele L. Risser. Studies continue in Ashtabula, Columbiana, Geauga, Mahoning, Summit, and Trumbull Counties.

Population growth in northeastern Ohio has created a growing demand for construction materials, including sand and gravel for aggregate. At the same time, land developments are beginning to compete with mining operations for space. Expanding industrial and housing developments may inadvertently seal off supplies of construction materials needed for development in the area.

Commonly sand and gravel deposits attract land developments because the deposits make excellent construction sites. These materials are generally well drained, easy to excavate, and make good foundation materials. The undisturbed sand and gravel deposits may be significant sources of ground water as well.

Added to the problems of competition for space are certain economic constraints. Sand and gravel have a low cost per unit weight. Thus, the cost of transporting sand and gravel to a construction site dictates that these materials be

used close to their source, generally within a radius of 25 or 30 miles, if the higher costs of importing supplies of sand and gravel from other regions are to be avoided.

The sand and gravel maps prepared by the Survey provide valuable planning information for the development and management of sand and gravel resources in northeastern Ohio. Each county report includes a map of the location and extent of sand and gravel deposits, as well as descriptions and analyses of the sand and gravel.

RI 114 is available for \$1.74 and RI 119 is available for \$2.31. Prices include sales tax and handling.

OHIO GEOLOGY NOTES

The Survey recently prepared a series of educational notes for publication in various newspapers around the state. These weekly columns deal briefly with a wide variety of geologic topics of interest to Ohioans and are designed to create interest in and awareness of the geology of the state. Each column has a brief text accompanied by an appropriate illustration (see example below).

The note series is being distributed to all newspapers in the state and it is anticipated that many of them will use the notes on a regular basis. A year's supply (52 selected topics) has been prepared.

Ohio Geology

Notes from the **Division of Geological Survey**
of the Ohio Department of Natural Resources



GOLD IN OHIO

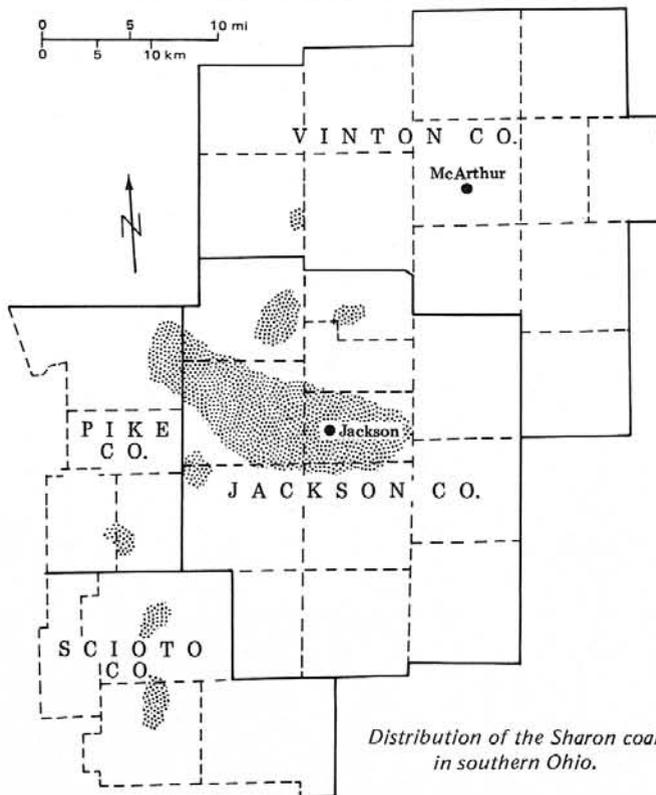
Many Ohioans are surprised to learn that small quantities of gold can be found throughout a large portion of the state. These tiny flakes of the precious metal were scraped up by large glaciers from Canada during the Ice Age and transported to Ohio. When the ice melted huge quantities of clay and rock fragments, along with small amounts of gold, were deposited as a blanketlike covering over nearly three-fourths

of the state.

Modern streams have concentrated the gold in sandbars and along the inside bends of meanders. Gold seekers in Ohio use a shallow pan filled with water and a small quantity of sand to separate the lighter sand grains from the heavier gold and dark minerals. Look for a flash of "color" amongst the black sand. Nearly any stream in the glaciated portion of Ohio is a likely prospect.

Division of Geological Survey, Fountain Square, Building B,
Columbus, Ohio 43224 Phone (614)265-6605

SHARON (NO. 1) COAL RESOURCES



Distribution of the Sharon coal in southern Ohio.

The concern with sulfur content in Ohio coals has prompted the Division of Geological Survey to investigate the few low-sulfur coal seams in Ohio. The first of these investigations, on the Sharon (No. 1) coal seam in the Jackson (Jackson County) vicinity, is presently being prepared for publication. The report will include tables of resource and reserve estimates; maps of the Jackson field at a scale of 1:62,500 showing coal thickness, elevation, and other information; and sections detailing other aspects of Sharon coal resource and reserve evaluation.

The Sharon coal of economic interest in the Jackson area extends from southwestern Vinton County southward through western and central Jackson, eastern Pike, and northeastern Scioto Counties. The coal-seam geometry is very irregular, with many discontinuities, thin areas, and variations in elevation. Thus, most of the remaining recoverable reserves are contained in small unconnected bodies of coal.

The following figures are some preliminary estimates for Sharon resources and reserves. Total original resources (before any mining activity) amounted to 114,002,500 short tons. Of this total, only 41,937,700 tons (37 percent) are classed as presently recoverable reserves, with 33,903,200 tons (81 percent) of this amount in the surface-mineable category (less than 100 feet of overburden). The remaining original resources are classed as nonmineable resources (57,052,500 tons) or as resources (15,012,300 tons) that have been mined previously, are too far from a data point to be considered reliable estimates, or would be lost during mining activities.

Another low-sulfur coal investigation is underway to detail the resources and reserves of the Quakertown (No. 2) coal seam. This investigation, similar in approach to the Sharon study, will benefit from new subsurface data resulting from the Survey's core-drilling program.

—Clark L. Scheerens
Regional Geology Section

MICROEARTHQUAKES IN WESTERN OHIO

Nine small earthquakes were recorded during 1980 and 1981 in western Ohio by the seismic array maintained in that part of the state by the University of Michigan Seismological Observatory. These events and data pertaining to them are listed in the accompanying table.

WESTERN OHIO MICROEARTHQUAKES										
date			origin time (UTC)			location			Richter magnitude	
yr	mo	day	hr	min	sec	lat °N	long °W	county		
1980	07	10	11	40	53.3	40.42	84.11	Shelby	0.9	
1980	09	26	12	27	25.6	40.43	84.09	Shelby	0.5	
1980	10	04	11	46	58.0	39.80	83.75	Greene/Clark	2.0	
1980	12	10	02	30	54.3	40.43	84.11	Shelby	1.2	
1981	01	04	07	17	36.3	40.42	84.10	Shelby	1.8	
1981	02	07	05	45	42.9	40.44	84.11	Shelby	1.8	
1981	03	15	03	46	30.7	41.05	84.32	Putnam	1.2	
1981	05	15	23	15	14.0	40.88	84.34	Putnam	0.8	
1981	05	19	05	56	11.2	40.42	84.10	Shelby	1.2	

Source: University of Michigan Seismological Observatory.

Six of the earthquakes occurred within a 4-mi² area defined by the Shelby County communities of Anna, Botkins, and Jackson Center. This area lies close to a proposed north-south fault (Auglaize fault) and is the general area commonly mentioned in historic seismic literature. The reason for the rather sudden beginning and end to this cluster of events is uncertain. None of the earthquakes were reported to be felt by local residents.

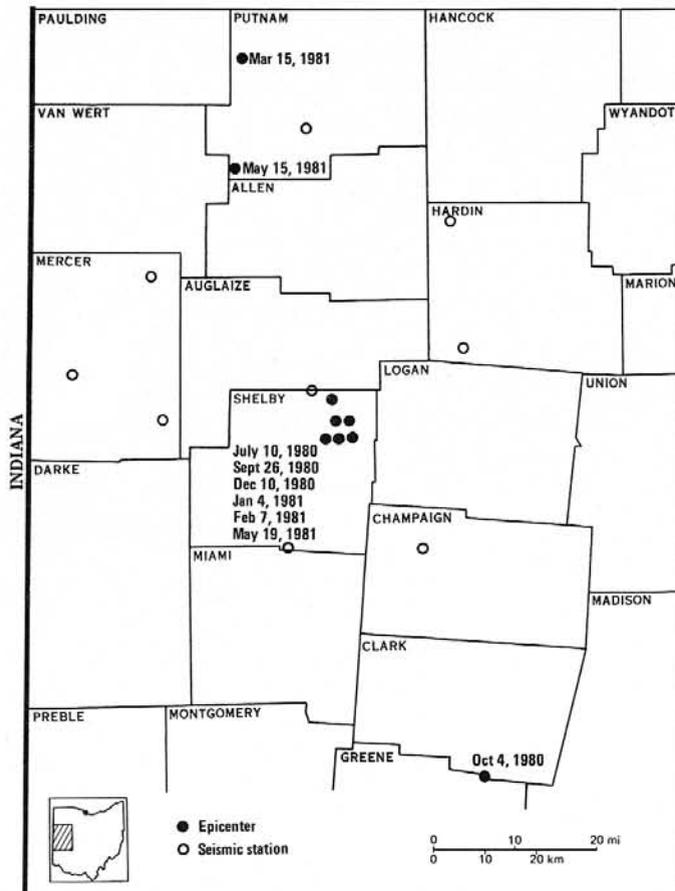
Shelby County and vicinity, commonly referred to as the Anna area because of the historic seismic activity experienced by this community, has reported at least 35 felt earthquakes in the last century. Included in this number are the two most severe earthquakes to strike Ohio, the events of March 2 and

9, 1937. The March 2 earthquake was assigned a Modified Mercalli intensity of VII, whereas the March 9 event was estimated to have an intensity of VIII and a Richter magnitude of 5.5. Earthquake-caused damage in the community of Anna included toppled chimneys and cracked plaster. The relatively new school building at Anna was so severely cracked that it was declared unsafe and torn down.

In addition to the Shelby County activity, two small earthquakes were recorded in 1980-81 in Putnam County and one event was recorded on the border of Clark and Greene Counties. These three events, like the Shelby County earthquakes, were of very small magnitude and not reported to be noticed by local residents. Unlike the Shelby County events, however, these earthquakes occurred in areas where little or no historic seismicity has been reported and no fault has been identified or postulated. The only record of any possible activity occurred in 1845 on a farm in Putnam County where some type of displacement caused a ridge of ground to be shifted 4 feet. No shock was reported to be felt (Bradley, E. A., and Bennett, T. J., 1965, Earthquake history of Ohio, Bulletin of the Seismological Society of America, v. 55, p. 745-752).

It should be noted that the 1980-81 earthquakes represent the smallest magnitudes that have been reported from Ohio. Such small events undoubtedly occur from time to time in western Ohio and probably elsewhere in the state, but because they do not have sufficient intensity to be felt by local residents they are never reported. It has been only since the installation of the University of Michigan seismic array (nine remote stations) in western Ohio in 1977 that sufficient instrumentation has been available to record such events. Although such small earthquakes are in themselves of no danger, they do provide important clues to geologic structures (and potential economic mineral resources associated with these structures) and delineate areas where future seismicity may occur.

—Michael C. Hansen
Regional Geology Section



Distribution of recent microearthquakes in the western Ohio seismic zone.

ABANDONED UNDERGROUND MINE MAP SERIES

The Division of Geological Survey has completed preparation of the Abandoned Underground Mine Map Series, which is already proving to be a valuable set of maps meeting a variety of needs. In particular, the mine map series is being used successfully by ODNr's Division of Reclamation in their mine reclamation program. The mine map series serves as a tool in helping to locate and identify potentially hazardous mine openings and mine-related problems.

Most recently, the mine map series aided in the location of the shaft to the Wellendorf mine, which is in a highly populated residential neighborhood in Youngstown, Ohio. Field reconnaissance of the shaft site by Survey personnel indicated the development of a small area of subsidence worthy of further investigation. In September 1981 the site was drilled to determine the degree of stabilization of the shaft. Drilling indicated that the shaft had a cement cap which was covered by 34 feet of fill material, and that no attempt had been made to stabilize the shaft beneath the cement cap when the opening was sealed. Lack of stabilization of the shaft is not unusual; however, the depth of the shaft (233 feet), in conjunction with instability, created some alarm. The Wellendorf shaft was given immediate attention and was quickly stabilized through funds provided by the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement.

The Wellendorf mine, a shaft mine typical of mines in the Youngstown area, exploited the Sharon (No. 1) coal, considered Ohio's best coal. The deepest known shaft in the area is 246 feet deep. During the mid- to late-1800s the Youngstown area was an important coal-mining center. By 1900 nearly all the coal mines in the vicinity of Youngstown had closed or been "worked out." Now, 70 to 100 years later, the threat posed by inadequately sealed or stabilized mine openings in this area is widely recognized and the use of the Abandoned Mine Map Series will certainly help in locating and identifying potential hazards presented by abandoned underground mines.

—Douglas L. Crowell
Regional Geology Section

SURVEY STAFF NOTES



Brenda Rinderle



Charles H. Carter

Brenda Rinderle has worked in the Subsurface Geology Section for 5 years. She operates the Bruning machine that copies county and township maps showing the locations of oil and gas wells. Brenda notes that the number of subsurface-information requests has skyrocketed in the last 5 years, but the number of staff in her section is the same as when she started. In her spare time, Brenda likes to bowl, roller skate, and do art tech painting. She has one daughter, Lona, 19.

Charles H. Carter is head of the Survey's Lake Erie Section, located in Sandusky on Sandusky Bay. Charley studied geology on the West Coast at Portland State University (B.S.) and San Jose State College (M.S.), with a year in between as a field assistant and technician for the U.S. Geological Survey Alaskan Branch. He received a Ph.D. degree in sedimentology from Johns Hopkins University in 1972. Charley has been involved in geologic and geomorphic studies largely related to shore erosion and nearshore sediments along the 260-mile Ohio shore of Lake Erie since joining the Survey in 1972. Although Charley is a native of Oswego, Oregon, he has Ohio roots; his ancestors came to Mansfield in 1822 and his father is a graduate of Ohio State University. Charley, his wife, Sally (a teacher), and two young daughters, Katy and Anna, enjoy living close to Lake Erie in Huron, Ohio.

WATER RESOURCES OF FLOODED MINES

A study made in cooperation with the U.S. Geological Survey and recently published by the Ohio Geological Survey examines an unconventional source of water for coal conversion in eastern Ohio, a region where ground-water supplies

are generally meager. In Report of Investigations 118, *Abandoned subsurface coal mines as a source of water for coal conversion in eastern Ohio*, the amount of water produced from a network of flooded coal mines in Guernsey County was compared with the water requirements of commercial coal-conversion facilities.

Although insufficient for the needs of coal-conversion plants of the scale projected in the study, the quantities of water produced from the mines are potentially important for smaller industrial, commercial, or municipal uses. Combined with surface-water supplies, the mine-water resources have the potential to contribute substantially to the needs of a coal-conversion plant.

RI 118 was written by Thomas M. Crouch and John O. Helgesen of the U.S. Geological Survey and Horace R. Collins, Chief of ODNR, Division of Geological Survey. The report is available for \$1.16, including tax and handling, from the Ohio Survey.

RESEARCH IN OHIO GEOLOGY

Every two years, since 1969, the Survey has compiled a listing of *Research in Ohio geology*. This tabulation is intended as an inventory of active projects on any aspect of the geological sciences in Ohio to let researchers know the current interests of their colleagues. Report forms are distributed to all who are known to have an interest in Ohio geology; these include government scientists, university staffs, consulting and exploration geologists, and museum personnel. The *Research in Ohio geology* listing is compiled from the titles and descriptions sent by the respondents, and is subdivided into categories such as economic geology, geophysics, glacial geology and geomorphology, ground and surface water, paleontology and paleoecology, and stratigraphy. Copies of the tabulation are distributed at no charge to those on the mailing list and to others on request.

Through the years a major component of the reported studies has been master's theses and doctoral dissertations. As theses and dissertations are a valuable though generally unpublished source of geologic information, their listing in the *Research in Ohio geology* is a useful reference to such research.

The next edition of *Research in Ohio geology* will be compiled early in 1982. This edition will cover research initiated, completed, or published in 1980 or 1981. Space limitations do not allow us to list continuing projects from earlier editions. Reporting forms were mailed in January 1982. If you have research on Ohio geology to report but have not received a form, or if you wish to be placed on the mailing list for the completed tabulation, please call or write the Survey.

—Merriane Hackathorn
Technical Publications Section

CORE RIG UPDATE

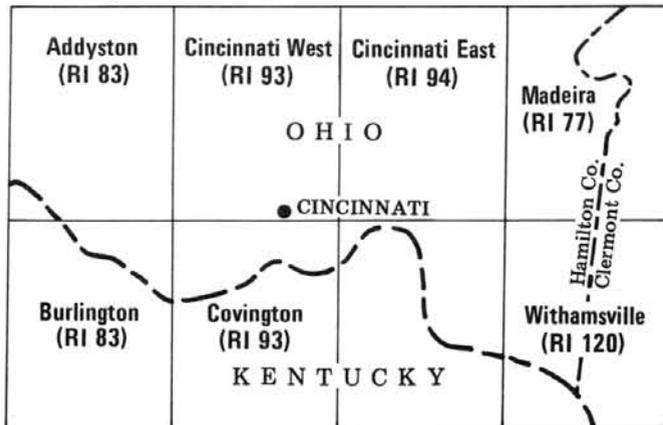
The Survey core rig is currently involved in a project designed to evaluate high-calcium limestone resources in western Ohio. The drilling project is under the direction of David A. Stith, Geochemistry Section head. Two holes to the Black River Limestone (Ordovician) have been completed in Clermont County and another is underway in Butler County. Additional cores are to be taken in Defiance County and Williams County. The target of these holes is the Dundee Formation (Devonian).

NEW BEDROCK GEOLOGY QUADRANGLE AVAILABLE

The Division of Geological Survey recently published Report of Investigations 120, *Bedrock geology of the Withamsville quadrangle, Hamilton and Clermont Counties, Ohio*, by Joseph J. Kohut and Malcolm P. Weiss.

The map shows the bedrock geology of a 50-square-mile area along the Hamilton-Clermont County line. The formations are late Ordovician in age and include the Kope Formation, the Fairview Formation, and the Grant Lake Limestone.

The geologic information is printed in color on a 7½-minute topographic map base. A stratigraphic column with text and a northwest-southeast cross section of the map area accompany the map. RI 120 is available from the Survey for \$5.78, which includes sales tax and handling.



Geologic maps of the Cincinnati area.

Similar bedrock geology maps have been published for other Cincinnati area quadrangles. RI 77 reports on the bedrock geology of the Madeira quadrangle, which lies just north of the Withamsville quadrangle. RI 83 covers the geology of the Addyston quadrangle and a portion of the Burlington quadrangle. RI 93 covers the Cincinnati West quadrangle and a portion of the Covington quadrangle. RI 94 covers the Cincinnati East quadrangle.

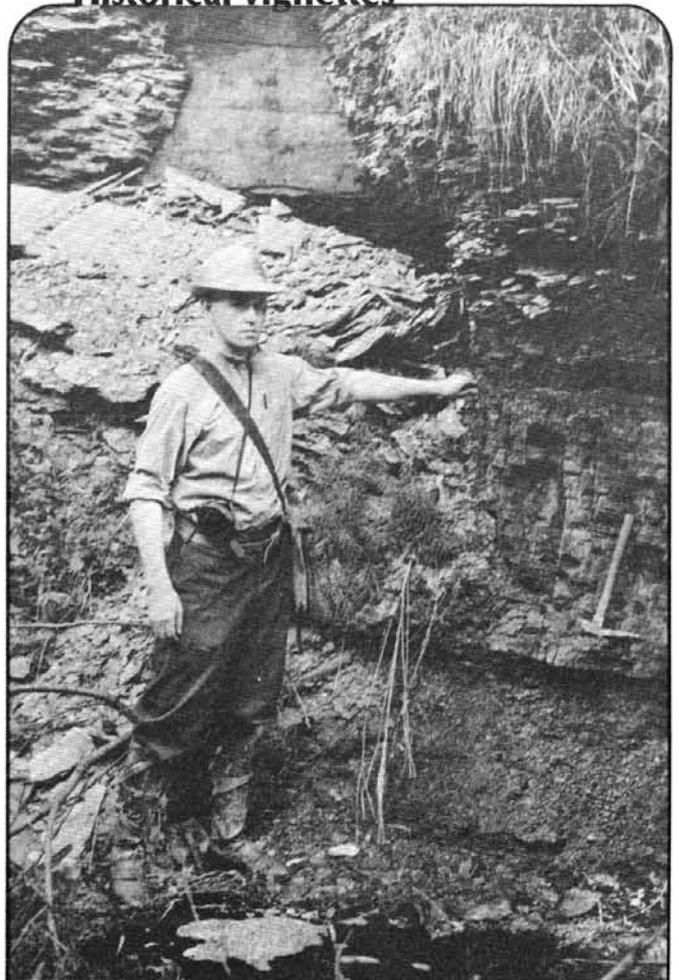
GSA MEETING HELD AT CINCINNATI

The Geological Society of America held its annual meeting in Cincinnati November 1-4, 1981, the first national GSA meeting to be held in Ohio since the Cincinnati meeting of 1961. Approximately 4,000 geologists from throughout the United States and many foreign countries attended the meetings. Among this total was a large portion of the Ohio geological community, including nine Survey geologists.

Of the 18 field trips offered, seven dealt with Ohio geology: Upper Ordovician (Richmondian) stratigraphy and paleoecology of southeastern Indiana and southwestern Ohio; The Serpent Mound cryptoexplosion structure, southwestern Ohio; Coastal geomorphology and geology of the Ohio shore of Lake Erie; Quaternary deposits of the Ohio Valley region in Ohio and Kentucky; Stratigraphy, sedimentology and paleoecology of the Cincinnati Series (Upper Ordovician) in the vicinity of Cincinnati, Ohio; Early Mississippian deltaic sedimentation in central and northeastern Ohio; and Engineering geology of Cincinnati. Unfortunately, many trips were poorly attended, apparently because of the high cost.

Numerous papers were presented on various aspects of the geology of Ohio and adjacent areas, including one by S. J.

Historical vignettes



Mapping, 1920's style. Raymond E. Lamborn, Survey geologist from the 1920's through the 1950's, examining coal outcrop in eastern Ohio. Photo by Wilber Stout.

Williams, E. P. Meisburger (both of the Coastal Engineering Research Center, Fort Belvoir, Virginia), C. H. Carter, and J. A. Fuller (both of the Survey) titled "Shallow subbottom geologic character, sediment distribution, and sand and gravel resources based on a geophysical and vibrocore survey of southern Lake Erie between Presque Isle, PA and Maumee Bay, OH." Survey geologists C. H. Carter and D. E. Guy, Jr. also presented a poster session titled "Erosion rates in the wave erosion zone along the Ohio shore of Lake Erie."

OHIO ACADEMY OF SCIENCE MEETING

The 91st annual meeting of the Ohio Academy of Science will be held April 23-25, 1982, at Ohio State University. The theme for the 1982 meeting is "Women in Science," and Nobel Laureate Dr. Rosalyn Yalow, Senior Medical Investigator at the Veterans Administration Bronx Medical Center, will present the all-Academy lecture. It is anticipated that a large number of papers on Ohio geology, including several by Survey staff members, will be given in Section C, Geology. Further information may be obtained from the Ohio Academy of Science, 445 King Avenue, Columbus, Ohio 43201 (telephone 614-424-6045).

STAFF CHANGES

COMINGS

Mary Lou McGurk, Typist, Lake Erie Section.

AND GOINGS

Richard C. Guimond, Environmental Technician, Regional Geology Section, to Geologist, Whitnam Oil and Gas Corp., Marietta.

David A. Hodges, Geologist, Regional Geology Section, to Geologist, Division of Oil and Gas, Columbus.

Douglas E. Keen, Cartographer, Technical Publications Section, to Layout Design Artist, Division of Water, Columbus.

Marlene S. Longer, Secretary, Lake Erie Section.

Evelyn M. Vance, Laboratory Technician, Geochemistry Section.

 CONFERENCE ON BLACK SHALES

The Cleveland Museum of Natural History and the Department of Geological Sciences, Case Western Reserve University are co-sponsoring a conference titled "Sedimentology and Paleontology of Mid-Continent Black Shales." The two-day conference to be held in Cleveland on May 7-8, 1982, will consist of technical sessions at the Cleveland Museum of Natural History and, on the second day, field trips to outcrops of Devonian shale in the Cleveland area. For more information contact Dr. Philip Banks, Department of Geological Sciences, Case Western Reserve University, Cleveland, Ohio 44106 (telephone 216-368-3679 or 216-368-3690).

NEW PHONE SYSTEM INSTALLED AT SURVEY

Our phone number has changed. On November 23, 1981, the Survey and the remainder of the Ohio Department of Natural Resources, Columbus, installed the Bell System Dimension 2000 phone system. This system allows greater flexibility and savings to the Department. With the Dimension 2000 it is now possible to dial direct to each employee and section of the Survey. Calls can, of course, still be transferred to any other number within the system. The number for Publication Sales functions as the Survey number for general information, and calls can be transferred from this number to individuals within the Survey for specific information.

Publication Sales	(614)265-6605
Administration	265-6576
Regional Geology	265-6597
Subsurface Geology	265-6584
	265-6585
Geochemistry	265-6602
Technical Publications	265-6593
Lake Erie (Sandusky, Ohio)	(419)626-4296

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