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SPECIAL ISSUE ON WISCONSIN WATER RESOURCES

WISCONSIN ACADEMY REVIEW

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A BURIED FOREST IN KENOSHA COUNTY

By Phil Sander
Kenosha

* *

PHIL SANDER, for 30 years a product designer with the Simmons Company, is now associated with the American Motors Corporation in Kenosha. His wide range of hobbies includes archeology, history, and both flora and fauna. He is well known as an amateur naturalist and conservationist with a long record of public service for civic betterment and improvement of the community in which he lives. His "explorations" in Wisconsin have led to several discoveries and in this article he explains one of his recent finds. The paper was presented at the 92nd Annual Meeting of the Academy at La Crosse, May 5, 1962.

* *

As the surface of the earth is worn by spring runoff, wind and wave erosion, new evidence is found by geologists and observers of early and late glacial deposits on Wisconsin's landscape. South of the city limits of Kenosha, along the beach of Lake Michigan (T 1 N, R 23 E, Sec. 7, Town of Pleasant Prairie) lake erosion has exposed an ancient forest bed. The deposit suggests it to be of late ice age period.

For several years the writer has studied this beach exposure with interest, because of an occasional find of wood logs and roots. This area has some features of the Two Creeks forest bed, so an effort was made to bring to the attention of geologists an area that needs study and research, and which will give added knowledge of Wisconsin's Pleistocene chronology.

In the spring of 1961 wave erosion exposed excellent sections of the clay bed. Visible was the lower glacial till, the overlaying lake and pond silts and sands which contained wood and the still higher dune sands. Pictures and several specimens of the entombed wood were obtained. This information was sent

HENRY HARTNEK, student at Kenosha UW Extension Div. who assisted in excavating and taking pictures.

to G. F. Hanson, State Geologist, who assigned Robert Black, U. W. Professor of Glacial Geology, to the project for investigation. Prof. Black viewed the area, bored several sections and obtained specimens of the water saturated wood. He stated that the area was of sufficient importance to take additional sections, which would probably be done this year.

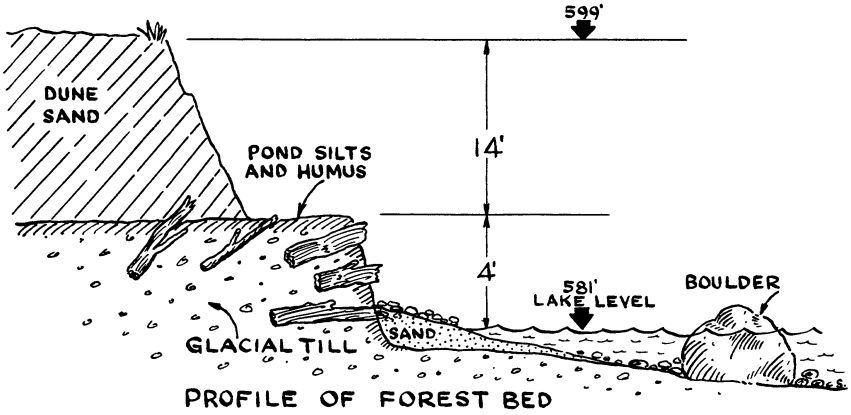
This paper is written primarily as a preview of the find, and to inform geologists and others interested in the glacial geology of Southeastern Wisconsin. A summary of the data collected to date is as follows:

1. The exposed clay field is approximately 1,500 feet long. Starting on the north end the height of the clay bed is approximately four feet above lake level and tapers away to the south to beach level. Above this clay bed rests the dune sand approximately fourteen feet high. (See sketch).

2. A report from the United States Forest Products Laboratory, Madison, on two specimens of wood submitted identified them as ash (hard wood). Two Creeks specimens have been either spruce or larch (soft wood) and no hard wood species have been encountered at that site.

3. The Geochronology Laboratory of the U. S. Geological Survey identified a wood specimen as a red oak log - C 14 tests results - 6,340 ± 300 years old (this test indicates the site distinctly younger than Two Creeks, which has a radiocarbon date of 11,400 years).

4. The shoreline at the southern extremity is a mass of water rolled stones and boulders. This stone beach may



PROFILE OF FOREST BED

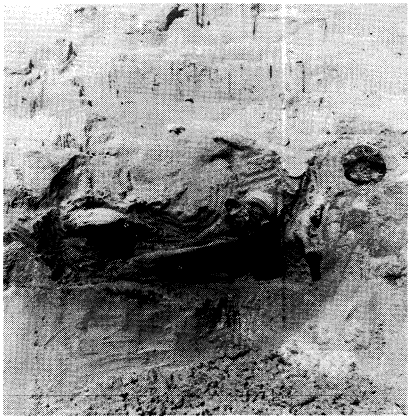
indicate a sudden release of glacial debris, or the rocks may have ice-rafted to shore as a result of currents. Several large boulders are visible out in the lake, 20 or 30 feet from shore.

5. This site from field evidence is presumed to relate to one of the Nipissing Lake levels.

6. The site is on the property of the Wisconsin Electrical Power Company.

7. Of archeological interest, Woodland Indians came to the site to find and select chert, rounded stones for axes and other heavy implements. Nearby on the high sand beach is evidence of a work area, indicated by broken rock, spawls and an occasional arrow point.

Beach and forest bed looking south



Logs protruding on top of the till

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IMPORTANT NOTICE! IMPORTANT NOTICE!

Members will materially assist the Academy financially--as well as the officers in their work--by keeping the Secretary informed of their up-to-date mailing address. Mail sent to a wrong address will henceforth cost the Academy 8¢ per copy on its return--about $1.00 a dozen!
We thank you for your cooperation.--The Officers

SOME BIOLOGICAL ASPECTS OF WATER RESOURCE MANAGEMENT

By L. A. Posekany
Wisconsin Conservation Department
Madison

* *

Academy member LEWIS POSEKANY majored in Helminthology at the University of Wisconsin and has been an aquatic biologist for the past 25 years, working with the Wisconsin Land Economic Inventory and Wisconsin State Planning Board prior to his two decades of service with the Conservation Department. Since 1949 he has headed its Rivers Survey Section, and has been concerned with the management of this one of the state's most vital resources. He has given testimony at many hearings before the Public Service Commission and the courts to protect the people's rights and interests in public surface waters. He states that one of his most profound observations resulting from his work is this: "Of the various organisms requiring water, man (the highest organism) is somewhat reluctant to recognize that only through mutually responsible use will all the organisms survive. This requires recognition of the needs for the other plants and animals to breed, feed and grow. Modern man speaks much of his riparian right to have the water touch the land--or the land's right to use the water. He tends to forget that his title-occupancy is quite recent. He seldom, if at all, speaks of the 'riparian rights' of those longer-term living occupants of the water or their right to have and use the land touching the water."

The following remarks were made by Mr. Posekany on January 5, 1962 at a meeting of the Resource Development Advisory Committee at the Wisconsin Center in Madison.

* *

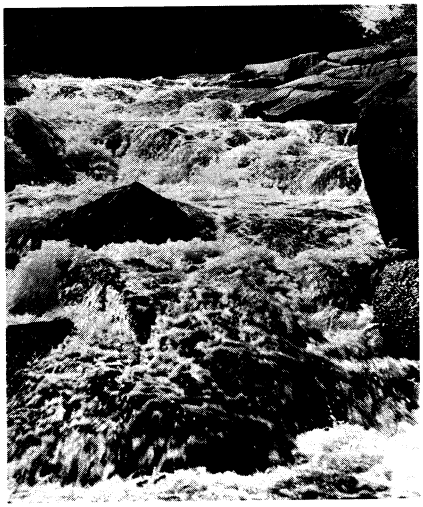
Water resource management is the determination of how much harm can be done (or adverse use can be made) by one organism to another (or co-user) before one or the other is materially hurt. The problem is defining and measuring the amount of hurt. Since much of the work of the W.C.D. Rivers Survey Section deals with fishery biology, fish will be used as examples in part because that group is best known and also because their response to hurt is less complicated than in the animals.

Death--quick and general--is a readily defined and measurable hurt, and for many of the organisms using Wisconsin's water it is known what conditions will generally result in quick and general death. But the measuring device is not calibrated beyond quick and general death. Quick could be defined as a matter of days or hours; general, as relating to most or all individuals of a species. Even death--slow and total--to species cannot be measured.

For example, if all Wisconsin fish were prevented from spawning (laying fertilized eggs) and all other conditions for the good growth and well being for the fish remained, probably some of all species of fish would survive for at least one year; at the end of about eight years fish would be scarce, but there still would be fish and some 60 to 100 years from now there could still be a rare sturgeon around.

So the observer measuring the hurt to fishes caused by preventing spawning would have to wait and observe over a rather long period of years. This same condition applies to isolated individual bodies of water. When deleterious action is applied to only a portion of an inter-connected system, assaying the extent of the hurt becomes a tremendous task.

One of the big problems in water resource management is the protection of the spawning grounds of fish and it is most acute in those fish that require the land to be by the water. One of the highly prized fish is the northern pike, whose preferred egg-laying site is the wet marsh at the lake edge. It moves into these areas at or about the time of spring breakup. In general, the sexually mature fish are stimulated by the warmer water running off the shallow exposed marsh. The fish move well up into the opening marsh and in areas where the grasses tickle the female, the eggs are laid and fertilized. Then the "flooded" marsh water continues to warm and the eggs hatch. Soon thereafter the very young fish are stimulated by the waters flowing out of the marsh to move out of this death trap into the lake before the spring melt has all run off or evaporated.



Strong Falls, Peshtigo river, Marinette county

Ditching the marsh can cause the spring melt water to leave the marsh before the eggs hatch. Diking off the marsh edge can prevent either the adults from entering or the young from leaving. Even cutting off or burning the grasses (sedges) might prevent the female from being stimulated to lay the eggs. Of course, changing the water level of the lake to make the marsh too shallow or to make the waters

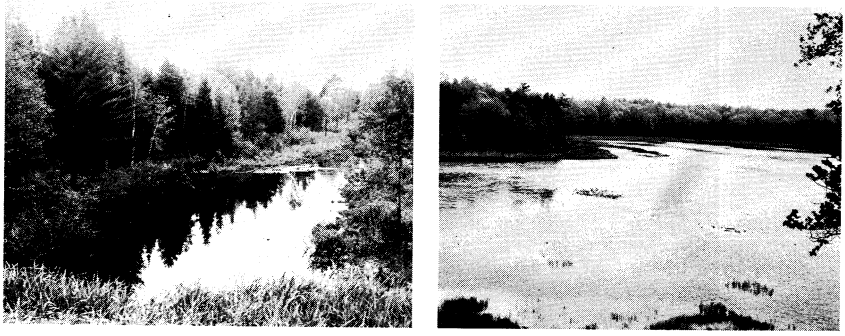
too deep to respond rapidly to the warming of sunlight all could prevent a year's hatch of northern pike from coming into being. Several years of poor to no hatch, and northerns are scarce. Probably seven consecutive years of adverse conditions result in disappearance of a species from the waters. Every reduction in the number of spawning grounds available materially increases the possibility of a no-hatch year.

Removing a weed mass or other dredging, sand blanketing, raking over or filling could destroy the nesting area of our shallow water fishes, particularly bass and panfish. Again, what is the minimum number of bass nests necessary to repopulate the average Wisconsin lake? How much adverse use constitutes a hurt? To measure the hurt caused by filling in, draining, burning off, chemically treating, diking, or otherwise destroying spawning areas, requires more time and manpower than the State of Wisconsin has been able to afford.

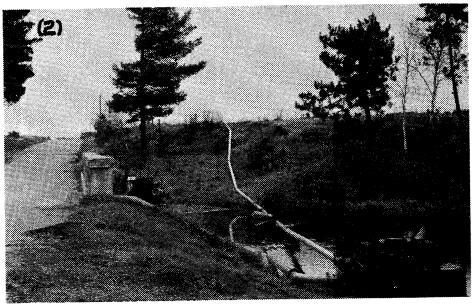
But so far things have been simple. What is the necessary food supply for our lake organisms? Necessary for what--minimum population, maximum exploited and/or maximum but inadequately cropped? Average? Average of what and average for where? Fertile Mendota or sterile sand barrens lake?

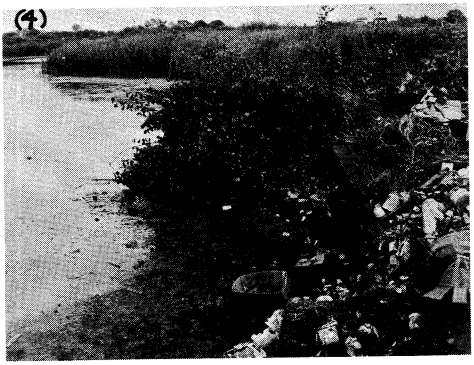
And how is a food supply hurt? By raising the water level to create a steep-sided basin in the top seven to nine feet of water, chemically controlling pest "bugs," sucking up the mucky shallow bottoms, eliminating the majority of the aquatic plants (weeds) thus destroying the nesting area of "forage fish," lowering water and exposing organisms or by scouring the bottom at high flow.

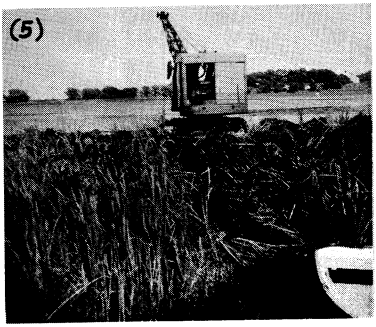
Then there is the hurt that destroys one type of habitat and replaces it with another. Usually this takes the



Springhead (L) and remnant natural spawning ground (R)

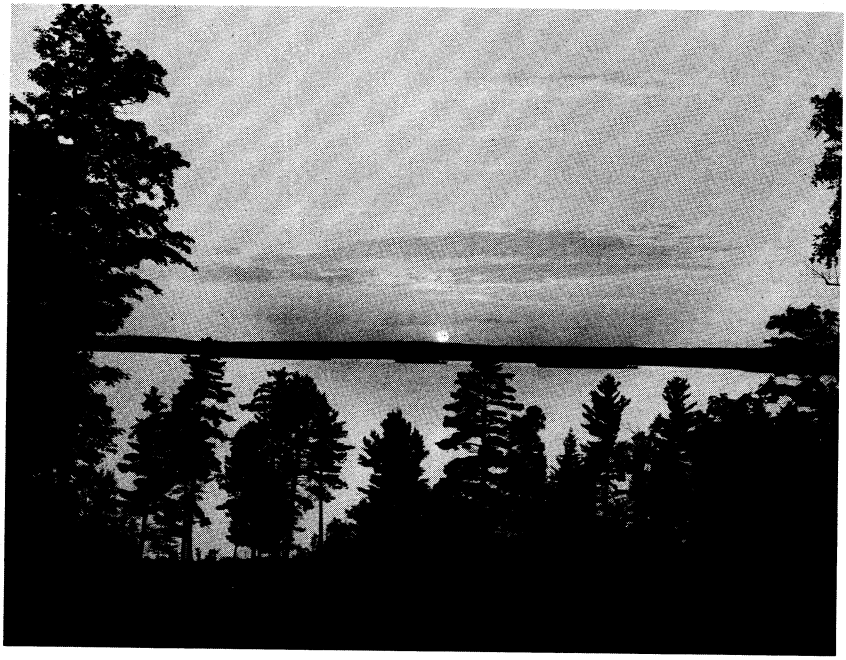






FACTORS AFFECTING WATER RESOURCES (Photos by Author except No. 5, by W. Sayles)

1. Real estate development by fill of spawning marsh
2. Agricultural water diversion (Squaw creek, Forest Co.)
3. Stream bank erosion ("Lakes Coulee" creek, Trempealeau County)
4. Dump fill (Supple's Marsh, L.Winnebago,Fond du Lac Co.)
5. Dredge and fill job (Montgomery lake, Kenosha County)
6. Hydro power diversion (Snaptail rapids, Sawyer County)



Sunset beauty on Trout Lake, Vilas county

form of damming a fast-water stream which results in slowing and deepening the water sufficiently to be unattractive or even repellent to stream fish. A material raise in water temperature also occurs. In an obstruction of any size, almost always such temperature raises are sufficient to be lethal or largely lethal to cold water fish (trouts). When such lethal waters are passed out of the created body, similarly undesirable conditions (to trout) develop downstream.

As a rule, trout streams are coldest in the upper sector--where most of the springs are--or at least where they are most effective in neutralizing the warming action of sunlight. The lower third and often the mid-portions of streams develop conditions which cold water fish at best can tolerate. Oftentimes such toleration takes the form of strings or streams of cooler water from adjacent tributaries which resist mixing for some distance, or spring-up wells from the bottom of the stream which are sufficiently cold to resist mixing and form limpet-shaped "lenses" into which the trout move. Any temperature increase in the surrounding water is likely to diminish the volume of the cold lenses or string. In addition, quiet pond waters often develop platter-like masses of warm

water which float about on the surface. When these platters are drawn over the dam, they can and do further raise the temperatures of the stream. Much basic work must still be done to determine what conditions foster platter formation.

In fact, a great deal of basic research on limnology of flowages must be done before the resource manager will be able to advise the adverse user--the average above-water riparian landowner--as to what can be designed to fit his needs and still prevent the harm to the resource from hurting. It is a type of research requiring the engineer, the surface and ground water geologist, and the taxpayer as well as the jack-of-all-trades scientist, the limnologist.

An inter-agency water diversion research project, "The Little Plover Study", is in operation to determine where and when the harm of removing water from a trout stream becomes a hurt. A similar study on the effects of drainage ditch systems on fish, wildlife, water siltation and flood flow is also needed to assist in advising the courts if these acts are harmful and how the hurt can be measured and/or prevented.

There are many other biological aspects of water resource management which need further research and always must be taken into consideration where present. These include the biology of created flowages and reservoirs in relation to oxygen demand, seasonal water storage, barriers to migration, fishways, creation of artificial lagoons, flood damages and knowledge on the amount of water available and the amount of water used in various ways.

* * * *

A NOTE ON THE COVER

FREDERICK M. LOGAN, Associate Editor for the Arts, (and new V-P in Arts) has contributed one of his own block prints titled "Lake Michigan Shore" for this issue emphasizing the water resources of Wisconsin. (See Spring 1957 Review, p. 69, for short biographical sketch about him.)

FREE FOR THE ASKING

Professor HUGH ILTIS, University of Wisconsin Herbarium, Birge Hall, Madison 6, has a number of reprint copies available of the "Wisconsin Flora" articles published in Vol. 50 TRANSACTIONS. Anyone wishing copies of these for their reference files may have them free on request.

WATERSHED DEVELOPMENT IN WISCONSIN

By Ingvald O. Hembre, Executive Secretary
State Soil & Water Conservation Committee
Madison

* *

Professor I. O. ("Ing") HEMBRE has B.S. and M.S. degrees from the University of Wisconsin and was a high school principal for eight years prior to 12 years of work as a county agricultural extension agent. In recent years he has served in his present capacity which included work as soil conservation educational leader in the Agricultural Extension Service and leadership in the Soil Conservation Society of America, of which he was Wisconsin Chapter chairman for two years. He received a Presidential Citation for work in the SCSA in 1958. Below are presented excerpts from his talk given at the 92nd Annual Meeting of the Wisconsin Academy at La Crosse on May 5, 1962.

* *

The watershed management approach to soil and water conservation is a very basic one. Water, as it flows, recognizes no fence lines - town, county, or state lines. Simply stated, a watershed is an area of land with a common water outlet. It may be part of a farm, all or parts of several counties, or it may comprise the drainage area of the Mississippi River. Under Public Law 566 we are working with watersheds of less than 250,000 acres.

A watershed includes farms, forests, homes, factories, highways and many other things. Most of all, it includes people. How the people think and act as they live and work together in a watershed area determines the kind of watershed it is. In 1933, the then Soil Erosion Service established its first erosion control demonstration on a watershed basis.

When the Soil Conservation Service was established in 1935 the first districts were set up in Wisconsin on a watershed basis. The Coon Valley Demonstration project was the first such organized watershed area in the United States, if not the world. You will see a roadside Historical Marker featuring this fact on Hwy. 14 just west of the city limits of Coon Valley. Today this Coon Creek watershed is also organized and progressing very well in its development as a "small watershed project" under the Watershed Protection and Flood Prevention Act.

The Flood Control Act of 1936 was the first federal law to recognize the watershed approach as basic to watershed protection and flood prevention. In 1953 the Federal Congress appropriated $5 million for 60 pilot watershed projects. The West Fork of the Kickapoo Watershed near Westby in Vernon and Monroe counties is one of those

Top: Flood control structure near Cashton, Vernon County
Below: Farm pond in Marathon county stocked with trout

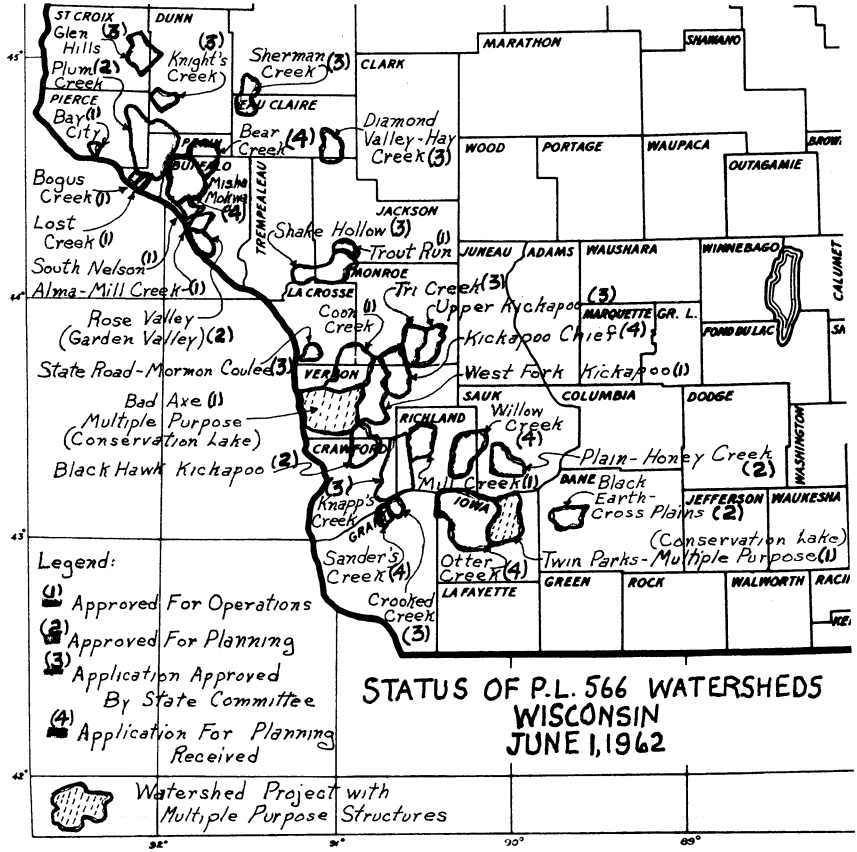
projects. It has proven its effectiveness on several occasions. It is watched closely by local people and cooperating agencies after every severe storm. These pilot watersheds were just what the word implies. They were "pilots" in determining the possibility, feasibility, and desirability of the small watersheds, limited to 250,000 acres, as a sound approach to flood prevention and watershed management.

The 83rd Congress in 1954 passed the Watershed Protection and Flood Prevention Act known as Public Law 566. It was subsequently amended at the 84th and 85th Congress. These amendments provided several changes, but principally expanded the Act to include fish and wildlife benefits.

Each individual project is a separate undertaking by a local watershed association. The federal government emphasizes at all points of development that it is a local project with federal help, not a federal project with local help. Only local organizations can initiate a project. Local units of government also come in for their share of financial responsibility. Local people prepare the application, they agree to provide all easements and rights of way, the contracting officer, and to provide for the continued operation, maintenance and upkeep of the structures. Local people need to apply soil and water conservation practices in the watershed. At least one-half of all the land that drains into any structure must be under a conservation plan approved by the local Soil and Water Conservation District before the construction can be authorized.

Federal help cannot be given if the project is disapproved by the state. In Wisconsin the Governor and the State Legislature designated the State Soil and Water Conservation Committee to be the agency of the state to have supervisory responsibility over programs provided by PL 566 as amended. Under the Act, the Secretary of Agriculture is authorized to give technical cost-sharing and credit aid to local organizations in planning and carrying out works of improvement for flood prevention, agricultural water management, including irrigation and drainage, and non-agricultural water management, including municipal or industrial water supply and fish and wildlife development.

The Soil Conservation Service has the primary responsibility for carrying out this Act. To be eligible, a watershed must contain less than 250,000 acres. Two or more watersheds within the preseribed limitation may be planned jointly if the sponsoring organizations request it. The structures in the watershed are limited to 5,000 acre feet for flood water detention, and to 25,000 acre feet for all purposes.



Only a local organization having necessary authority under state law can sponsor an application requesting federal help with watershed problems. In Wisconsin the County Soil and Water Conservation Districts have been authorized by special state legislation to assume the role. To date 33 applications have been filed in Wisconsin. Sixteen have been authorized for planning assistance, with 11 developed plans approved for operations. Only two states in the north central area, and nine in the nation, have more applications authorized for operations in the federal office than Wisconsin.

Each project has a local organized watershed association with its officers and committees, cooperating with the County Soil and Water Conservation District supervisors as the sponsoring organization. Technical assistance and leadership in the educational field are provided by several state and federal offices. Wisconsin also has

an Inter-Agency Agreement for planning and developing community watersheds which has proven very effective. It enlists the teamwork of the State Soil and Water Conservation Committee, the Wisconsin Conservation Department, the Agricultural Extension Service, Soil Conservation Service, Agricultural Conservation and Stabilization program and Farmers Home Administration.

The Mill Creek watershed, with 38,096 acres, of Richland county, was application number one in Wisconsin. This group was organized and giving attention to their watershed problems with the assistance of local agencies before the Small Watershed Act was passed by Congress in 1954. Wisconsin is a pioneer in the watershed approach to soil and water conservation problems. Eighty-one such organizations were functioning in the state before the enactment of the federal watershed development program.

The Lost Creek watershed with 5,189 acres in Pepin county was the first PL 566 watershed project to be virtually completed in Wisconsin. They are still contemplating some channeling. Cost sharing in these watershed projects is revealing and verifies that they are joint projects. An example is the Twin Parks Watershed of Iowa county with 78,620 acres at a total cost of $1,185,000. Local cost amounted to $407,000 (about 1/3) while federal contribution was $778,000. The $937,000 structural (dam) cost was shared locally at $199,000 (¼) and a federal share of $738,000. Land treatment amounted to $248,000 with local contribution of 4/5 or $208,000 and federal share of $40,000.

Public Law 566 projects are coordinated with other flood prevention programs of the federal government and Wisconsin's ten-year program of resource development and outdoor recreation has strengthened the program. For the ten-year period it provides $1½ million to help defray the local costs in development of multiple purpose structures.

The Public Law 566 watersheds in Wisconsin are concentrated in 17 counties in the unglaciated area of southwest Wisconsin. Vernon county leads with approximately 70% of its land in organized watersheds. Buffalo county is second with over 40% of its land area in approved watersheds. The total land area in organized watersheds approved for planning under PL 566 by the State Soil and Water Conservation Committee to date is 1,411,851 acres. There are presently in operation eight newly organized watersheds in the process of preparing an application for planning assistance, and an ever-increasing interest in new watersheds as this program moves forward.

* * * *

SURFACE-WATER INVESTIGATIONS PROGRAM IN WISCONSIN

By K. B. Young
U. S. Geological Survey
Madison

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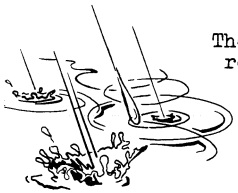
KENNETH B. YOUNG is district engineer in charge of the surface water branch, water resources division, for the U.S. Geological Survey in Wisconsin and has his office with the Public Service Commission in Madison. He is a graduate civil engineer from the University of Maine and worked in that state for the U.S.G.S. until 1948 when he was transferred to Washington. There he worked on program planning in the water resource inventory until coming to Wisconsin. He became an Academy member shortly after his arrival in 1960. This talk was first presented to the Resource Development Advisory Committee at their meeting on January 5, 1962 at the Wisconsin Center and is given here in officially approved form.

* *

The cooperative program of surface-water investigations in Wisconsin has been in progress since 1913. In the intervening 48 years, the U.S. Geological Survey in cooperation with various state and federal agencies has obtained streamflow data at about 120 gaging stations on streams throughout the state. The lengths of the flow records at these stations range from less than five years to more than 45 years. As a result of these relatively long periods of streamflow records, the state has valuable information about the runoff characteristics of the larger and principal streams. However, there are many streams in the state for which no data are available. Furthermore, in almost no areas has there been an attempt to relate surface water supplies with ground water supplies in order to present an evaluation of the total water resources of a specific region.

Water Problems in Wisconsin



The many uses of water, the extremes of its occurrence, and the growing demand for water lead to problems in its management, in the equitable allocation of available supplies, in the maintenance of suitable quality standards, and in the development of workable administrative policies. Water problems in Wisconsin may be classified in the four general categories which are commonly quoted. Those are stated as too much water, too little water, water of unsatisfactory quality, and conflicts of interest. Those problems are interrelated, but they do have individual facets requiring specialized treatment for their solution. Space does not permit a complete enumeration of all water problems but the following are indicative of some of the existing or potential ones.

Too much water - For most people, "Too much water" is a river in flood stage, inundating the low sections of river valleys, damaging homes, highways and bridges in its path, and carrying away valuable soil. Floods become a problem and are destructive mainly because people chose to settle on flood plains. Wisconsin has a goodly share of localized floods, but it seems relatively free of any of the widespread catastrophic floods which hit other sections of the nation. Nevertheless, a flood is a serious thing to those who experience loss of property or lives. Whether the loss from floods be localized or widespread, there is reason to ponder about ways to minimize its occurrence. Each river or stream that has people living on its banks, that has highways or railroads crossing its channel, or that has dams ponding its waters, is a poten-

tial flood problem. Some specific areas in Wisconsin that are "making the headlines" in recent years by battling this problem are Milwaukee and its expanding urban areas; the Kickapoo River basin and sections of the Pecatonica River basin in the southwestern corner of the state; the lower section of the Bad River in the vicinity of Ashland where the Corps of Engineers is studying a proposed flood control project; and small areas where soil conservation associations are participating under PL 566 and attempting to reduce flood damage erosion.

A direct approach to the majority of flood problems is flood plain zoning. Briefly stated, this would mean identifying those lands which are subject to being inundated during excessive runoff and limiting the use of that land to activities which floods would not harm. There may be insurmountable difficulties to bring about such zoning on existing developed flood plains. In those cases other measures can be taken; such as, preventing new occupation of those flood plains, or building flood control reservoirs and levees. However, it is not too late to initiate flood plain zoning on areas still undeveloped or unoccupied. This would prevent multiplication of past mistakes.

The design of highway drainage structures for small drainage areas presents another problem that develops from too much water. Present designs of culverts and bridges for small streams are based upon extrapolation of relationships developed for larger streams or on empirical formulas. Better definition of flood-frequency relationships for small drainage areas is most important.

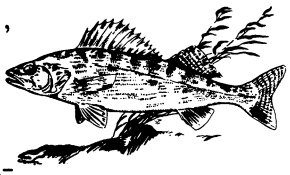
How Rainfall and Runoff Erode Soil

Soil particles and globules of mud are hurled in all directions when a water drop strikes wet soil.

Soil erosion, which occurs in times of excessive precipitation and runoff is particularly in evidence in the southwestern part of the state. This area is a hill-and-valley country with many streams where precipitation tends to run off quickly. Also associated with too much water are the marshes and marshland areas largely confined to the glaciated regions of the northern and southeastern parts of the state and to the western part of the central Wisconsin sand region. Drainage is economically and ecologically sound in some areas, and in others, the land is best reserved to marsh or swamp. Drainage problems need to be considered in relation to the total available water supply and to the best land use.

Too little water - Problems related to too little water develop not only in periods of drought, but also under normal conditions when there is an excessive use of water, particularly from small streams or from limited ground water supplies. Of growing significance is the use of water for industrial and municipal purposes and for irrigation in scattered sections of the state. Diversion of water from streams for irrigation requires a permit from the Public Service Commission. However, in most cases of small streams the lack of hydrologic data makes it difficult for the Commission to properly and adequately consider the permit requests. Because the withdrawal of water for industrial, municipal and irrigation uses continues through dry periods, some small streams conceivably could be dangerously depleted during these periods. In some cases, water for industrial, municipal, or irrigation uses is pumped from wells near small streams. Because of the interchange between ground and surface waters, pumping tempo-

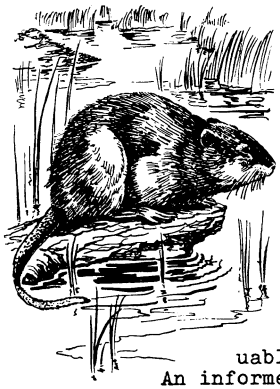
rarily lowers the water table in some areas, thereby reducing the base flow of nearby streams. Questions are being raised as to what is the effect of withdrawing water from small streams, or wells adjacent to small streams.



Extended periods of drought and population growth are potential threats to adequate water for domestic, municipal, and industrial water needs, including hydro-electric power generation. Consideration of adequate storage, withdrawal, and proper utilization of the available water supplies should be based on knowledge about the magnitude and frequency of low flow in streams, about underground reservoirs, and about the interrelationships between surface and ground waters.

Water of unsatisfactory quality - In some areas of the state the natural chemical quality of waters is such that the water is objectionable or unsuitable for many uses because of excessive amounts of manganese and iron. In other parts of the state water draining from abandoned mines or from ore processing plants or mine waste deposits pick up impurities that create quality problems. Water of unsatisfactory quality is becoming more prevalent in recent years due to increased contamination from expanding industrial and municipal areas. The deterioration in quality is appearing not only in streams and rivers, but also in some of the lakes adjoining large population centers. The expanding use of chemicals for snow and ice removal on streets and highways is causing localized contamination of small streams and wells as the runoff from melting ice and snow carries the chemicals off the highways and streets. The extent of this contamination is unknown at this time. A speaker at the state convention of the American Water Works Association in September 1960 reported that many private shallow wells in Wisconsin rural-urban fringe areas are polluted with household detergents that have been absorbed by the soil in the vicinity of sewage disposal systems used in city-farm fringe areas.

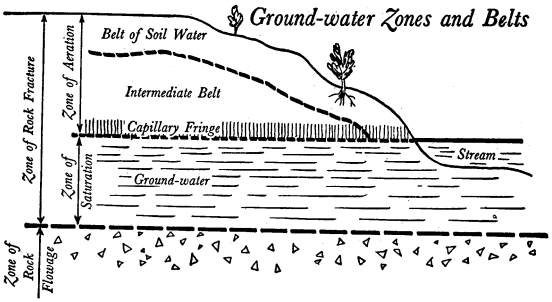
Conflict of interest - There are possibilities for conflicts of interest about water use in a vigorously developing area such as Wisconsin. Even though there is an abundant supply of water in the state, various peoples and groups have different ideas about how the water is to be utilized. Such interests as recreation, industry, private, municipal, irrigation, and conservation often have different ideas for the use of available water supplies. Differences center primarily around the quantity of water and its quality deterioration. For example, downstream users of water in the Fox River and the Rock River basins are concerned about the amounts of water used and polluted by upstream users.



Water levels of rivers and lakes, both high and low, often are the subject of protests and suits by those living adjacent to or using those waters. Communities on flood plains want to see an end to flood problems. This means upstream storage, and upstream inhabitants are often reluctant to give up valuable land to be flooded by storage reservoirs. An informed public, supported by adequate and significant facts about water availability and its use, will tend to reduce conflicts of interest and help to bring about sound solutions to water management problems.

Status of Current Program

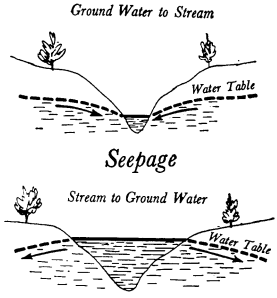
At the present time, the U.S. Geological Survey in cooperation with the Public Service Commission, the Highway Commission, the Committee on Water Pollution, the Conservation Department, and other local and federal agencies, is carrying on a modest program of collecting data on streamflow in the state. This program also includes special studies of flood magnitude and frequencies, low-flow conditions, and interrelations of surface and ground waters.



Basic data collection - At the present time, streamflow data are being obtained at 77 gaging stations on the principal streams of the state. About 55 stations are planned for long-term records in order to define the trends and extremes in streamflow conditions over a long period; 12 stations are planned for short-term records to define the characteristics of particular streams and to correlate with long-term stations; and 10 stations are necessary primarily to observe how a stream is regulated or managed. Data are also being obtained on the levels of 27 lakes in Wisconsin. Streamflow and lake level data are published in an annual series of Water-Supply Papers of the U. S. Geological Survey.

Flood frequency and magnitude - On the basis of existing streamflow data, the U.S. Geological Survey prepared a report on the magnitude and frequency of floods in Wisconsin. While this report provides information on floods for those who must plan and design structures on rivers, its use is limited to streams of medium to large drainage areas because the streamflow data were not available for small drainage areas. As a result, about 110 stations have been established on streams of small drainage areas (50 square miles and under) to obtain flood data only. When there is an adequate sampling of flood events on these small streams, the plan is to revise the existing report so that it will cover also the flood characteristics of smaller streams.

Low flow - Because of the growing need to learn more about the lower limits of streamflow, the U. S. Geological Survey has recently initiated a study of the low-flow characteristics of Wisconsin streams. Using information already collected over the past years, streamflow data are being processed to produce information on flow-duration and magnitude of low-flow for various periods of time. As in the flood study, there is a lack of existing flow data on streams of small drainage areas. This necessitates the establishment of stations on small streams at which measurements of base flow will be made periodically. These measurements will be correlated with the concurrent flow at regular nearby gaging stations in order to learn more about the characteristics of the small streams.



Future Program Emphasis and Acceleration

State and federal officials dmonstrated foresight years ago in 1913 when they initiated cooperative stream gaging work to meet the needs of that era. Questions about water resources still persist, however, and in many respects the water problems of today are more complex. Now is the time to demonstrate foresight by planning and implementing an accelerated program of water resources investigations that will meet the needs of the years ahead. This generation of Wisconsin citizens should have a basis of managing the state's water resources so that they may pass these resources on to future generations in good condition.

The gathering of information on the water resources of a state or section of a state, is a long-term proposition. One cannot wait until he needs this information for developing and managing the water supply of an area and expect that adequate information will be available for such needs. The fluctuations in the amount of water in streams and underground must be observed over a considerable period of time, through wet years and dry years, in order to get all the necessary facts. Information on the topographic and geologic features of the area must be obtained in order to understand fully how and why water supplies vary from year to year and from place to place. This means that those who intend to utilize and manage water resources wisely must anticipate the need for information and act as soon as possible, preferably several years before that need arises to see that the information is obtained.

In most any approach that the state of Wisconsin might decide to take to assure more effective and efficient use of its water resources, there will come a realization of the necessity for many of its agencies and the public to know more about its important resource of water. Published reports that present facts about the total water resources of specific basins or areas will be an essential tool for future planning and decision-making purposes. An inventory and appraisal of the surface and ground waters, their quality, fluctuation, and use would enlighten those who must plan and manage wisely the use of the state's waters. Many of today's questions and problems concerning Wisconsin's waters would not exist if we knew more about their availability and particularly the interrelations between surface and ground waters.

A positive step would be to divide the state into suitable areas for making detailed investigations of the water resources of those areas. Because of financial and manpower limitations, these areas could not be investigated all at once. However, priorities could be established so that the areas having the most urgent problems could be covered first. The knowledge thus obtained over a period of years would be most helpful in dispelling many of the uncertainties that cloud the present water picture.

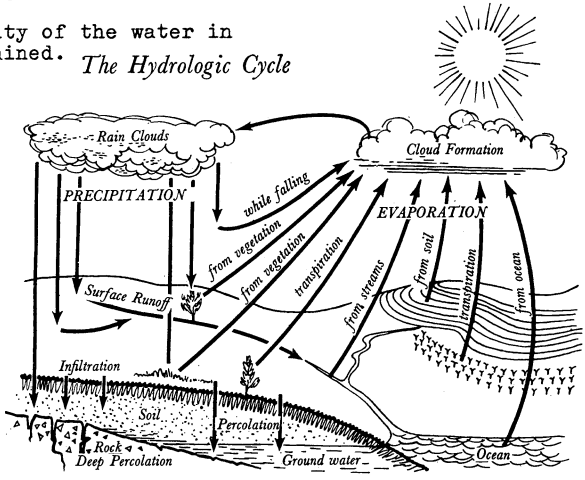
Once the areas and their priority of investigation have been established by individuals who have an appreciation of water situations throughout the state, an orderly and progressive series of water resource studies can be undertaken as soon as funds are available to finance them. There would be several elements to such an accelerated investigational program as outlined below.

Basic data collection - In the stream gaging network, there is a need (1) to expand moderately the number of long-term stations in order to define better the trends and extremes, and (2) to expand greatly the number of short-term stations in order to learn about a larger number of streams. Based on the basin or area priorities mentioned above, new gaging stations would be

started so that data would be available at the time needed for the detailed investigations. In addition, streamflow would be measured periodically at strategic points in an attempt to define the distribution of water within the basin and to locate areas where there are gains or losses in flow resulting from natural geologic conditions or man-made changes.

Data on the quality of the water in streams should be obtained. Such information is essential to assure that the water is of suitable quality for the use to which it is put and to detect future quality deterioration because of contamination. In many areas sediment in streams is evidenced, and data on sediment load would be necessary to determine corrective measures. Evaporation data should be obtained on selected lakes so that more information would be available on this sizeable water loss.

The Hydrologic Cycle



Flood studies - A basic element of any analysis of flood problems is knowledge of the level or stage of river waters in times of flood. This information can be obtained by marking high water levels along river banks and flood plains, or by good aerial photography at the time of the peak stage of excessive floods. These marks, usually stakes driven into the ground at the water line, can then be transformed into a profile of the river in flood by determining the elevation of these marks by level. A further step is to plot the inundated areas on a suitable base map (usually a modern topographic map). Still another step would be to obtain sufficient data on flood peaks of specific streams so that the frequency of floods of various magnitudes could be computed. A consideration of flood frequency relations provides the means to delineate areas subject to different frequencies of flooding and, therefore, different risks of flood damage.

Low-flow studies - A study of the low-flow characteristics is already underway in about one-third of the state. Program acceleration would permit extending the work over the entire state. In addition, when a detailed investigation of the water resources of a specific area is made, pertinent information would be available to incorporate into the report on such an investigation.

Ground-water studies - In order to understand fully the occurrence and behavior of water supplies, it is essential to know about the water beneath the ground as well as that on the land surface. Also, ground water is closely related to the geology of an area. The picture of the available water resources is not complete until the interrelations of surface and ground waters are understood. The magnitude of flood flows is affected by the topography and geology of a stream basin and by antecedent groundwater conditions. In dry periods, the flow of streams consists

almost entirely of water draining from ground water reservoirs into stream channels. Under certain conditions, excessive withdrawals of ground water might materially reduce the flow in nearby small streams in periods of low flow. These conditions indicate the need to study the occurrence of water in its entirety, not just parts of it.

Other studies - There are innumerable studies that could be made either separately or as a part of an investigation of the water resources of an area. At the present time a project is in progress on the Little Plover River near Stevens Point where basically we are studying the interrelations of surface and ground waters. When this project is completed we expect to know more about the factors affecting the natural movement of water in relation to precipitation, geology, etc. As a by-product we hope to be able to show what happens when water is withdrawn from a well near a small stream and from the stream itself. Such a study could well be made in areas with somewhat different topographic and geologic features.

As cities expand and outlying areas are converted from agricultural lands to housing or industrial developments, the runoff characteristics of those areas change materially. In predevelopment days, the woods, open fields or pastures would absorb rainfall and in most storms runoff would be a non-disturbing factor. But with the construction of homes, streets, parking lots, shopping centers, and factories, much of the once-porous land surface is made impervious. Consequently, when it rains much more of the water runs off directly to drainage ditches into nearby streams and less rain soaks into the ground to replenish ground water supplies. Frequently, some form of flooding occurs in those developed areas, and people wonder what has caused it. The effect of urbanization on runoff in streams, on ground-water supplies, on sediment in streams, on water contamination, and on water consumption are problems that we know little about. These are subjects that could well be studied, and there are many areas in Wisconsin that would serve as a field laboratory for such a study.

* * * *

PROGRESS IN WATER POLLUTION CONTROL (as of January 1, 1962)

During the period 1948 to 1961, orders have been issued to 1,119 sources of pollution. Of these, 804 have been satisfied. In the past year, 45 orders were satisfied. There are now 58 projects under construction, 22 have plans approved, and 68 have engineers retained. Over the years a total of 107 cases have been referred to the Attorney General. Of these, 68 have been completed and 4 are under construction, 2 have plans approved, and 17 have engineers retained. Completion of the remaining 16 will depend on solution of legal and financial problems.

So far as status of industrial waste treatment projects is concerned, a total of 28 completed installation of pollution abatement facilities during 1961. Of these, 6 installed facilities on recommendation. Five plants under orders discontinued operation during 1961. Fifty have facilities under construction. On status of sewage treatment projects, figures show that 31 municipalities completed treatment plants or improvements in 1961 as compared to 31 in 1960. Of the 63 communities with sewers which provided no treatment in 1949, four still need to provide facilities. One has a plant under construction. -- THEODORE F. WISNIEWSKI, Director
Wisconsin Committee on Water Pollution

THE TRAINABLE RETARDED CHILD IN THE PUBLIC SCHOOL

By Esther Hill Roberts
Princeton, New Jersey

* *

ESTHER HILL ROBERTS, Academy member, is a former President of the National Association of Occupational Therapists. Her husband, the late Dr. Edward Howell Roberts, Dean at Princeton Theological Seminary and Professor of Homiletics there, was a University of Wisconsin alumnus. Mrs. Roberts has been a member of the Princeton, New Jersey, school board. Currently she is a specialist in the public school system of that city.

* *

Ten years ago there were a few scattered classes in the public schools of this country for trainable retarded, children. A generation ago these children, termed "imbeciles," were kept behind closed doors or put away in institutions. People spoke in whispers of the child who wasn't "quite right," and parents felt it was in some way their fault and felt ashamed.

This has all changed. Parents have banded together in country and state divisions of the National Association for Retarded Children. They are convinced that retarded children can be helped. Largely through their work, money for research has been and still is being raised. Valuable research is being done.

It has just been announced that a new test, known as the Guthrie test, will be given to 4,000,000 infants starting July 1. The testing of a few drops of blood, taken from a baby's heel, can show the existence of phenylketineia (P.K.U.), an error in metabolism. The U.S. Children's Bureau, which will direct the mass screening program, says the test is reported to be able to spot P.K.U. during the first few days of life. If this is detected the baby is placed on a special diet to prevent "subsequent irreparable mental retardation."

Recently researchers have become quite excited about the discovery of abnormalities in the chromosomes of mongoloids. We may be on the eve of learning how to prevent this heretofore baffling form of mental retardation.

Parents have worked for research so that we may have fewer of these children, but they also have worked for the education of the ill-fortuned ones who are already here. How much can the trainable child be taught in the public school? It is really too soon to know. Surveys have been

made to find out what is being gained by having public school classes, but little has really been learned as to how effective this teaching can be.

It is the opinion of this author that it will not be possible to learn what can be accomplished in these classes until the teachers have a more thorough understanding of what their goals should be. This is related also to the inadequate instruction our teachers often receive. Classes are often taught by people who themselves have had little or no experience with trainable children.

The only real goal for the teacher of trainables is to help each child to develop his potential. Only through this can she help him develop greater social competence. To be sure, she trains him in self-help. To button his own coat is important. But her teaching must go as far beyond this as the child is able to go.

The child is assigned to the category of "trainable" if he is not capable of any academic education. He will not learn to read. While the three R's are important, we are inclined to forget how much else one can learn, even without reading. In a well-taught kindergarten children learn many things. Much of this is in preparation for their first grade learning. Experiences are given them which will increase their vocabularies and make their reading more meaningful. They learn to listen, to follow directions, to do things as a group. Their pre-arithmetic work includes understanding of up and down, large and small, number concepts, etc. They learn color recognition, learn to see likenesses and differences. They learn to use their hands, and to work and play together.

This is only a partial list, but these things which are given the kindergarten child in preparation are also educational in themselves and can be of great value to the trainable retarded child in his growth and development.

Here, then, is the thesis of this article: as long as we work merely on short-term specific goals such as those usually emphasized in our self-help programs, we will accomplish no more than can be done at home. We must have a larger vision of what can be done for the child. We must be constantly on the alert for signs of greater potential. Without ever pushing the child, we must give him an opportunity to do all that he is capable of doing. We must give these children experiences, not merely show them pictures. Because emotional problems often cloud the issue, we must give them a sense of accomplishment and of personal worth. We may then uncover a potential that was not seen before! Whether we do that or not we will help these children lead a richer, finer life and more fully make use of the abilities they have.

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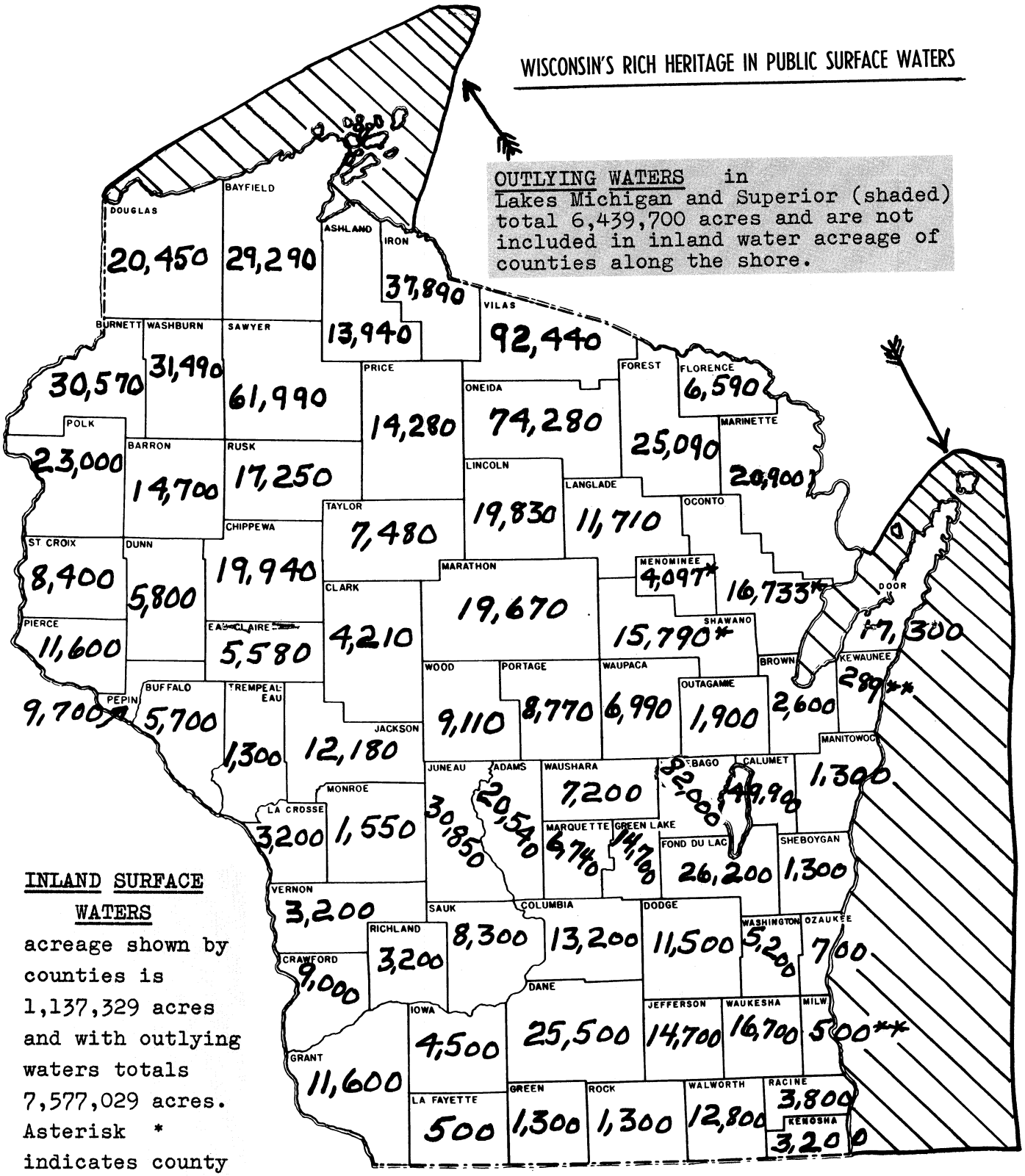
WISCONSIN'S RICH HERITAGE IN PUBLIC SURFACE WATERS



INLAND SURFACE WATERS acreage shown by counties is 1,137,329 acres and with outlying waters totals 7,577,029 acres. Asterisk * indicates county figures tentative and subject to revision and ** estimated acreage not based on W.C.D. forest inventory data as is the case with other statistics. (1962)

LAPHAM BUST PRESENTED TO UW-M

The above picture shows the bust of Increase Allan Lapham (1811-1875), a founder of the Wisconsin Academy, being admired by Mrs. Laura Lindow Frisby and her daughter, in connection with U.W.-Milwaukee's dedication of their new Lapham Hall for science studies on February 17, 1962. The bust originally was done by John Marr in 1898 and this one, made from the original in the Milwaukee Public Museum, was contributed by Mrs. Frisby, Lapham's granddaughter, and her brother, Allan Lapham Lindow. The exhibit case fittingly stands in the foyer which connects the two wings (biology and chemistry).

Two significant addresses presented at the dedication now have been published by the College of Letters and Science, UW-M (send requests to Dean JOSEPH BAIER). They are: "Biology and the Nature of Science" by GEORGE GAYLORD SIMPSON (Alexander Agassiz Professor at Harvard), and "The Role of the University in the Growth of Science" by WALLACE R. BRODE (President of Sigma Xi, National Honor Society for the Encouragement of Scientific Research).

In connection with these dedication ceremonies, Governor GAYLORD A. NELSON sent a message which was read and is quoted in part as follows: "This new science building is a symbol of our determination to offer maximum education to every qualified student. In five years, our state college and university population will increase by 50%, adding 500 new students for every 1,000 presently attending. Enrollments at state-supported higher education institutions will nearly double in ten years. This sudden and massive increase will challenge the state to maintain the high quality of education which is the Wisconsin tradition. ... While college students will nearly double in the 1960's, the number of taxpayers will increase only slightly. Each taxpayer will be asked to dig deeper into his pocket to pay the costs of higher education."

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JUNIOR ACADEMY NEWS

JUNIOR ACADEMY REPORT

By Jack Arndt, Chairman
Junior Academy Committee

The 17th annual Statewide Meeting of the Junior Academy was held at Wisconsin State College - La Crosse on May 5, 1962 in conjunction with the 92nd annual meeting of the Senior Academy. Twenty district winners and one district alternate took part in the program; all were nominated for one-year honorary memberships in the Senior Academy and will have the papers describing their research printed in an annual Junior Academy publication.

Of the 21 high school students vying for Statewide Meeting awards, SANDRA L. HAGER, Milwaukee Lutheran, and R. JOHN SWING, La Crosse Aquinas, were selected by the judges as first and second place winner respectively and were awarded financial scholarship credit. Miss Hager's presentation was entitled "The Cause and Control of Leukemia" and Swing reported on "The Construction and Practical Application of a Closed Circuit TV Camera."

Other students making presentations included: CRAIG L. BEECHER, Sparta, CHARLES N. BEHNKE, Kenosha Bradford, JEAN A. BLUMENKAMP, Green Bay East, CHARLES J. COWIE, Prairie du Chien Campion, MARNIE E. FRANK, Lake Geneva Badger, ANN M. FELKER, Marshfield Columbus, PATRICK J. HARTMAN, Wisconsin Rapids Assumption, JAMES R. JAESCHKE, Kenosha Bradford, DOUGLAS B. KING, Milwaukee Nicolet, WAYNE R. KIRKHAM, Rice Lake, BONNIE A. LE VAKE, Richland Center, JAMES A. McKANNA, Green Bay Preble, ROY A. NOFFKE, Appleton, NANCY A. ODER, Richland Center, ERIC C. REINELT, Milwaukee Bay View, GEORGE R. ROSSMAN, Eau Claire Regis, MICHAEL E. SWANSON, Superior Cathedral, SHEILA A. TAFT, Richland Center, and RICHARD B. ZELLMER, Wisconsin Rapids Lincoln.

MICHAEL E. SWANSON, Superior Cathedral, and PHYLLIS KING, Marshfield Columbus, were elected co-presidents for 1962-63, and will preside over the Statewide Meeting next year at the University of Wisconsin-Milwaukee.

Awards of one-year honorary memberships in the American Association for the Advancement of Science went to MICHAEL E. SWANSON and NANCY A. ODER. Their presentations were rated as the best delivered by a junior boy and a junior girl respectively.

WSC-La Crosse faculty members LAVERNE BULDHAUPT, LARRY ROWE and ROBERT UBER served as judges. HOWARD F. YOUNG, E. G. WULLING, and THEODORE ROVANG handled the arrangements for the Junior Academy sessions and did a very efficient job.

NOTE: In recent years the Summer Issue of Wisconsin Academy Review was given over to Junior Academy papers presented at the annual meeting. This year these will be published in a separate booklet by the Junior Academy of Science.

Junior High School Regional Meetings

Three regional meetings were held for junior high school students on May 12, 1962 at Green Bay, Milwaukee, and Wausau.

TONY NUSKIEWICZ, science teacher at Franklin JHS, was chairman of the meeting at Green Bay at which 20 research presentations were given in the Franklin JHS auditorium. CHUCK COLE, student at Green Bay West, presided over the day-long session. Judges were HARRY GUILFORD and DAVID A. BERMAN, science faculty members at the UW Extension Center, Green Bay; and KENNETH MOLZAHN, Asst. Supt., Weston Power Plant, Rothschild.

Milwaukee Regional Meeting Chairman FRED WOOD, Milwaukee Audubon JHS science teacher, reported a successful meeting composed of five individual sections at which a total of 26 presentations was made. The meeting was held at John Marshall JHS in Milwaukee. Science teachers JEROME KOPECKY and BERNICE SIGMAN, John Marshall, and NANCY NOESKE, Bell, assisted Wood with meeting arrangements. Judges for the event were ROBERT GROGAN, JOHN FRITSCHE, and NEAL EIGENFELD, Milwaukee Public School supervisors, KENNETH MILLER, Marquette University chemistry faculty member, EDWIN COOK, Milwaukee Lutheran HS, WAYNE BUSSE, Harnisfeger Corp., and MARGARET KALMER, Pius XI HS.

The UW Extension Center at Wausau was the site of the Wausau Regional Meeting which was under the chairmanship of AMOS H.YONKE, science teacher at Horace Mann JHS. Ten presentations were delivered by 13 students. H. A. JOHNSON, ELWIN E. HARRIS, and EWALD HERTZ served as judges.

Two groups of winners were chosen at each meeting - "A" and

VICTOR P. SCHUTZ, Alexander Bell Jr. HS., Milwaukee

"B" winners. Each one received a one-year subscription to a scientific periodical.

"A" winners included: JOAN ANDRZEJEWSKI and VICTOR SCHUTZ, Milwaukee Bell; KAY DAVIDSON, Kimberly: WILLIAM JENSEN, JIM JOERN, and ROBERT ZAHN, Wausau Muir; ROGER JERRY, and JOHN PASCH, Green Bay Franklin; STEVE KOEHLER, Brookfield Central; MARIETTA MALICKI, Racine Lutheran; SUSAN MARTENAS, Racine Jerstad-Agerholm; and CLAUDIA SHAPIRO, Manitowoc Wilson.

"B" winners were: DENNIS CROWE, Clintonville; CAROL GIESLER and TOM STELTER, Green Bay Franklin; JAMES KORLESKY, Manitowoc Wilson; ROSILYN LANGE, Merrill; and BRIAN W. VAN HOVE, Superior Cathedral.

NSF Grant Received to Expand WJAS Activities

A grant totalling $7,175 was received by the Academy from the National Science Foundation to support a "Wisconsin Junior Academy of Science Expansion Project" during the 1962-63 academic year. Grant funds will be administered by the State Junior Academy Committee and include travel and subsistence for participants in the district and state meetings, travel and per diem for the director and district chairmen, and honoraria for meeting judges. Funds are also available to provide lecturers at the various Junior Academy meetings and to help establish an annual Junior Academy publication. No portion of the funds granted may be used to support the Junior Academy awards programs.

Contributors to the Junior Academy Awards Programs

Subscription awards and scholarships presented at Junior Academy meetings are made possible through dues and contributions from member clubs; and contributions from individuals, corporations, foundations, and the Senior Academy. We are especially grateful to the following for their financial support during the 1961-62 academic year: Allen Bradley Co., Milwaukee; Allis Chalmers Corp., Milwaukee; American Chemical Society-Northeast Wisconsin Section; The Journal Company, Milwaukee; Phil Sander, Kenosha; A. W. Schorger, Madison; Square D Co., Milwaukee; Wausau Paper Mills Foundation; and Wisconsin Telephone Co., Milwaukee.

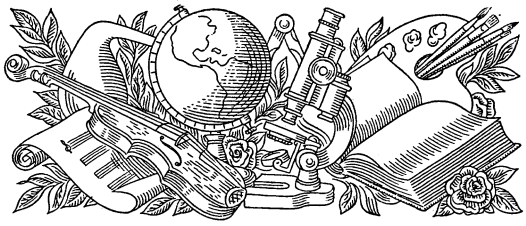
* * * *

FOR VALOR

An octogenarian, Wisconsin's Emeritus Professor LELIA BASCOM writes (as she lives) with piquancy and zest unflagging. A whole world of her admirers will welcome a reminder of her blithe spirit. At one time she was Vice-president of Arts for the Academy.

Eagle Heights where G.I.'s stay
House those working for B.A.
Or maybe for the high degree
Known to us as Ph.D.,
Doctor of Philosophy.
Wives of G.I.'s work in town
Selling rouge, perhaps a gown,
Plugging for their own degree
Which they call the "P.H.T."
Known to us as something new
Putting Husband Through.

---Lelia Bascom



STATE AND ACADEMY NEWS

THE ACADEMY'S 92nd ANNUAL MEETING

By Ted J. McLaughlin
Secretary

Editor's Note: This is a brief summary of the Secretary's detailed official minutes for the joint meeting with the Wisconsin Junior Academy of Science held at Wisconsin State College-La Crosse on May 5-6, 1962. Professor HOWARD F. YOUNG, local Program Chairman, reports that registration totaled 201 with 172 at the joint luncheon and 108 at the banquet on Saturday. There were 22 at the Friday evening dinner for Council members (May 4) and the Sunday program had 30 on the Mississippi River boat ride, 24 on the field trip and 47 at the noon picnic in Myrick Park. All things considered, it was a successful and memorable gathering.--W.E.S.

Council Meeting

Twelve Council members were present (ARNDT, BAIER, BEHLING, BUCKSTAFF, HUGHES, KABAT, KLOTSCHE, McLAUGHLIN, SCHUETTE, SCOTT, SHENEFELT and WELTY) as well as Professors HOWARD F. YOUNG (Local Program Committee Chm.), F. CHANDLER YOUNG (Chm. Long-Range Finance Committee) and ADOLPH A. SUPPAN (Chm. Local Committee on Arrangements for 1963 meeting at UW-M where the next annual meeting will be held). Besides approval of the minutes of their Feb. 3, 1962 meeting, the following action was taken:

1) Accepted a condensed budget (subject to review and adjustment) of $8,700 including anticipated expenditures this fiscal year of $4,000 for the TRANSACTIONS, $2,000 for the Wisconsin Academy Review, $2,000 for operations and $700 for the Junior Academy of Science. Treasurer BEHLING reported a printing bill for Vol. 50 TRANSACTIONS considerably higher than expected and plans were made for offering a settlement on the unpaid balance.

Retiring Pres. WELTY (L) and President KLOTSCHE

2) Dean F. CHANDLER YOUNG presented his report for the Long-range Financial Planning Committee including a detailed analysis of the Minnesota Academy of Science (which he visited personally) and explanation of the committee's contacts with two Wisconsin Foundations. It was suggested the committee continue its contacts with foundations and others for financial support.

3) Thirty-two new members were accepted including seven in the new student classification and three libraries (see

NEW OFFICERS FOR 1962-63

President-Elect **AARON J. IHDE** is Professor of Chemistry, History of Science, and Chairman of the Integrated Liberal Studies program at the UW. He earned all three degrees at the UW, spent several years as research chemist in the food industry, and has taught at Butler and Harvard Universities. He is well known for his research, lectures, and writings in the history of chemistry and on pure food legislation. Professor Ihde is a member of the Wisconsin Food Standards Advisory Committee and is Chairman of the History of Chemistry Division of the American Chemical Society. He has been affiliated with the Academy since 1945, served as Secretary-Treasurer in 1951 to complete the term of the late Banner Bill Morgan, and was Vice-President in Sciences in 1959.

V-P Letters **RALPH A. McCANSE** (L) is associated with the English Department of the UW Extension Division at Madison and served as Secretary to that Faculty for some years. He has been Letters Editor of the Review since late 1954, having done much to secure outstanding contributions for the publication.

V-P Arts **FREDERICK M. LOGAN** (center) has been Art Editor of the Review since 1957 and previously served as V-P Arts in 1956. He is a professor in the Department of Art and Art Education at the UW in Madison.

V-P Sciences **ALVIN L. THRONE** has been a member of the Academy for over 32 years. He is professor of botany at UW-M and was a member of the committee which planned the new science building, Lapham Hall. He has served for some time on the State Board for the Preservation of Scientific Areas and is a past president of the Wisconsin Society for Ornithology.

Symposium speakers PENN, HANSON (back row), EMERSON, Miss SMITH and SCOTT, Editor of Review

p. 96 for list). The Secretary reported present membership totaling 1,206 in the following categories: Life, 45; Sustaining, 38; Active, 929; Library, 87; Student, 8; Honorary, 3; and Family, 96. This does not include exchange shipments of the TRANSACTIONS to over 500 libraries throughout the world.

4) Review Editor SCOTT reported plans to continue essentially as in the past except that the Junior Academy Summer issue would be published separately in the future and would not be distributed to Senior Academy members. He announced his plan to retire from the Review editorship at least on completion of Vol. 10 (Fall 1963) and suggested that the Council consider others who might serve in this capacity.

5) After a report of the Long-range Planning Committee was read, it was decided to continue joint meetings of the Junior Academy of Science and the Senior Academy at the time of the annual meeting, to appoint a special Centennial Planning Committee (Walter E. Scott appointed as Chairman) and to establish a committee to develop a fall "out-in-the-state" Academy meeting to start in 1963 possibly with National Science Foundation support. Junior Academy members also would be included in this field-reconnaisance type of meeting.

6) Chairman of the Junior Academy of Science, JACK ARNDT, reported receipt of a $7,175.00 grant from the National Science Foundation (see p. 75 for more details) and explained plans for a Junior Science Symposium on the UW Madison campus this fall as well as for a Junior Academy publication to include papers presented at

Some Academy Officers: ROY SHENEFELT, D. J. BEHLING, HOWARD YOUNG, J. MARTIN KLOTSCHE, CARL WELTY, TED J. McLAUGHLIN, JOSEPH BAIER

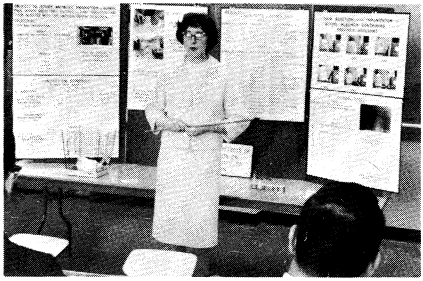
Part of audience at morning symposium

the annual meeting. Mr. Arndt received commendation from the Council for a Junior Academy Handbook he published recently.

7) Librarian SHENEFELT recommended that the supply of back issues of the TRANSACTIONS be reduced to 100 copies after 10 years and 50 copies after 20 years (minus sales and special assignments to fill library needs). It was agreed that surplus volumes should be made available to the Junior Academy of Science and that any not needed by them could be liquidated in any manner decided by Librarian Shenefelt and Walter E. Scott for the best interests of the Wisconsin Academy.

8) Five resolutions reported by Mr. KABAT for the Resolutions Committee were approved for presentation to the annual meeting as also was the general program plans and business meeting agenda. Also, it was recommended that a special committee be appointed to consider possible affiliation between the Wisconsin Academy and such other allied organizations as the Wisconsin Arts Foundation.

Audience at humanities section, one of eight afternoon sessions



ANN M. FELKER, Marshfield
Columbus High School

Business Meeting

Saturday, May 5, 1962 went along smoothly with a fine symposium on the "Upper Mississippi Valley" and eight sections for papers in the afternoon which culminated in the business meeting session attended by 75 to 100 members. Treasurer Behling reported that increased costs for printing the TRANSACTIONS would deplete the present treasury balance. By careful management and the increase in dues to $5.00 per year for Active members (only), it is hoped a deficit can be avoided in the coming year. The dues increase, which was officially announced earlier as a matter to be considered, was favored unanimously, effective January 1, 1963.

Five resolutions were adopted unanimously:

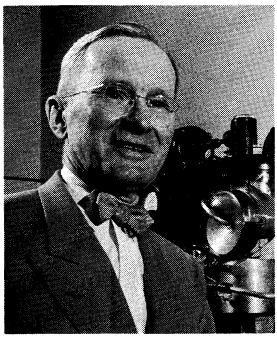
1) Appreciation for use of Wisconsin State College-La Crosse campus facilities
2) Appreciation to those responsible for program arrangements
3) In memory of eight members who died in the past year (all mentioned in recent Review In Memoriam statements)
4) Special appreciation to editors Stanley Beck and Walter E. Scott for their work and to Kenneth Mahony for preparing an index for the last 16 years of the TRANSACTIONS; and
5) Commendation to Jack Arndt for his work with the Junior Academy of Science.

Secretary McLAUGHLIN reported an increase of 40 members over the previous year despite the fact that records had been cleared of all inactive individuals. Reports of the Librarian, Editors, and of several committees were essentially as mentioned above.

The following officers, recommended by the Nominating Committee, were elected (or re-elected) unanimously:

Group at Senior and Junior Academy Luncheon

NEW LIFE MEMBERS



HENRY A. SCHUETTE

RALPH N. BUCKSTAFF

CHARLES N. FREY

President-elect AARON J. IHDE; V-P (Sciences) ALVIN L. THRONE; V-P (Arts) FREDERICK M. LOGAN; V-P (Letters) RALPH A. McCANSE; Secretary, TED J. McLAUGHLIN; Treasurer, DAVID J. BEHLING and Librarian ROY D. SHENEFELT. (See photos and titles introducing new officers on p. 79). The editors and Junior Academy of Science Chairman are appointed by the Council and remain the same. Professor WELTY installed Provost J. MARTIN KLOTSCHE as the new President of the Wisconsin Academy. In his acceptance of this new responsibility he stated that "it is reassuring to see our membership go up" and he expressed his firm belief that "the Academy serves a very useful function in Wisconsin." He complimented Professor Welty for his very fine leadership and announced that the 93rd annual meeting to be held at the UW-Milwaukee would feature a symposium on "The Urban Scene." President-elect IHDE will be chairman of the Program Committee and he will be assisted by Chairman of Local Arrangements ADOLPH A. SUPPAN. Membership appointments on about a dozen committees are pending and will be announced later. It was decided that the 94th annual meeting in 1964 would be held at the new UW Marathon County Extension Center in Wausau.

At the evening banquet President CARL WELTY presented an excellent address on "Knowledge, and the Law of Diminishing Returns" which will be published in the forthcoming TRANSACTIONS in its entirety. Three new Life members were honored for 40 years or more of continuous membership and two of these, past-presidents RALPH N. BUCKSTAFF and H. A. SCHUETTE, were present to receive their certificates. CHARLES N. FREY of Scarsdale, New York, received his honor by mail. He is a past-president of the Institute of Food Technologists and a consultant in this field lecturing at both Columbia University and the Massachusetts Institute of Technology. He also is a past-chairman of the New York Section, American Chemical Society, member of the Council of A.A.A.S., and an honorary member of the American Association of Cereal Chemists. Emeritus Professor of Chemistry (UW-Madison) Schuette also is a past-president of the American Oil Chemists Society and a Fellow of the A.A.A.S. Mr. Buckstaff is an Oshkosh businessman who has had a life-long interest in nature and has become an authority through his hobby studies in the fields of ornithology, entomology, meteorology and astronomy. His collections are exhibited at the Oshkosh Public Museum (which he has served for many years) and his astronomical observatory now is being used by classes from Wisconsin State College-Oshkosh, to whom he donated this facility.

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NEWS FROM THE SCHOOLS, INSTITUTIONS AND GROUPS

Editor's Note: Feature articles with pictures of the four new college presidents - Morland (Lakeland), Kelley (Marquette), Wyman (Wis.State College-Oshkosh) and Albertson (Wis. State College-Stevens Point) - will be carried in the Summer 1962 Review.

LAKELAND COLLEGE (Bob Spatt, News-Alumni Director)

Lakeland College (Sheboygan) began celebration of its centennial anniversary on June 2, 1962 with the biggest and most colorful commencement weekend in the school's long history. An estimated 1,300 viewed a historical pageant, "Sights and Sounds of a Century," presented in narration-tableau style, and over 1,700 people were on hand for the joint graduation exercises with Mission House Theological Seminary on Sunday afternoon. Both events took place in a huge 50x170 foot tent, which was symbolical as the site of numerous missionary conferences held on the Lakeland campus many years ago. Over 200 persons had parts in the pageant which told the Mission House-Lakeland story.

Centennial 1862-1962

Dr. Elmer Homrighausen, dean of Princeton Theological Seminary, N. J. (a Lakeland alumnus) was the commencement speaker. A record number of 65 diplomas was awarded to college seniors. The busy weekend wound up with an alumni banquet on Monday evening and attendance near 400. Guest speakers were three former college and seminary faculty members, Dr. Karl Ernst, Lombard, Ill.; Dr. Ernest Fledderjohn, New Knoxville, Ohio; and Dr. Josias Friedli, Sheboygan.

About two years ago Lakeland College unveiled an ambitious 10-year development program totaling about nine million dollars for capital improvements and an endowment fund. A recent federal loan of $900,000 will assist in starting the first phase expenditure of about $2½ million for a men's dormitory and union-dining hall (to be opened in the fall of 1963) and other developments. Enrollment this fall is expected to approach 500 students.

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UNIVERSITY OF WISCONSIN-MILWAUKEE (Marilyn Reinhardt, Asst. Director, UW-M News Service)

About 100 faculty members and students at the UW-M contributed their talents recently in a three-day "Focus on Fine Arts" concert series and art shows on the Kenwood campus. All proceeds went to the UW-M Community Center expansion fund. ... History scholars from throughout the nation gathered here April 26-28 for the 55th annual meeting of the Mississippi Valley Historical Association. Chairman of arrangements was academy member FREDERICK I. OLSON, chairman of the history department and associate dean of the University Extension. He recently was coordinator of a lecture series on "Historic Milwaukee," offered by the Extension, which explored Milwaukee's colorful past and its problems and prospects for the future. ... ROBERT F. ROEMING, associate dean of the College of Letters and Science at UW-M and professor of French and Italian, has been elected managing editor of the "Modern Language Journal" published by the National Federation of Foreign Language Teachers Associations. The four-year term takes effect on January 1, 1963. ... Provost J. MARTIN KLOTSCHE

recently received the WMIL Community Service Award for his many civic contributions to the Milwaukee area. ... Academy member ADOLPH A. SUPPAN, professor of English and director of the summer session, was moderator for the highly successful eight week television series on foreign affairs, "Great Decisions." Wisconsin residents in more than 43 communities participated in local discussion groups. The series was sponsored by the UW-M, UW Extension, Institute for World Affairs Education, the Foreign Policy Association-World Affairs Center, civic groups and The Milwaukee Journal. ... The honor of being president of the new faculty-staff dining club at the UW-M recently was accorded to Academy member TED J. McLAUGHLIN, speech professor. The club has made capital improvements in what was the old Milwaukee Downer Seminary dining area, and is now a part of Garland Hall. ... The Fine Arts Quartet, an internationally-known chamber music group, will be affiliated with the UW-M during the 1962-63 academic year. The group will be appointed artists-in-residence in a further step to expand the music department's strings section. Last fall HARRY JOHN BROWN, conductor of the Milwaukee Symphony Orchestra, was employed to direct the student symphony. Appointment of the Quartet is keyed in with the opening of the new Fine Arts building which is expected to be ready some time this summer and where all the Quartet's concerts will be held. ... About half of the valuable library of the late EDWIN E. WITTE, UW Professor of Economics, totaling about 1,000 books, pamphlets and government publications, were added to the UW-M library recently. This generous gift was secured through the Friends of the UW-M Library of which Librarian DONALD WOODS is Secretary-Treasurer. ... (See page 74 also.)

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MARQUETTE UNIVERSITY (Miss Ann Grattan, Reporter Marquette News Bureau)

Financial support for a graduate training program and research in developmental biology has been granted the university by the National Institutes of Health. One provides $157,163 for research, and the other grant $54,000 to establish a training program for predoctoral and postdoctoral students. Both are for one year, with additional support recommended. The research grant is intended to raise the general level of teaching and research in biology. Four members of the biology faculty comprise the training grant staff: JOHN W. SAUNDERS,Jr., department chairman, and WILLIAM F. MILLINGTON, WALTER G. ROSEN and PETER ABRAMOFF. Three department members have been notified of grant renewals--$8,395 to ROSEN and $11,120 to JAMES C. PERRY from the United States public health service and $8,400 to REZNEAT M. DARNELL from the National Science Foundation. ... The "Marquette Plan" for an urban renewal to extend the university's downtown campus from its present 27 acres to an eventual 61.7 acres was presented to the Milwaukee Common Council recently. Its total estimated cost over a period of years was approximately $39 million. The student body now numbers around 12,000 but is expected to reach 18,500 in 10 to 15 years. The proposal was made by the school's new president, Father WILLIAM F. KELLEY, S.J.

* * * *

WISCONSIN STATE COLLEGES

The federal Community Facilities Administration recently approved a loan of $8.7 million for housing and dining structures at nine state colleges. This will take care of residence halls for 1,572 men and 1,070 women and increasing dining facilities for 970 more students. ... The Board of Regents have encouraged more research by faculty members and 19 research grants totaling $7,769 have been approved for the present fiscal year. ...

State College's recent expansion in the field of cultural activities for their local communities was favorably noted by the Milwaukee Journal in an "On, Wisconsin" column. ... HARRY F. BANGSBERG, Assistant Director of State Colleges, is chairman of a committee on inter-institution cooperation aimed at more efficient use of the available faculty personnel to take care of the increasing student demand. ... Of 1,136 persons (including 19 part-time teachers) now teaching within the Wisconsin State College system, 241 began work last September - a total of 21%. Tenure is secured when an instructor receives a contract for the fourth year and 482 (42%) have not secured tenure to date.

Colleges at Eau Claire, Oshkosh, and Stevens Point have received grants to sponsor special institutes this summer for high school history teachers. ... A survey of State College registrars on June 1 revealed that applications for admission from new freshmen exceeded last year's record figure by 1,039! ... The Pigeon Lake Camp near Drummond again will be busy this summer with a Field Biology Institute for 26 high school science teachers, a Science Seminar for Mass Communications Personnel and similar programs. .. A sample of June State College graduation classes include: Platteville, 288; Stevens Point, 200 (approx.), Eau Claire, 292 and Whitewater, 215. ... Director EUGENE McPHEE recently was honored by the Wisconsin State Journal in their "Know Your Madisonian" column series.

* * * *

UNIVERSITY OF WISCONSIN

Jack Burke
(UW News Service)

Professor FREDERIC G. CASSIDY (English) was awarded the Silver Musgrave Medal from the Institute of Jamaica for his "devoted study of the English language spoken in Jamaica." ... Professor KENNETH B. RAPER (bacteriology and botany) received the Botanical Society of America's Certificate of Merit. .. Professor REID A. BRYSON (meteorology) represented UW President CONRAD A. ELVEHJEM at ceremonies celebrating establishment of the National Center for Atmospheric Research at Boulder, Colo. ... Professor BRYSON also represented the National Academy of Sciences-National Research Council committee on geography at a Conference of Southeast Asian Geographers in Malaya last spring. He was named chairman of the paleo-climatology conference on climate of 11th and 16th centuries at the Institute for Humanistic Studies in Aspen, Colo. ... Professor WILLIAM HESSELTINE (history) was named to the distinguished William F. Vilas professorship. ... Professor S. A. WILDE (soils) is the author of "Forstliche Bodenkunde," a German adaptation of his forest soils test. ... Professor L. JOSEPH LINS, coordinator of Institutional Studies, was appointed acting registrar and director of admissions, replacing Professor PAUL L. TRUMP, who resigned to become president of the American College Testing Program, Iowa City. Professor LINS also was elected president of the newly organized National Institutional Research Forum. ... Dean LINDLEY J. STILES, school of education, co-authored "Secondary Education in the United States," published by Harcourt-Brace. ... President CONRAD A. ELVEHJEM was inducted as an honorary member of Alpha Kappa Psi, national professional business fraternity, by Alpha Mu chapter, UW, in joint meeting with UW-M and Marquette chapters. ... WILLIAM J. DRESCHER, chief of mid-continent area ground water branch, USGS, was named research engineer for a project on circulation of fluids in deep sedimentary basins. ... Professor ZBIGNIEW FOLEJEWSKI, chairman of Slavic languages, is doing research in Finland, Sweden and Slavic countries, on a Brittingham grant.

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THE BOOKSHELF

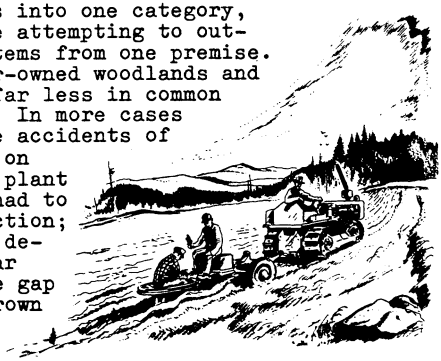
THE SMALL PRIVATE FOREST IN THE UNITED STATES
By Charles H. Stoddard

Resources for the Future
Washington, D. C.
1961 XII + 171 pp. $2.00

Although there is no reference in the text to suggest it, this study prepared by the author for Resources for the Future appears to parallel much of the information which confronted the U. S. Forest Service when, in 1958, it conducted a series of public hearings through the United States in reference to the grievances and the shortcomings of owners of relatively small tracts of forest land. In the opening chapter, relating to the significant and concurrent factors associated with small forests the author appears to have left not a log deck, a scale book, a charred windfall or a balance sheet unturned in catalouging and evaluating the factors which have made the lot of small woodland owners unenviable, or their future contributions to the nation's woodpile an unreliable quantity.

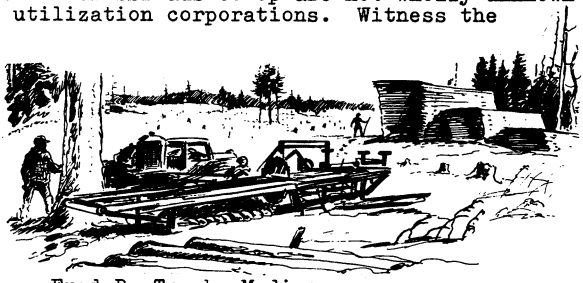
Public aids, as for example, shared costs under the farm programs of the U. S. Department of Agriculture, cooperative forest management assistance by state and national forestry services, and the Tennessee Valley Authority, are concisely and sympathetically reported. So are notable aids stemming from private industry, of which Wisconsin's Trees for Tomorrow, Inc. is an example. Organized group efforts by small associations made up of owners of limited tracts of forested land offer a cross-section of highly satisfactory results, and of discouraging failures. The European counterparts of these self-help programs are also explained, together with suggestions on how the best of them might be accepted in America as a reverse kind of "lend lease."

Unfortunately, the author has fallen into the all-too-common error of lumping small woodlands into one category, and from this point of departure attempting to outline a course of action which stems from one premise. The historic fact is that farmer-owned woodlands and non-farm small woodlands, have far less in common than statistics would indicate. In more cases than not, the farm woodlands are accidents of our homestead laws superimposed on highly irregular topography and plant associations. The homesteader had to take what was on the quarter-section; the speculation-minded buyer of detached tracts had (and has) a far wider choice. More recently the gap between these two classes has grown even wider: the farmer-owned forest must be, and is being,



more acutely scrutinized to produce interim and supplementary income, as single-crop farming runs into the inevitable cost-price squeeze, associated with farm produce in over-supply.

In fairness to the author it would be quite reasonable to assume that he carried out an assignment to the best of his considerable ability. Certainly many of his earlier writings give clear evidence of his recognition of the cleavage between these two groups of ownerships. He relates in some detail the ill day which befell a Wisconsin cooperative effort of small producers - at one time a thriving enterprise, with which the author was intimately acquainted, only to come to bankruptcy either through ignorance or avarice on the part of a key officer in the association. Policing, it would appear, is not something that concerns only dark alleys in metropolitan centers. But then again, the factors which make life miserable for a small crossroads co-op are not wholly unknown to our largest forest utilization corporations. Witness the recent press accounts which detailed the cross-suit of Diamond National Corporation, instituted to the tune of six figures, to bring to account a senior officer. The difference is that the big corporations can afford to go to court; the little fellows can't. ---Fred B. Trenk, Madison



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SIFTED WHEAT

St. Norbert Abbey Press
Box 192, De Pere, Wisconsin
$1.00

Attractive in format. An Ecclesiastically approved chronicle play in three acts. The author is the Reverend Anselm M. Keefe, O. Praem., Wisconsin Academy member. The backgrounds and studiously rendered characters - an extensive range of these - pertain to the suspense-laden first Good Friday. The reader-beholder is certain to be impressed. Not only the reverential and hence truly exalting spirit but also the scholarship and dramaturgy itself will seem quite memorable in this pageant that is conceived in the folk-theatre tradition. ---Associate Editor for Letters

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WISCONSIN LORE
By Robert E. Gard
and L. G. Sorden

Duell, Sloan and Pearce
New York, New York
$5.95

Here is a great harvest of ghost stories, Indian legends, circus yarns, lumberjack lore, home remedies, proverbs and homilies, and just "plain talk," in a collection of Wisconsin lore that has been hailed as "one of the largest and liveliest folklore collections in years." The authors, both on the faculty of the University of Wisconsin, have assembled--with the help of historical societies, research, letters from Wisconsinites, and their own memories--a veritable treasure trove of stories and myths from the Badger State. ---From Wisconsin Alumnus, June, 1962.

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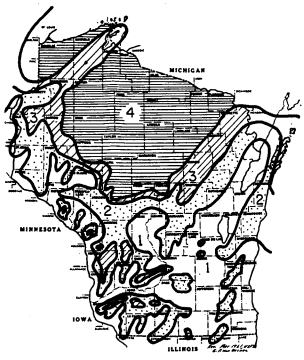
WHAT'S NEW IN FARM SCIENCE
77th Annual Report
U.W. Agr. Expt. Station

Bull. 553, Fall, 1961 (Part 2)
Research Report for year ending June 30, 1960. Free on request
103 pages; illustrated



This map shows Wisconsin blister rust zones. Areas one and two are relatively free of the disease.

The front cover of this publication carries a photo of Academy member JOHN T. MEDLER (entomologist) examing a bumblebee specimen. Reports briefed refer to the work of many other Academy members who are part of the Agricultural Experiment Station Staff under the leadership of Associate Director R. J. MUCKENHIRN. Contents include the entire field of agriculture with many special subjects as well in the conservation areas of soils, forestry and wildlife. The adjacent map was prepared by plant pathologists A. J. RIKER and E. P. VAN ARSDEL and was used in connection with the summary of their research in this publication.

--- W. E. Scott

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FIFTY YEARS OF COOPERATIVE EXTENSION IN WISCONSIN, 1912-1962
By E. R. McIntyre

Circular 602, UW Extension Serv.
College of Agriculture, Madison
Jan. 1962 286 pp. illustrated
Free on request

Academy member WALTER A. ROWLANDS was chairman of the Fiftieth Year Anniversary Committee which gave much special assistance in the preparation of this book along with several other members who helped in their particular fields. Associate Director of Extension HENRY L. AHLGREN refers to the people whose work is chronicled in this book when he says, "we are grateful for the strong foundations they have made..." The following brief review is quoted from the March 1962 Newsletter of The Wisconsin Council of Agriculture Co-operative: "One of the finest jobs ever accomplished in the way of writing the history of a great movement has been done by Elwood R. McIntyre, known to thousands of agricultural people as Wisconsin's dean of farm editors. His book, 'Fifty Years of Co-operative Extension in Wisconsin' presents broad vistas of extension action and brings out in a most realistic and interesting manner the diverse human contributions that made possible the noble work of agricultural extension in Wisconsin.

"E. R. McIntyre, the 'playwright' who wrote the history, was personally acquainted with most of the 'actors' on Wisconsin's agricultural extension stage. In his book Editor McIntyre goes far beyond merely recording names, dates and places. Truly, he has woven together a very truthful and factual evaluation of agricultural extension's great program of service in Wisconsin."

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WISCONSIN STUDIES IN CONTEMPORARY LITERATURE
Volume 3, Number 1 (Winter)

Published at Univ. of Wisconsin
3 issues in 1962; about 90¢ each
(Some Academy members on Staff)

This periodical continues the erudite and catholic critiques proffered in earlier issues. Perhaps, when he dodged behind the plea for time, and sheer time's pragmatic verdicts, Matthew Arnold a little bit betrayed himself and his (surely valid!) tests of truth and high seriousness. These Wisconsin studies do not so defeat themselves. Readers are given God's plenty in judgments. The tone ranges from the sardonic, the archly familiar--beatniks, bless us! are "beats"--all "phonies" (sic) are deplored ... and it extends, this adaptable tone, to the impressively esoteric: Larbaud, Snopesism, and implicate antithesis will shame the reader if he is not quite in the know.

Let's all subscribe! And learn! -- even from the indefatigable foot-notes and bibliographies --these from all tongues in the realms of universal scholarship. The "Retail Distributor" is B. de Boer (no pun) of 102 Beverley Road, Bloomfield, New Jersey. The price: inconsiderable. And back issues are available, if the admiring student will hurry ... hurry!

---Associate Editor for Letters

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'93 '41 Thunder Lake NARROW GAUGE
by HARVEY HUSTON

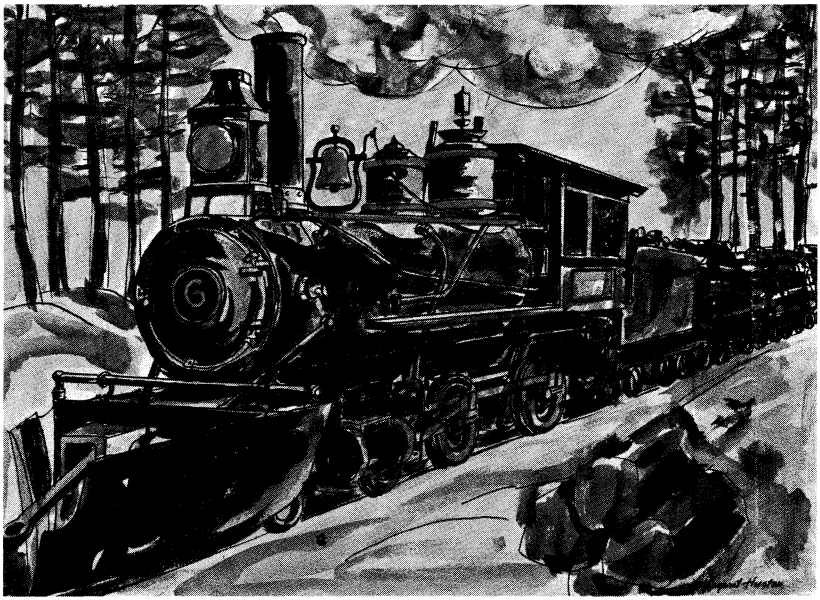
Published by the author and
for sale by him for $7.50 at
860 Mount Pleasant street,
Winnetka, Illinois 1961
145 pages and 145 photos

It is seldom these days that so fine a book is available at so reasonable a price. It is no wonder the State Historical Society of Wisconsin gave it their coveted "Award of Merit." This unusual historical book not only is filled with logging and railroading facts and lore, but also with the history of Forest, Oneida and Vilas Counties through which the narrow gauge threaded its course for almost 50 years.

For Attorney Harvey Huston the book was a labor of love--"the product of 18 years of daydreaming and one year of research." But it also was the result of exceptional team effort by many people, foremost of whom is the famous Lakeside Press of R. R. Donnelly & Sons Co. which designed and manufactured it. No less credit must go to John D. Mylrea of Wausau who contributed many of the excellent photographs and breathed life into an idea with his memories of the past. He is a former president of the Robbins Railroad Co. and of the Thunder Lake Lumber Company. A host of others also helped in this project.

Besides the 145 rare photos primarily of logging and railroading operations, there also is a detailed map and a roster of locomotives. The Robbins Railroad of northeastern Wisconsin was the Middle West's last narrow gauge common carrier. It was tied in closely with the private narrow gauge logging lines operated by the Thunder Lake Lumber Co. and its predecessors. The area it served included the towns of Eagle River, Rhinelander, Robbins (now "Sugar Camp"), Phelps and Three Lakes. Its years of service ended in April, 1941. During the 48 years of its existence, it hauled logs, piling, pulpwood, potatoes, lumberjacks and people seeking outdoor recreation--fishermen, hunters, picnickers and landlookers.

Each of the twelve chapters are written in an interesting style which moves rapidly and makes its points clearly. They in-



clude: before the narrow gauge came; historical sketch 1893-1919; historical sketch 1919-1941; the end of the line; people, railroad operations; woods operations; line and track; financial notes; winter, wind and trespassers; recreation; and equipment. A bibliography contains 21 references.

Here is a book that is a collector's item. Be sure to have the author autograph your copy! ---W. E. Scott

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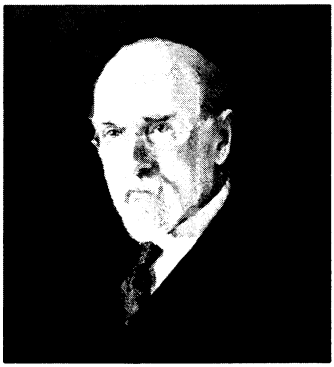
CHARLES RICHARD VAN HISE
SCIENTIST PROGRESSIVE
By Maurice M. Vance

State Historical Society of Wis.
Madison 6, Wis. -- 1960
246 pages; illustrated $6.00
Extensive bibliography

The little village of Fulton in Rock County was the birthplace of Charles Richard Van Hise who later served as president of the University of Wisconsin for 15 years (1903-1918) and also was president of the Wisconsin Academy in the 1894-96 period. He was an eminent geologist, conservationist and educator and is credited with being the father of the "Wisconsin Idea." Not only did he promote progressive educational and legislative recommendations, but he urged "that the beneficent influences of the university are made available to every home in the state."



This book tells the story of Van Hise's relationship to Robert LaFollette, Theodore Roosevelt and Woodrow Wilson. It also explains the background to many of the early struggles which later resulted in

formation of such agencies as the State Geological and Natural History Survey, Forestry Board and Conservation Commission--all of which received much of his able efforts as a chairman and member. His active participation in the Wisconsin Academy in other positions besides the presidency is evident throughout the text as also is his cooperation with such academic leaders as Babcock, Chamberlain, Henry and Russell.

With publication of his book, "The Conservation of Natural Resources in the United States" in 1910, Van Hise established himself as a pioneer in the new conservation movement. Also in this period he played a major role in development of the University Extension program. This is both an interesting and a scholarly biography. Its reference sources alone--in extensive notes to the text and bibliography--are a gold mine of information in the broad range of life characteristic of President Charles R. Van Hise.

---W. E. Scott

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MISCELLANEOUS BOOKS AND BOOKLETS

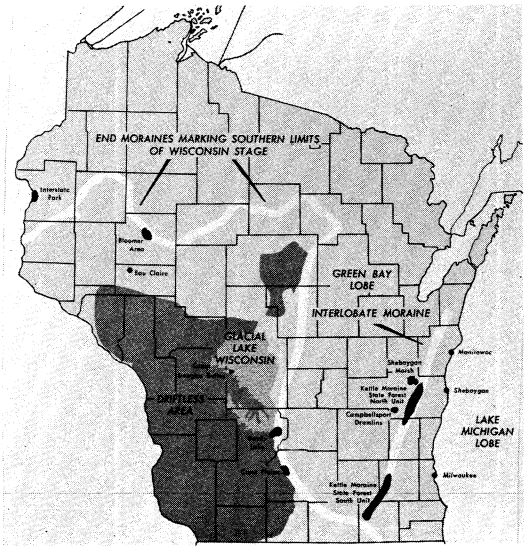
THREE NEW PERIODICALS are being edited by Wisconsin Academy members: The Wisconsin Sociologist (New Series) with Vol. I, No. 1 for Spring, 1962 edited by Hugo O. Engelmann (UW-M) for the Wisconsin Sociological Assn.; The Drumlin (annually) with Vol. I, No. 1 for Jan. 1962 by Prof. Benjamin Richason, Geog. Dept., Carroll College; and The Wisconsin Waltonian (quarterly) official publication Wis. Div. I.W.L.A., Vol. I, No. 1, Feb. 1961 by Joe Mills of Ripon.

The following recent publications are FREE from sources indicated (see previous issues for addresses). An asterisk (*) indicates author is an Academy member. From Wisconsin Conservation Dept.: new leaflets on Black River State Forest and State Roadside Parks; "Green County Wetlands;" "The Lake Trout - Its Life History, Ecology, and Management" by Russell Daly, Vernon A. Hacker and Lawrence Wiegert; Surface Water Resources of Dunn County (also of Polk Co.), by LaVerne M. Sather* and C. W. Threinen*; "Ability of Anglers to Identify Species of Trout" by Ray J.White*; "Sucker Removal Operations and Observations on Trout Movement Through a Two-Way Weir in the Brule River, Douglas County" by Howard J. Fallis and Wallace E. Niemuth; "The Evaluation of the Boom Shocker in the Study of the Fish Population of Big Sand Lake, Sawyer County" by W. Niemuth and John Klingbiel; "Wisconsin Boat Safety and Activity Report--1961;" "Recommendations for Weed Control in Forest Plantations for the 1962 Growing Season;" Forest Pest Leaflet No. 3, "Stem Cankers of Northern Hardwoods" by David R. Houston; "Basal Area and Point-Sampling" (Forestry), Tech.Bull. No. 23 by H. J. Hovind and C. E. Reick; "Lincoln County Recreation Survey;" "A Land Use Plan for Washburn County Forest Crop Land" (Birchwood Recreation Area); "Forest Fire Problems-the Lake States Picture;" Annual Forest Fire Reports for 1960 and 1961; Inventory of Forest Resources--Chippewa County Forest and "Secondary Wood-Using Industries of Wisconsin."

From Dept. of Resource Development: "Economic Profiles" for Clark, Forest, Florence, La Crosse, Langlade, Lincoln and Racine Counties and "Preliminary Overall Economic Development Program for Northeastern Wisconsin Redevelopment Area;" and "Wisconsin Forest Products Marketing Bulletin" for Oct. 1, 1961 (No. 8). From State Highway Commission (USGS Cooperating): "Floods in Wisconsin--Magnitude and Frequency" by D. W. Ericson and 23rd Biennial Review (1959-60), "Wisconsin Highways." From State Aeronautics Commission: Teacher's Planning Guide, "An Aerial Field Trip." From Governor's Comm. on Human Rights: "The Migrant Labor Problem in

Wisconsin" by Elizabeth Brandeis Raushenbush and "Education on the Move" (Migrant Children in Manitowoc Co.); from U.W. Extension Division: "Education for Continuing Change."

From U.W. College of Agriculture: "Fight Dutch Elm Disease" by E. K. Wade and "The Phyto-Climate of Wisconsin-Moisture: Normals and Hazards - Part A. Rainfall" by Jen Yu Wang*; "Mass Media and the Wisconsin Farm Family" by Lloyd R. Bostian and John E. Ross; and "Enterprise Changes on Part-Time Farms in Northern Wisconsin" by Diedrich Dyck, J. R. Schmidt and S. D. Staniforth; and "The Changing Age Structure of Wisconsin's Population" by Glenn V. Fuguitt, Douglas G. Marshall* and Constance Stouse, No. 3 of Population Series from Dept. of Rural Sociology. From U.W. Bureau of Government: "The Town in Wisconsin" by Ruth Baumann. From Legislative Reference Library (State Capitol) Brief No. 82: "The Story of Wisconsin in Capsule Form." From Coordinating Committee for Higher Education in Wisconsin: Semi-annual report (Dec.31,1961), "A Statistical Portrait of the Wisconsin College Student;" CCHE Paper #4, "A Study of the County Teachers Colleges in Wisconsin;" CCHE # 20, "Physical Facilities Survey and Utilization Study--Wisconsin State Colleges and University of Wisconsin" and CCHE # 23, "Projection of Enrollments." From Vilas County: "Vilas County Resource and Conservation Needs" (similar reports available from most County Agents). In Dane County a more complete report was issued entitled: "Blueprint for Growth." From State Geologist (Science Hall, Madison): "Lightweight Aggregates: Expansion Properties of Clays, Shales, and Precambrian Rocks of Wisconsin" by W. A. Cole, G. F. Hanson* and W. T. Westbrook.



From U.S. Army Corps of Engineers (N.C.Div., Chicago): "Water Resources Development in Wisconsin." From Regional Office, U.S. Forest Service (Milwaukee): "Forestry's Place in Conservation Department Programs." From U.S. Dept. Interior (Wash.,D.C.): "Ice Age National Scientific Reserve - A Proposal for Cooperative Conservation" (See adjacent map). From International Joint Commission (Wash., D.C.): "Safeguarding Boundary Water Quality." From Great Lakes Fishery Commission (Ann Arbor, U.Mich.): "Annual Report for the Year 1960." From Lake States Forest Exp.Sta.: "Proceedings of the Fifth Lake States Forest Tree Improvement Conference."

From private or organizational sources (usually free on request): "Land Planning Principles for Land Use in Wisconsin" (Wis. Chapt.Soil Cons.Soc.of America - Cyril Kabat; Comm. Chm.) "Busy Acres in Wisconsin" (Wis. Forest Industries, 408 Bellin Bldg. Green Bay). "Studies on the Productivity and Plankton of Lake Superior" (School of Public Health, U.Minn.) "Ditches, Dust and

Figure 6.—Legend for general soil map.

1. Gently sloping to steep, silty soils on uplands: Fayette, Dubuque.
2. Nearly level, sandy soils on terraces: Dakota, Sparta.
3. Silty soils on terraces: Tell, Richwood.
4. Silty soils on bottom lands: Arenzville, Orion, Chaseburg.
5. Wet, sandy soils on bottom lands: Alluvial land.

Ducks" by R. G. Lynch* (Wetlands for Wildlife, Inc., P.O.Box 1365, Milwaukee - reprint from Milw. Journal). "Making the First Impression - Last" from Connor Lumber and Land Co., P.O.Box 810, Wausau - 90 Year history). From Tall Timbers Research Station, Tallahassee, Fla. "Bird Casualties at a Leon County, Florida TV Tower, 1955-1961" by Herbert L. Stoddard,Sr.* (Research Bull.#1) and "Tall Timbers Research Station Fire Ecology Plots" (Res.Bull.# 2).

AVAILABLE FOR A PRICE - From Supt. of Documents, Washington 25, D.C.: Detailed large "Soil Survey" books with extensive large scale maps of Buffalo, Crawford and Grant Counties (see adjacent generalized map of soil types). "Geology of the Montfort and Linden Quandrangles - Wisconsin" (Zinc-Lead District, Geol.Surv.Bull. 1123-B) by John E. Carlson at 70¢. "Geology and Ground Water Resources of Fond du Lac County, Wisconsin" by Thomas G. Newport (Geol. Survey Water-Supply Paper 1604 - $1.00). "The Mineral Industry of Wisconsin" by Samuel A. Gustavson (Reprint from 1960 Bureau of Mines Yearbook, 10¢). "Active Retirement in Door County" by Lyala Wallis Lind, 1342 Superior st., Sturgeon Bay (Historical etc.) and "Guide to Fun in Wonderful Wisconsin"from Miller High Life or ($3.00 Clarkson Map Co.,Kaukauna) being a book of county maps showing various recreational facilities.

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ACKNOWLEDGMENTS not otherwise mentioned are as follows:
Photos: Wisconsin Conservation Dept., pp. 53, 54, 56; U. S. Soil Conservation Service (also map), pp. 59 (by E. W. Cole) and 61; UW-Milwaukee News Service, pp. 74 and 79 (Throne); U.W. Photo Lab pp. 79, 77 and 83 (Schuette), the latter two by Gary Schulz; La Crosse Tribune (by Harry Larsson), p. 80; Wisconsin State College-La Crosse News Service, pp. 81 and 82; Univ. Wis. "History Digest" (Land Grant Centennial Publication 1962), p. 91; Kenneth M. Wright Studios (St. Paul), p. 95.
Sketches: Yearbook of Agriculture on Water (1955), pp. 63, 64, 65 (muskrat), 66, 68 and 69; Wis. Cons. Dept., p. 65 (walleye by Charles Schwartz); original Lakeland College building from Centennial program, p. 84; Byron C. Jorns drawings on pp. 87 and 88 from "Farms or Forests" and "Selecting, Seasoning, Using Homegrown Lumber" respectively (UW College Agr.) and p. 91 from the jacket of "Thunder Lake Narrow Gauge."

* * * *

In Memoriam

Edwin Weyerhaeuser Davis

1895-1962

EDWIN WEYERHAEUSER DAVIS was born in Rock Island, Illinois on June 16, 1895 and died at Saint Paul, Minnesota on February 13, 1962. After graduating from the Hill school of Pottstown, Pennsylvania in 1914, he received his A. B. from Yale University in 1918. In World War I he served as a First Lieutenant in the Artillery, and attended the Harvard School of Business after the War. He had some experience around western sawmills as a young man and in 1921 became general manager of the Wood Conversion Company of Saint Paul. He was the company's first employee and the history of the company is largely the story of Mr. Davis' life. Appointed a director in 1927, he was elected executive vice-president in 1944 and in 1947 assumed the presidency. When he retired in 1960 he was elected chairman of the board.

At the time of his death, Mr. Davis also served as president and chairman of the board of Potlatch Forests, Inc., a forestry products firm in Lewiston, Idaho. He was also on the board of directors of the First National Bank of Saint Paul, the Saint Paul Fire and Marine Insurance Company, Rock Island Lumber Company, Rock Island Millwork, and Northwest Paper Company. He had been a Life member of the Wisconsin Academy since 1945.

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Walter Oscar Gloyer 1886-1960

WALTER OSCAR GLOYER was born in Milwaukee on January 29, 1886 and died at Geneva, New York on September 28, 1960. He received his B.A. and M.A. degrees from the University of Wisconsin and in 1912 went to New York as a member of the Department of Botany of Cornell University. Later this became the Department of Plant Pathology at the New York State Agricultural Experiment Station at Geneva and he continued his work there until retirement as Associate Professor in May 1946. About a month later he was made Professor Emeritus.

He was one of a group of pioneers in research in botany and plant pathology as related to agriculture. In his early years his work dealt chiefly with apple diseases and their control and seed potato treatment as well as cabbage seedbed diseases. Later Professor Gloyer turned to the study of cherry and prune

diseases and the development of improved varieties of kidney beans. An exhibit in the Station museum depicts some of the findings in his bean breeding project, as well as other phases of his research on cabbage and aster diseases. Toward the close of his professional career he devoted much time to the investigation of cabbage yellows and particularly to the development of yellows-resistant varieties of cabbage.

Professor Gloyer published the findings in his wide range of research projects in Experiment Station bulletins and scientific journals. His experience and practical approach to control practices proved of immense value to New York farmers in the control of plant diseases with consequent improvement in the yield and quality of many agricultural products in the state. He had joined the Wisconsin Academy in 1908 while still an undergraduate at the University and became a Life member in 1950.

* * * *

JOHN CURTIS MEMORIAL

Former students and friends of the late John Curtis, widely known for his plant ecology research and teaching, are solicing funds for his memorial. (An In Memoriam statement about Professor Curtis was carried in the Fall 1961 Wisconsin Academy Review.) Although he performed most of his actual plant ecology studies in Wisconsin, methods and practices evolving from his concepts are used widely by anyone working with plants. He climaxed his series of contributions with his book "The Vegetation of Wisconsin," published in 1960. (See Winter 1960 Review.)

Wildlife biologists are particularly indebted to him for his emphasis on the importance of wildlife in developing methods of plant sampling and ecological concepts that could be used for managing this resource. In addition to contributions resulting from his personal research and that of his students, he gave unstintingly of his time as a consultant in the field in which he excelled.

Funds are needed in part for small expenditures incident to commemorating a part of the University of Wisconsin Arboretum in which Professor Curtis did some of his work and for the continuity of such efforts in the future. Correspondence and contributions should be sent to Friends of the Arboretum, Botany Department, University of Wisconsin, Madison 6.

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(Continued on inside back cover)

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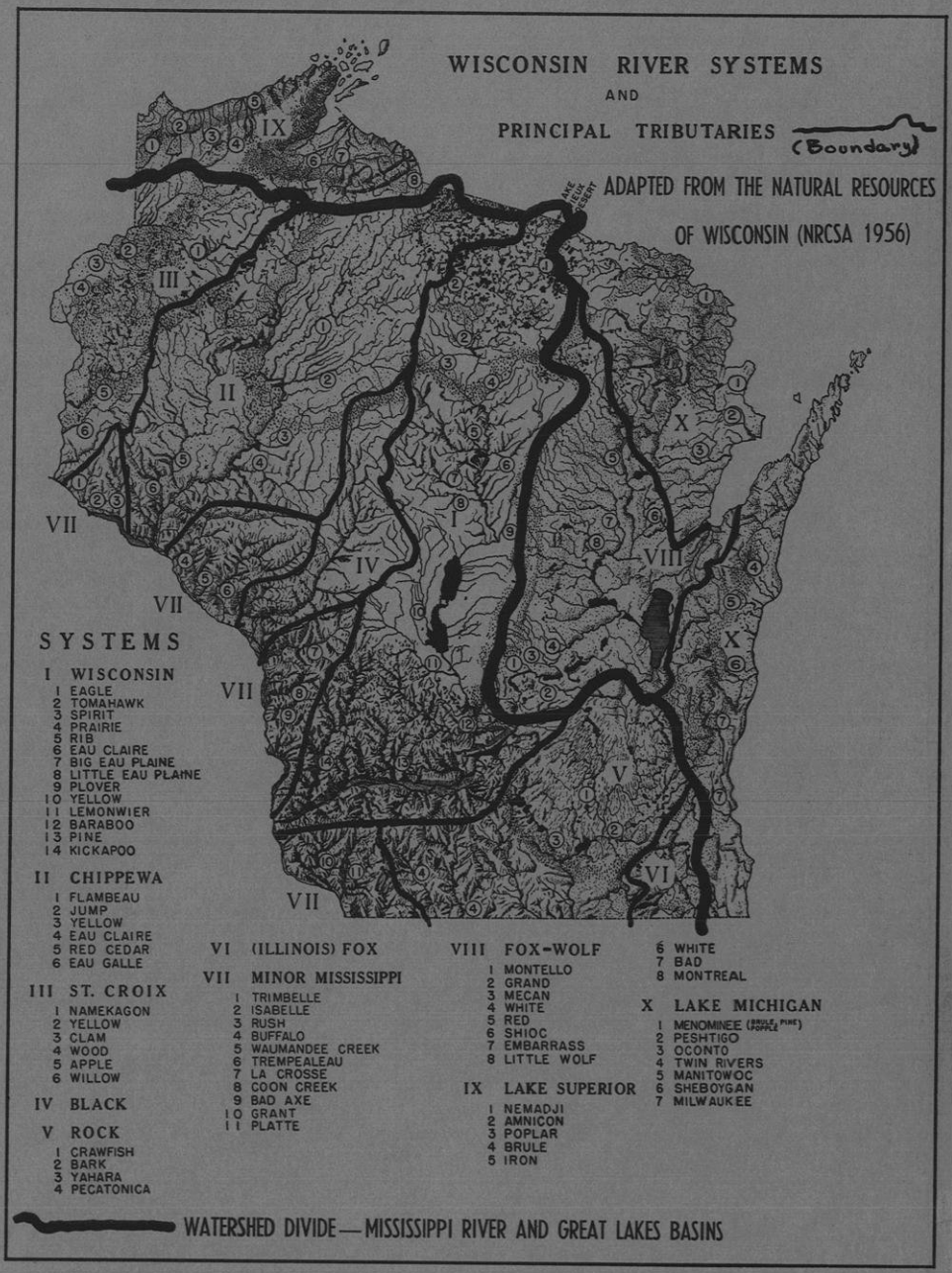
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4 PRAIRIE
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8 LITTLE EAU PLAINE
9 PLOVER
10 YELLOW
11 LEMONWIER
12 BARABOO
13 PINE
14 KICKAPOO
II CHIPPEWA
1 FLAMBEAU
2 JUMP
3 YELLOW
4 EAU CLAIRE
5 RED CEDAR
6 EAU GALLE
III ST. CROIX
1 NAMEKAGON
2 YELLOW
3 CLAM
4 WOOD
5 APPLE
6 WILLOW
IV BLACK
V ROCK
1 CRAWFISH
2 BARK
3 YAHARA
4 PECATONICA
VI (ILLINOIS) FOX
VII MINOR MISSISSIPPI
1 TRIMBELLE
2 ISABELLE
3 RUSH
4 BUFFALO
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6 TREMPEALEAU
7 LA CROSSE
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11 PLATTE
VIII FOX-WOLF
1 MONTELLO
2 GRAND
3 MECAN
4 WHITE
5 RED
6 SHIOC
7 EMBARRASS
8 LITTLE WOLF
IX LAKE SUPERIOR
1 NEMADJI
2 AMNICON
3 POPLAR
4 BRULE
5 IRON
6 WHITE
7 BAD
8 MONTREAL
X LAKE MICHIGAN
1 MENOMINEE (BRULE, POPLE, PINE)
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