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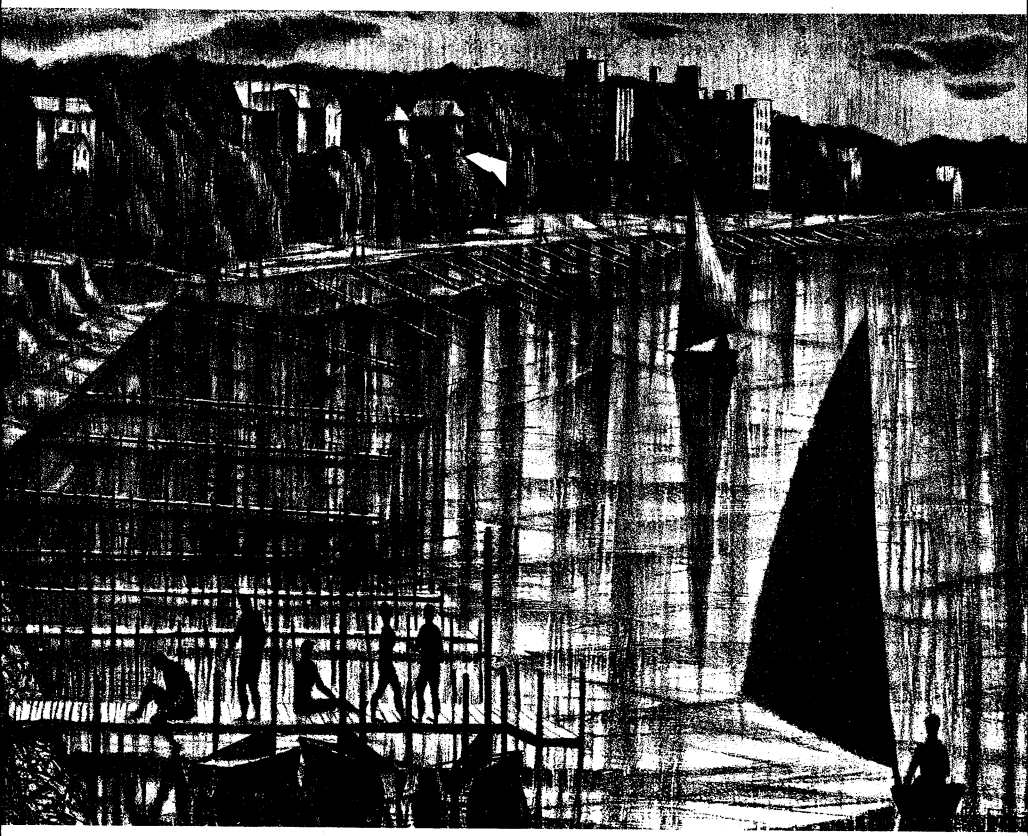
WISCONSIN ACADEMY REVIEW



THE WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS
PUBLISHED QUARTERLY
WINTER, 1960

WISCONSIN ACADEMY REVIEW

Vol. 7 Winter, 1960 No. 1

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ATTEND 90th ANNIVERSARY MEETING AT MADISON
FEATURING SYMPOSIUM ON WISCONSIN LAKES
May 6-8, 1960

WISCONSIN ACADEMY REVIEW

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LAKE MENDOTA AND THE SCIENCE OF LIMNOLOGY

By Ross M. Horrall and Donald C. McNaught
Hydrobiology Laboratory, Univ. of Wisconsin

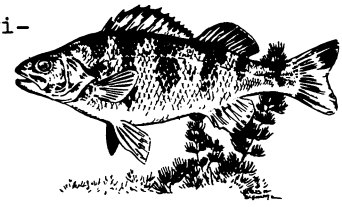
To the Winnebago peoples, Mendota was "Wonk-shek-ho-mik-la" or the lake "where the man lies." Mendota, in the Sioux language, meant "The mouth of the river." Changing times have seen the disappearance of the "fish eaters" from her shores; the dome-shaped wigwams of the Winnebago have given way to the beautiful city of Madison. Only 65 years ago Mendota began to reveal her complex personality to the first of her limnologists, E. A. Birge. At a dinner given in honor of his 89th birthday in 1940, he spoke of her in the following manner:

> "The abundant life of Mendota and the gentle slopes of her underwater basin make her an extreme case among the lakes of southern Wisconsin; so for me it was a fortunate chance that put our University on her shores."

And it was indeed fortunate for limnology that such a productive trio: Lake Mendota, the University of Wisconsin and Professor E. A. Birge, cooperated together in working out many of the basic mysteries of the science of limnology--that portion of human endeavor which studies freshwater.

Starting in the last decade of the 19th century, when Prof. Birge began his work on the plankton crustacea, and continuing with the fruitful cooperation of Chancey Juday, and with the interaction of several departments on the campus, Lake Mendota has been giving her secrets to science.

Birge was fascinated by the lives of Mendota's varied inhabitants and their relations to each other. Mendota exposed herself during the summer months as two separate lakes: the upper layer of the lake, warm and well mixed, with its abundant plant and animal life; the lower layer of the lake dark, cold, almost stagnant and practically without living organisms. Other facets of her complexity became evident to Birge and Juday. They found that the lake "respires," that is, there is an exchange of gases back and forth from air and water, especially of life-giving oxygen. During the summer, the oxygen was found to be used up in



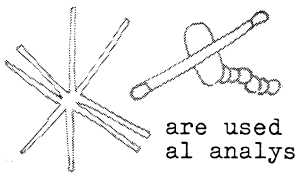
YELLOW PERCH

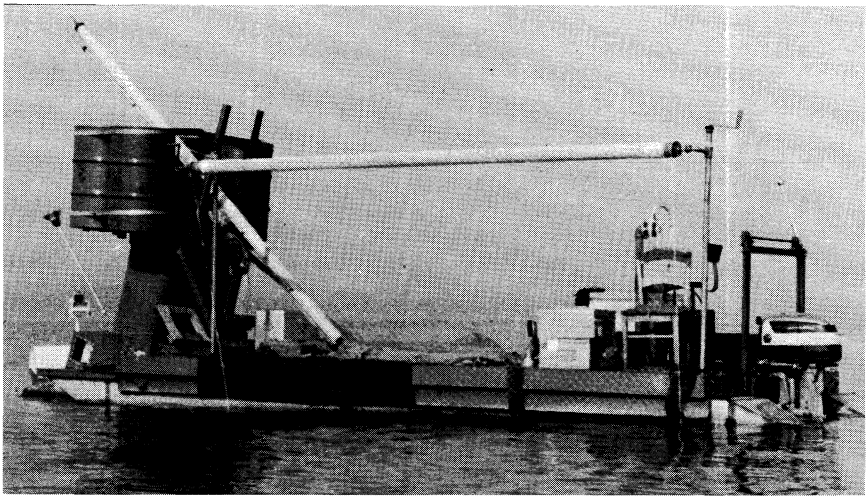
the lower portion of the lake. This lack of oxygen excludes most organisms from living there. Each spring and autumn when the lake "turns over," or becomes freely mixed, and the two lakes become one, the concentrations of gases again are equal. The nutrients that have collected in the bottom waters are again made available to support the teeming multitudes of minute organisms of the upper lake. The waters of Mendota are fertile enough to have a production of plant and animal material which approaches that of good farm land.

Birge described the yearly cycle of temperature changes by noting that "The annual income and outgo of heat of the whole lake is equal to that which would be supplied by burning 1,350,000 tons of anthracite coal." Only a small amount of the sun's energy falling on the lake is used, under the mixing action of the wind, to warm the lake; and a very much smaller portion of the sun's energy is used in photosynthesis by the microscopic plants --the algae or phytoplankton, and the larger aquatic plants along the shores. The physical characteristics of water, along with the plants and animals living in the lake, limit the penetration of light into the water. Less than one percent of the light that falls upon the surface is present at a depth of 20 feet during the summer.

And so Mendota gave to her early investigators an idea of her inhabitants, from the bacteria to the largest fish. Numerous aspects of the chemical, physical, and biological relationships within the lake were studied. Many people were involved with this research, and interest was active in several departments on the campus; however it was mainly under the inspiration and leadership of Birge and Juday that the work was carried out.

Although Birge and Juday formulated and worked out most of their basic contributions to limnology while studying Mendota, there was a switch of emphasis to the survey of many widely scattered lakes. It has been only within the last decade and a half that intensive studies have been resumed on Lake Mendota. Under the leadership, especially of Arthur D. Hasler and John C. Neess of the Department of Zoology, John T. Curtis of the Botany Department, and Reid A. Bryson, Department of Meteorology, to mention only a few, many aspects of the lake are now being studied. The "modern" period of study of Mendota's limnology includes items that were previously pursued by Birge, Juday, and others, but that are now investigated using modern methods and equipment. Frequently different approaches are used and considerations, such as statistical analysis, are applied. Such studies include





Roccus I, the underwater observation chamber, designed by Prof. Donald Livermore of the Mechanical Engineering Dept. at the UW, which has been in use for almost two years in the study of Lake Mendota.

- -

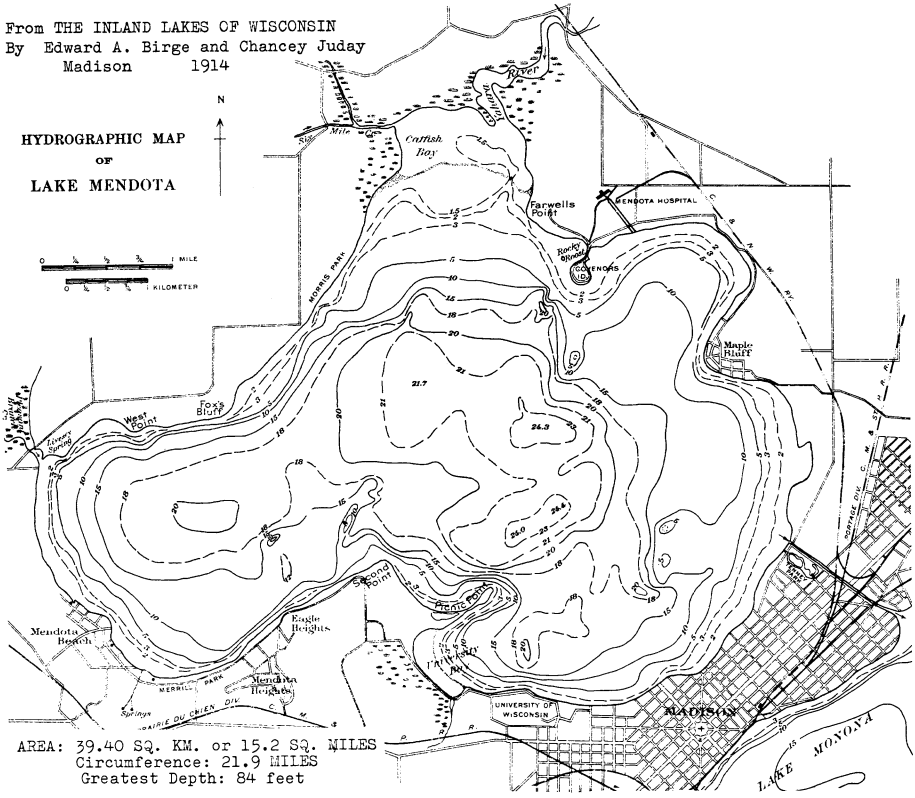
research on the ecology of plant and animal plankton, bottom organisms, rooted aquatic plants, cycles of nutrients, and light and temperature measurements. New emphasis has been placed on the understanding of the fish life of the lake. Why do the numbers of fish fluctuate from year to year? Where do the fish spend their time, and where, and on what do they feed? To where and why do fish move and make migrations? These are only a few of the questions to be answered.

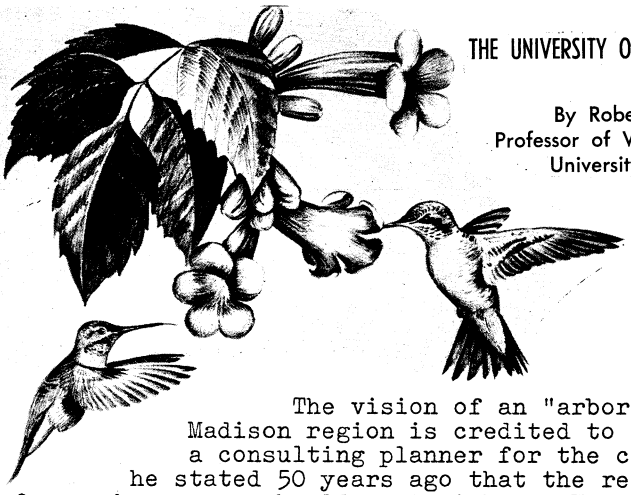
As one by one Mendota's secrets become solved, more and more questions arise. Frequently there is an increased complexity to the problem, with the need of new approaches, ideas, instruments and methods. Modern instrumentation, such as electric eyes, echo-sounders, aqualungs, underwater observation chambers and television, have allowed the examination of aquatic life hitherto impossible. Such physical characteristics as currents, seiches, temperature patterns, and heat cycles are now studied by the use of modern electronic devices and recorders. The list could go on, but one can see that the diversity of scientific problems that Mendota has to offer is immense.

Today, after some 65 years of research, Lake Mendota, continuing its rich tradition of limnology, can be justly

proud of being one of the most studied lakes in the world. And yet it still holds a vast amount of the unknown, and will continue to serve as a valuable natural laboratory for many years to come. Scientists from all over the world have come to use and re-examine this lake with its rich storehouse of opportunities and knowledge. The continuing and growing interest in limnology at the University of Wisconsin has necessitated the need for expansion of facilities. It is envisioned that in the near future a new hydrobiological laboratory will be built on the shores of Lake Mendota, and that Wisconsin and Lake Mendota will continue to play an important role in the evolution of the Science of Limnology.

# # #





THE UNIVERSITY OF WISCONSIN ARBORETUM

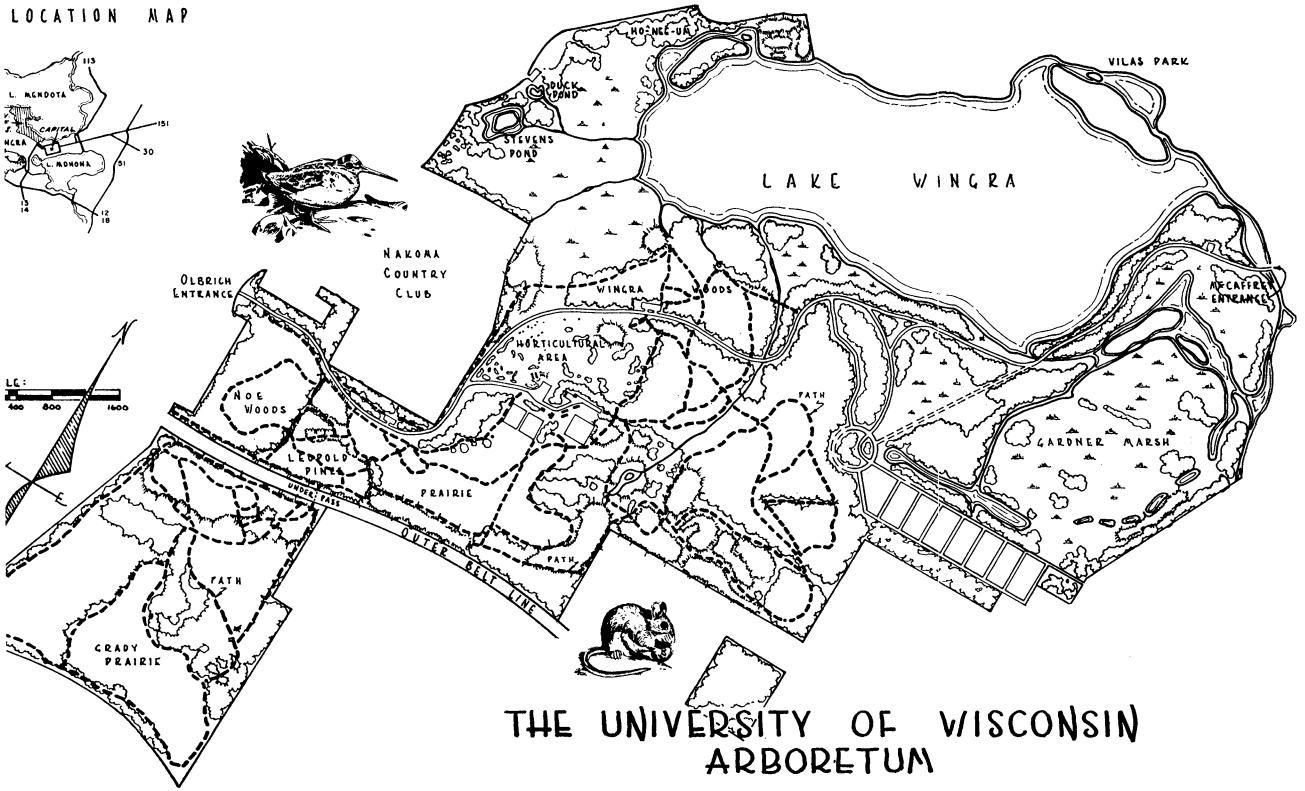
By Robert A. McCabe
Professor of Wildlife Management
University of Wisconsin

The vision of an "arboretum" for the Madison region is credited to John Nolen. As a consulting planner for the city of Madison, he stated 50 years ago that the responsibility for such an area should rest with the University of Wisconsin. He even went so far as to suggest the south side of Lake Wingra as the site and indicated that the size be about 1,000 acres. The present arboretum is eloquent testimony to the astuteness of Mr. Nolen's recommendation.

This idea for an arboretum lay dormant until 1925 when Michael Olbrich, Madison attorney, conservationist and University regent, proposed to his fellow regents that the University establish an "arboretum and wildlife refuge" as a conservation laboratory. The proposal was accepted. Since 1927, when the first moneys were made available, some 1200 acres have been purchased, many through private contributions. The land obtained was that which John Nolen had suggested. In the early action by the University regents, the site was referred to as the "University of Wisconsin Arboretum, Wildlife Refuge and Forest Preserve." Strictly speaking, it is none of these. Despite the fact that the area is today referred to as the "Arboretum," its function and use exceeds that accorded to most arboreta.

Physically, the 1200 acres include marsh, forest, prairie, and bog. This is a considerable variety of soil types and soil moisture conditions. In some areas the soil is sandy and in others it grades from moist peat to dry loams. One main road runs through the Arboretum, but a number of trails and fire lanes give ready access to virtually all its parts.

Today it may be said that the primary objective of the Arboretum is to develop plant communities ecologically as the salient part of the outdoor laboratory and classroom. This objective includes not only the native

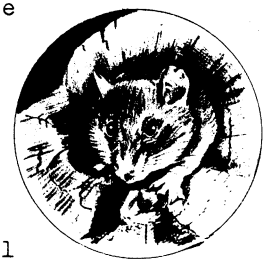

LOCATION MAP
L. MENDOTA
CAPITOL
MCRA
L. MONONA
113
151
30
51
12
14
18
HO-NEE-KA
DUCK POND
STEVENS POND
LAKE WINGRA
VILAS PARK
NAKOMA COUNTRY CLUB
OLBRICH ENTRANCE
WINGRA WOODS
MCCAFFREY ENTRANCE
HORTICULTURAL AREA
PATH
NOE WOODS
LEOPOLD PINES
PRAIRIE
GARDNER MARSH
UNDER PASS
OUTER BELT LINE
PATH
PATH
CRADY PRAIRIE
THE UNIVERSITY OF WISCONSIN
ARBORETUM

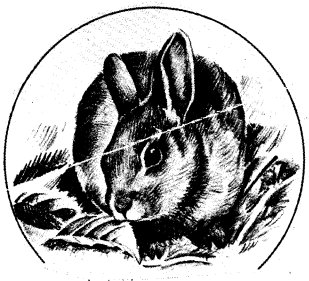
Wisconsin plant communities, but all plant communities found adjacent to prairie-forest border from Missouri to Canada. Thus we may find white spruce - balsam fir, black spruce - tamarack, white, red and jack pine, sugar maple - basswood, white and black oak, willow - cottonwood and elm - ash forest types being planted and maintained to produce synthetically the tree communities requisite to a well-equipped outdoor laboratory and classroom. Included also are other plant groupings such as prairies, conifer swamp, fens and bogs, plus several types of aquatic plant communities.

In addition to plant communities a number of display areas have been planted to collections of desirable woody plants used in landscaping. The lilac gardens are well known and attract numerous visitors each spring.

The interspersion of cover created by the many plant communities has made ideal habitat for wild animals. Over 175 species of birds have been found on the Arboretum, and at least 95 of these are known to breed there. Special studies have been conducted on pheasants, waterfowl, wrens, bluebirds, tree swallows, goldfinches, grackles, catbirds, robins, blackbirds, and woodcock. Twenty species of mammals are resident and are found in sufficient numbers to be used for field studies. Among those investigated are the mice and shrews, mink, cottontail rabbit, muskrat, and the tree squirrels. In addition, Lake Wingra and the specially created ponds have been used for many studies on various fish and other limnological problems. Animals are found in abundance, but few, if any solely as the result of these synthetic plant communities. There have been no planned introductions of animals typical of these communities, nor have any been established naturally.

This outdoor laboratory has been used by many University departments such as Soils, Plant Pathology, Entomology, Physics, and Horticulture, along with Botany, Zoology, and Forestry and Wildlife Management. The public is welcome to visit the Arboretum and to enjoy the beauty along its many scenic trails or to inspect the research areas. No attempt is made to vie with the city park system for patronage as there are no picnic or camping areas and no facilities for sports or games. Its aggregate qualities make the Arboretum unique, as it is large, contains many plant and soil types, has a diverse fauna, is close to the University campus, enjoys both University and civic support, has a balanced program for its use, and above all is a splendid land laboratory and classroom.





A committee of faculty members from several fields, responsible to the president, administer the Arboretum. This committee guides the maintenance of the physical plant which in turn is responsible for implementing the master plan of plant community development. Coordinating the needs of the various research programs is also a function of this committee. The uses to which the Arboretum has been put since 1927 can more than justify the cost and labor that made it a functioning appendage of the University and a place of retreat for all who enter to enjoy the natural beauty of the outdoors.

In a world attempting with intrigue and violence, on one hand, to equate standards of living, and on the other to allow individuals and groups to rise above the average, the orderliness of nature close at hand may give meaning to action and wisdom to judgment. The recreation that nature gives recognizes no social, racial or financial hierarchies, nor does nature place a common denominator on the depth of enjoyment that can be derived from it.

The value of the Arboretum as a laboratory-classroom is well known. Its proximity to a physically and mentally busy populace will in time make its refreshing "solitude" its greatest asset.

The nurse of full-grown souls
is solitude.--James Russell Lowell.

# # #

"Wisconsin farmers set a new record for the development of farm conservation plans in 1959," according to M. F. SCHWEERS, State Conservationist for the U.S. Soil Conservation Service. "Plans were developed on 2,313 farms in 1959 as compared with 1,921 in 1958 and 1,740 in 1957. A farm conservation plan is a blueprint for a farm. It indicates the proper use of each acre, and the conservation practices which will be applied to prevent excessive soil and water loss. More than 41,800 acres of contour strip cropping were established in 1959, and almost 30,000 acres of pasture were renovated. Trees were planted on 15,490 acres and farmers agreed to protect 27,147 acres of woodland. Wildlife habitat was benefited by the construction of 314 farm ponds, the planting of almost 26,600 rods of hedgerow cover, and the protection of 2,882 acres of wildlife area." Academy Member SCHWEERS pointed out that primary credit for these and other fine conservation accomplishments belongs to the people who own and operate the land. "It is only through their interest and desire that we are able to serve them."

EDUCATIONAL TELEVISION: A RECONSIDERATION

By Robert N. Dick
University of Wisconsin, Madison

(A recognized authority on educational broadcasting responds, in the following shrewd re-assessment, to a special request for his essential views. The topic is of course most timely; it should indeed be most constructive.)

Thinking back upon the broadcasters and others who some years ago acclaimed television as an educational panacea, the somewhat disillusioned worker in the field wonders why they assumed such all-out zealotry. Television limits a person to the use of but two of his learning senses, sound and sight; and even the latter usually is handicapped by color blindness. With television, one cannot touch or taste or smell. He cannot examine at his leisure but must move at the pace another, perhaps wrongly inspired or alien intelligence chooses for him.

Home viewers have additional barriers to systematic learning through television. There are social and cultural conflicts, telephone and personal interruptions, and sometimes mechanical failures.

Against these shortcomings it is necessary to balance television's irrefutable power to focus attention, to bring everyone "close up," to take people safely to dangerous or far-away places, to demonstrate, and to personalize. These naturally are potentials of inestimable importance.

To date, more than a hundred progressive institutions have attempted at least one systematic program series or telecourse. Study after study has demonstrated that telecourse students can learn as much as students taught in a conventional lecture course. But these studies are usually made on strongly motivated or captive audiences. And they seem to assume that a live classroom lecture is the most effective way to teach!

It is clear that a successful telecourse needs at least two essential ingredients. The course must be concerned with a subject of almost universal appeal. And each program must be complete in itself and not be dependent upon the learning from preceding programs. Otherwise, with a lack of viewing continuity from program to program, the audience would diminish in size steadily.

For this reason colleges and universities all too

often attempt the kinds of programs which commercial networks do better. A Nehru or a Castro on television makes a far greater impact on American understanding than a whole battery of professors talking about India or Cuba. The far-ranging documentaries of the networks are beyond the capability of the typical college or university to produce. The areas of great drama and great music are seemingly preempted by the commercial interests because of the high costs of production.

Perhaps we err when we regard our non-commercial, educational stations as elements of a mass medium of communication. Might it not be better to offer fewer hours of programs for the "general public" and to schedule more periods specifically for the teaching of nurses, public servants, librarians, doctors, teachers, union members, and the like? To concern ourselves, however, with these people as discriminating groups moves us at least a step closer to the ideal of knowing every student as an individual.

Finally, it is time we stopped thinking and talking of television as anything more than a medium or a vehicle. Television is, in itself, neither a poor teacher nor a good one. It can be likened in some ways to a truck: It can carry great ideas or can carry trash with equal facility.

The educational television director is struggling to keep his vehicle in service. The educator must accept the ultimate responsibility for the load the truck will carry.

# # #

The Wisconsin Sociologist-Newsletter, an official publication of the newly organized Wisconsin Sociological Assn., announces that their "journal of communication, to facilitate the exchange of ideas" is coming closer to a reality. Academy member HUGO O. ENGELMAN, UW-Milwaukee, their editor, invites reports on research projects and other items of common concern to be included in The Wisconsin Sociologist. At the close of 1959 membership totaled 76, with the 68 senior members professionally associated with 26 different institutions. Sociologists wishing to join may send their $2.00 to the Secretary-Treasurer, Sister M. REBECCA, O.S.F., Alverno College, 3401 S. 39th st., Milwaukee 15, Wisconsin.

THE PRAIRIE CHICKEN FOUNDATION

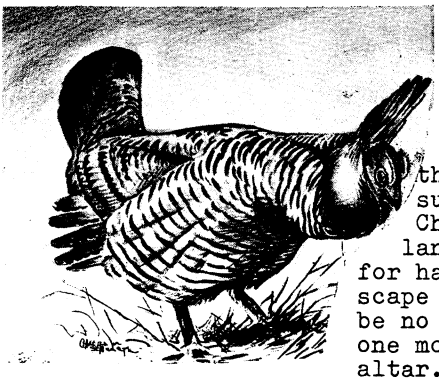
By Paul Olson
Editor
"The Prairie Chicken"

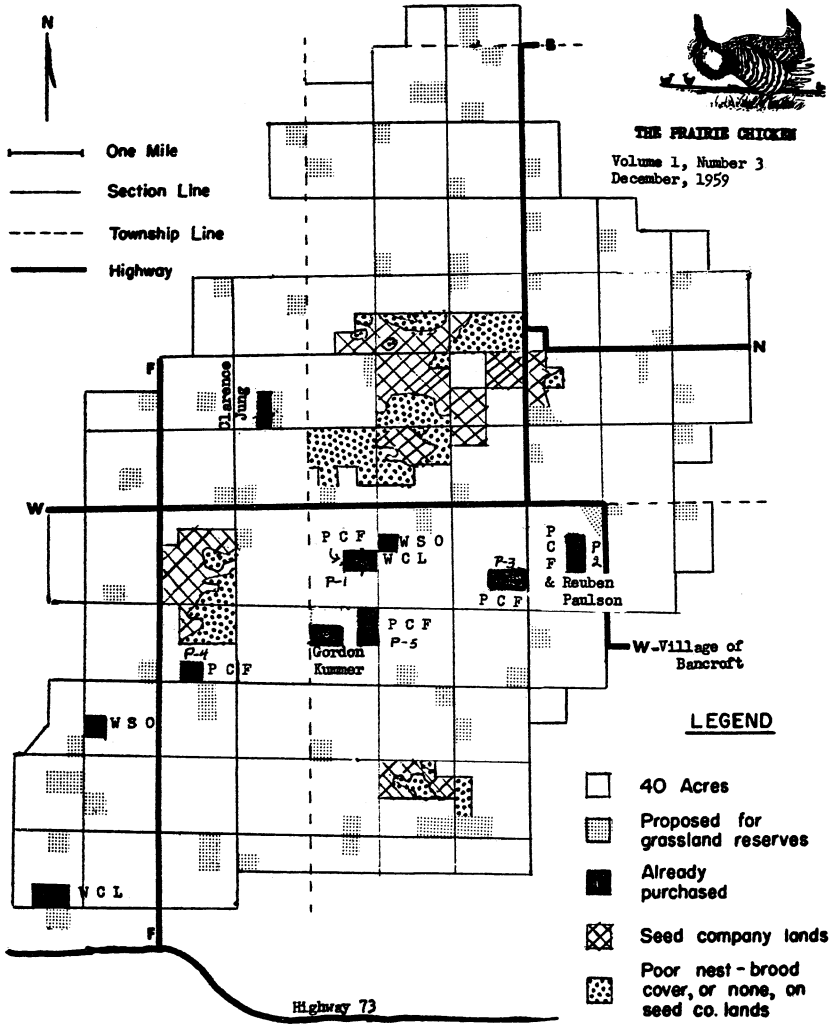
Few species illustrate as vividly as does the Prairie Chicken that abundance and scarcity of wildlife are overwhelmingly functions of habitat. Here is a bird that was only modestly plentiful in the original prairies of southern Wisconsin and which had its habitat marvelously expanded first by early agriculture in the south and then by logging and fire in the north. The Chicken's response was the fabulous numbers it attained during those days.

Hunting "old yellowlegs" was something then and there are many men, still very active hunters, whose eyes light up as they tell of the "good old days." The important point is that the last of the "good old days" was not very long ago and that the present scarcity to near extermination levels is only a couple of decades old. Why?

The answer is not to be found in the gun although the gun could not today be safely added to the problem. The answer lies written broad across the face of the land. Long term grass which is not closely cut for several crops of hay or even more closely and continuously grazed is rare indeed, and in the temporary prairies of the north reforestation and fire prevention have likewise squeezed out the grass and with it the Chicken. Even where neither agriculture nor silviculture have been deliberately practiced, the relentless progression to brush and scrub have evicted the Prairie Chicken.

It is not the thesis of this article that Prairie Chicken can or should be returned in the countless numbers of a few short years ago. It is the thesis, however, that the Chicken must not be sacrificed so that man alone and his more tractable camp followers can inherit the earth. It will be a poorer Wisconsin that awakes to the frosty spring sunrise with no music of the Chicken booming from its grasslands. Mankind will be no richer for having artificialized the landscape that much more. Progress will be no more proud a concept because one more extermination lies on its altar.





----BUENA VISTA MARSH PRAIRIE CHICKEN MANAGEMENT AREA----

The Prairie Chicken Foundation is frankly a fund-raising organization. It is our purpose to squeeze out of the vast and sometimes awesome American wealth enough dollars to purchase the needed lands to maintain the Chicken. Our plan calls for the purchase of 3200 acres of land in the Buena Vista Marsh of Portage County--the last, best spot--to be set aside permanently for Prairie Chicken. We plan to do on purpose what the last century

did by accident. We plan to maintain grass not for foodstuffs but for Prairie Chicken.

Nor is this a haphazard plan. The Wisconsin Conservation Department has a distinguished record on grouse research covering many years. Recently the publication of the Hamerstrom-Mattson plan for "ecological patterning" on the Marsh received widespread professional acclaim as a new approach and an important contribution to wildlife management. The Prairie Chicken Foundation proposes to buy the land there outlined to permit this plan to work.

Now, 3200 acres is no small goal for a fledgling organization, but progress has been good. In one short year of life we have purchased 320 acres which added to the 300 acres previously obtained by other groups and persons totals 20% of the goal. In 1960 we are aiming at 500 additional acres which will put us one third of the way. It is a "do it ourselves" job of good proportions.

So we are unashamedly begging! The "ourselves" mentioned above, we think probably means everyone who reads this. All of our contributions are tax exempt by both the Federal and State governments. We publish a progress report to contributors three times yearly--progress as to land acquisition and field notes on the chicken from the Buena Vista research team. All of our promotional costs are underwritten by the Dane County Conservation League of Madison. Every cent contributed goes to land purchase.

In a really final sense the Prairie Chicken Foundation is an "expedition in ethics." We argue that the cliche "best use" may in our day mean something more than conservation at the belly level. We feel that a species about to spew itself into space might well pause to consider its relationship and decency in the whole life process. If we are now, indeed, to inherit the universe as well, an impoverished living earth will be a small recommendation to anything but the cleverness and cunning of our kind.

# # #

ACKNOWLEDGMENTS for credits not shown elsewhere: Sketches: p.1, Chas. Schwartz, courtesy WCD; p.5, 7, 8, 11, Chas. Schwartz, courtesy Mo.Cons.Comm.; p. 16, copyrighted "This Week in Madison" v.4,No. 42, with permission; p.21, copyrighted "The Spirit of the People" with permission of Nat'l Assn. of Soil Cons.Dist.; p.48 from Dedication Program; Photos: p. 15 & 34, U.W. Photo Lab; p. 33, Schmeeckle, WCD, Paul, Forest Prod. Lab.; p. 38, Bertelson Studio; Map p. 6, "University of Wisconsin Arboretum," 1957, U. of Wis.

INTRODUCING LEONARD HAAS

On January 1, 1960 LEONARD HAAS, who had served as acting president of Wisconsin State College at Eau Claire since the preceding September, became President of that institution. He received his B.Ed. degree from the college in 1935; in 1938 he was granted his Ph.M. in History at the University of Wisconsin, and in 1954 the Ph.D. at the University of Minnesota. He pursued graduate study both at Columbia University and the University of Southern California. Teaching for a time in the Wausau High School, he went to the State College at Eau Claire in 1941 as instructor in history and government, becoming Director of teacher training and placement in 1944. He was Dean of Instruction since 1948.

Active among professional organizations in his field, he served on many committees and as President of several statewide associations. He is a Life Member of NEA. In his community, he was a member of the City Council 1949-57, serving as President the last two years, and on the Board of Trustees of the Public Library during his term. He was President of the Kiwanis Club in 1952 and is closely associated with the educational committees of the Evangelical Lutheran Church in the district and nationally.

# # #

Academy member EUGENE E. PARFITT, President of the North American Lily Society, invites members with biological (or merely esthetic) interests to take advantage of a rare opportunity in Madison on July 8-9, 1960, when the International Lily Show will be held at the Wisconsin Center Building, University of Wisconsin.

Dr. ALBERT VOLLMER from San Francisco, devoted many years exploring the western American mountains to find the natural range of western American lilies. One of the few showings of his colored movies of these rare lilies will take place at the Madison Lily Show and discussion will follow. Some of these plants are almost extinct. SANDY BEST of Georgetown, Ontario, an authority on eastern American lily species, will show slides and discuss eastern lilies. The first complete list of the lily species of the world will be available without cost to those attending the lectures. Detailed program schedules may be secured from Mr. Parfitt (3526 Heather Crest, Madison 5), and garden clubs are invited to attend without fee. Tours of area gardens will be taken including that of Academy member Dr. Arnold S. Jackson of Madison.

CONTINUING CHALLENGES FOR LAND GRANT UNIVERSITIES*

By Conrad A. Elvehjem
President, University of Wisconsin

I will touch on only three points:
First, the challenge to the Land Grant tradition of free education for the farmers and workers of our nation through colleges and universities owned by the public;
Second, the challenge of balance and quality in an era of rapidly expanding educational needs;
Third, the challenge of change, the opportunity to use Land Grant methods to meet the goals of world peace and prosperity.

Just a hundred years ago Abraham Lincoln said to the Wisconsin State Agricultural Society: "The thought recurs that education--cultivated thought--can best be combined with agricultural labor, or any labor. ... Every blade of grass is a study. To produce two where there was but one is both a profit and a pleasure."

These prophetic words, made reality in 1862 when Lincoln signed the Morrill Act, are the basis for the Land Grant tradition of free opportunities for higher education, the tradition which helped mold our nation to its present position of strength and usefulness. It was Justin Smith Morrill, a Vermont storekeeper-farmer, who saw the opportunities for using the raw land of our nation to help finance a wide-ranging educational system for "those at the bottom of the ladder who want to climb up."

Educators across the land caught the spirit of Morrill's proposal. John B. Bowman, the first head of the Agricultural and Mechanical College of Kentucky University, put the idea into these words, back in 1865: "I want to build up a people's institution, a great free university, eventually open and accessible to the poorest boy in the land, who may come and receive an education practical and suitable for any business or profession in life. I want to cheapen this whole matter of education, so that, under the broad and expansive influences of our Republican institutions, and our advancing civilization, it may run free, as our great rivers, and bless the coming millions."

The results of such vision are the Land Grant institutions of our nation today--those 68 colleges and universities which enroll 20 % of our college population; grant 40% of the doctorate degrees in all subjects; confer about one-half of all doctorates in the sciences, engineering, and in the health professions; all of the doctorates in agriculture; and approximately one-fourth of the total in the arts and languages, in business and commerce, and in education itself; the institutions which train almost half of all regular and reserve officers of our armed forces. It is no accident that a recent tabulation of 35 living American Nobel prize winners who went to college in this country revealed that 21 of them earned degrees from Land-Grant institutions.

* - Excerpts from address presented by President Elvehjem at the Inauguration of Dr. Emil M. Mrak as Chancellor of the Davis Campus, University of California, October 23, 1959.

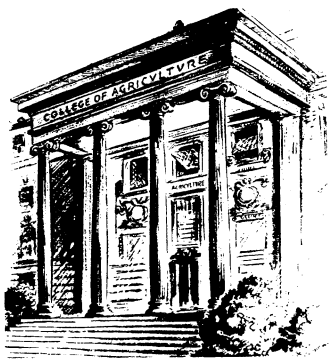
For the vision of this system encompassed both the open door and the idea of quality in education. And the benefits to society that have accrued would fill a catalogue. Let me confine my point to the one Lincoln mentioned--the ability of such a system to help us produce two blades of grass where there was but one. When he spoke, one farm worker in America was producing enough food for himself and three and a half other persons. Today, a single farm worker in our country produces enough for himself and 22 others. And there is no challenging the fact that most of this change has resulted from the agricultural improvement efforts of our Land-Grant institutions.

Yet today there are many among us of faint heart who would abandon the low-tuition principle on the pretext that it is the individual who benefits from higher education and the individual thus should be asked to pay for it. They would build a tuition barrier around our institutions and propose that the poor boy and girl plunge themselves into debt if they seek to cross that barrier.

This I see as a challenge to the Land-Grant system which must be met head-on with facts and figures and determination. We must build general understanding of the value to society of open educational opportunities. I am certain we can meet this challenge to the Land-Grant system, but in meeting it, we must then meet a second: the challenge of maintaining balance and quality as our enrollments rise, as the knowledge of mankind spreads into yet undreamed-of fields.

In brief, the act sought to promote liberal and practical education with a professional goal for students. It is almost heresy, these days, for a college president or even an industrial leader to suggest the major effort of higher education should be to fit individuals to play a practical role in our society. The popular chant concerns itself mainly with putting individuals, as one college president in my own state nicely put it, "on the path of maturity and wisdom." This is a noble goal, too. But it is my contention, and I believe a basic tenet of the Land-Grant idea, that this can be accomplished, and accomplished best, while preparing the individual for a practical contribution to mankind.

Let us not be fooled by pleas that we avoid the practical and return to what some choose to call the "classical curriculum" which they are inclined to believe existed before the Land-Grant idea changed education. A closer look at the curriculum in our institutions of a century ago reveals that there was indeed a professional orientation then, too, except that the professions served were a limited number. We have found--and the Land-Grant pioneering helped us make this discovery too--that in every field of endeavor there is opportunity for higher study and profit in expanding knowledge.



I know that values, standards, and all the other constituents of the good life can be engendered by a college education aimed at equipping young people for practical roles in society. The Land-Grant colleges have done this for almost a century. They can face improving technology, the expansion of knowledge, the increasing demands for educated manpower with confidence that

they have evolved a system to handle change. They can maintain a balanced, high quality educational program. They can meet the challenge of numbers and diversity with a perfected system.

The third challenge concerns future areas of use for this Land-Grant idea of ours. When we grew two blades of grass where one existed before, then doubled and tripled production, we generated new areas within our own agricultural programs which need attention. I will mention only two: First - Helping America adjust to a new age. Second - World peace and prosperity.

I am not sure that most Americans are aware of the way their nation is changing, and what these changes may mean in the future. Paul Ylvisaker, of the Ford Foundation's Public Affairs Program, recently outlined some of the dimensions of this change. The human animal is currently multiplying at a rate unequalled in recorded history. In our own country, the population expansion is due mainly to the rise in the birth rate caused by a whole complex of forces: cultural, physiological, technological, and especially economic. New dominating influences have come to the front in the nation: the young, the old, and the women. We are becoming less bound by traditional ties, less doctrinaire, less easily led, and our course of action is becoming less predictable. The urban problems of today are just a hint of what can develop, if we do not employ our educational pressure on the changing patterns of our society. Here, then, is a fertile field for new endeavors of the Land-Grant system.

A second area is in the field of world peace and prosperity. Significant though they may be in any single situation, we cannot rely upon diplomatic negotiations, even at the summit, or upon armed forces, even with nuclear weapons, to maintain the peace. There is, I submit, a close link between the conditions of peace and prosperity. Hunger is still a major cause for aggression. The population increase is worldwide. The tensions which grow in an underfed nation cannot be released with words.

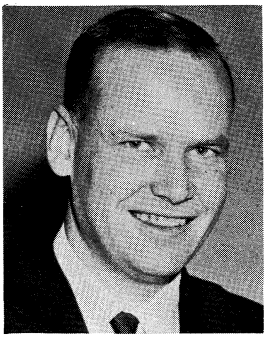
The Land-Grant colleges with their international exchange programs and their new links with educational institutions overseas are building a base for the sort of world cooperation which is the only real hope for lasting peace. My own institution evolved a slogan many years ago which has been both accurate and dramatic. It goes like this: "The boundaries of our campus are the boundaries of the state." Within this theory, we have used all the specialized knowledge, all the unique talents that a University possesses, to help the people of our state solve their problems. We have never quibbled about whether the thing that needed doing fell within the traditional concept of a University. If we were able to do it, it was done.

This is the sort of attitude I now suggest as the proper approach for our Land Grant institutions in the area of world prosperity and understanding. Let us make the whole world our campus, its problems the subject of our study, its people--in effect--our students. If we do this, our Land Grant colleges and universities can become the most potent force for peace and international good will that this world affords. I suggest this as the most important of the "continuing challenges for our Land-Grant universities."

# # #

NORTHLAND COLLEGE REINCARNATION*

"You'll die laughing," said lean, modest Gus Turbeville, 30, to his wife. An obscure University of Minnesota sociologist, Turbeville had just become the youngest U. S. liberal-arts college president. That was six years ago. Joanne Turbeville had something else to laugh about when she arrived at Northland College in remote Ashland, Wis. (pop. 10,000) on the shores of Lake Superior. Northland (enrollment: 175) was almost a ghost college.



Founded in 1892 at the height of the Wisconsin timber boom, Northland began as a flourishing Congregationalist secondary school. When pines and people dwindled, it became a fading nonsectarian college. Gus Turbeville inherited a huddle of Victorian buildings, an unaccredited school without entrance requirements, a refuge for flunkees from other colleges. More than one trustee said to him: "I'd like to resign as soon as possible."

Gold Board. Young President Turbeville might have rushed back to Minnesota. A quiet South Carolinian, the son of a chemical salesman, he set out instead to make Northland work. First he expelled more than 40 sluggish students, some of them seniors. He ordered the faculty to crack down on marks, gave every student more work than he could handle. He established stiff entrance exams, rejected applicants below the top half of their high school classes. When stunned alumni asked how freshman-starved Northland could afford it, Salesman Turbeville hit the road.

For three years he worked on a key trustee: Ellsworth C. Alvord, a leading Washington tax attorney and the biggest individual stockholder in General Dynamics Corp. By the time Turbeville got through with Alvord, the lawyer was a convert. By the time Alvord got through with Frank Pace Jr., chairman of General Dynamics, Pace was a dedicated Northland trustee. By this year, tiny Northland has a solid gold board that many a university might envy. Among its members: Presidential Friend George E. Allen, Publisher Gardner Cowles, Industrialist Victor Emanuel, Movie Arbiter Eric Johnston, Financier Floyd B. Odlum.

Rosy Future. Backed by his well-heeled trustees, Gus Turbeville tripled Northland's budget to $600,000 a year, doubled enrollment to 350, is raising $3,000,000 for new dormitories. The school is now fully accredited; its seniors score in the top 30% in nationwide Educational Testing Service achievement tests. By next year, salaries for the school's 30 teachers will have nearly doubled to a $7,000 maximum. To Theologian Harmon Bro,

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* - Courtesy TIME; copyright Time Inc. 1959. From issue of November 9, 1959.

formerly of Syracuse University and a onetime Northland student, the Turbeville treatment is "a reincarnation." Bro has left Syracuse to teach at Northland.

Last week booming Northland received a distinction presently unmatched by any other four-year liberal-arts college. Courtesy of General Dynamics, it will soon have a $250,000 atomic reactor, along with famed Physicists Edward Teller and Frederic deHoffmann on loan from time to time to lecture in a new $1,000,000 science building. With an additional $10 million endowment in the offing (all ear-marked for teachers' salaries), Northland faces an even rosier future. Says go-getting President Turbeville, who has turned down industry offers at more than double his $15,000 salary: "In ten years we'll be able to hire the best brains in the world. If they can teach, we'll pay them $25,000 yearly."

# # #

A NOTE ON THE COVER

"Lake Mendota" - a lithograph print by Santos Zingale

The theme, Wisconsin Lakes, is one with which Santos Zingale has been concerned frequently during the 30 years he has been an active and prominent Wisconsin artist.

An outstanding student under Gustave Moeller of the Milwaukee State Teachers College, he worked one summer with Moeller painting in the then thriving fishing center of Bayfield on Lake Superior. Later, when he was producing both easel and mural paintings for the Federal Art programs of the 1930's he lived for some time on Bark Lake where again a series of drawings and paintings reflect his interest in the shoreline and landscape of lake regions. The present Zingale home is on the shore of Lake Monona.

Zingale has taught at the Layton School of Art as well as at the University of Wisconsin where he has been since 1946. He teaches classes in introductory and advanced painting.

The lithograph print represented on this month's cover is the one print media he has used frequently as it is most nearly approximate to the mode in which he draws. Zingale's work is found in many collections. A mural executed on the Federal Art program is located in the Sturgeon Bay Post Office. Another mural completed as a major commission in the five-year Gimbel Wisconsin Art Competition is located in the Brooks Memorial Union of Marquette University. He has shown in the Metropolitan Museum in New York, the Corcoran Gallery in Washington, D. C., the Philadelphia Museum, the Denver Art Museum, The Chicago Art Institute, the Walker Art Center in Minneapolis, the Museums at Springfield, Illinois, and at Butler, Ohio. He has been represented in the University of Illinois Biennial exhibitions of American Art.

In March Professor Zingale will have an exhibit in the University Library Gallery. This summer, while a visiting professor at the University of Southern California, his work will be shown in a two-man exhibit with another distinguished American artist, Ralston Crawford.

--Frederick M. Logan

FROM THE TREASURER'S DESK

During the decade of the 1950's the membership of the Wisconsin Academy of Sciences, Arts and Letters has almost tripled! That is a pleasant report to make, because the Academy does serve such a useful purpose for so many of the citizens of our State. Its splendid growth, however, has brought added problems to the Academy - and chief among them is that of finances.

The Senior Academy, as you know, sponsors the Junior Academy, and through financial assistance has encouraged countless Wisconsin high school students to a better understanding and appreciation of scientific projects and studies. But that costs money, as do the four quarterly Reviews, the copy of the TRANSACTIONS and the other mailings that each member of the Senior Academy is entitled to receive. As a matter of fact, broken down into unit costs, the material received by each member, plus administrative expenses, costs the Academy more than the $4 paid annually by each Active Member, and the great majority of the organization's members are on an "Active" basis.

This means that the Academy's recent large growth has brought on an ever deepening financial problem. Then, too, printing and paper costs have risen sharply, and last year the State more than cut in half the amount it has usually appropriated to help pay for the publishing of TRANSACTIONS. As a result of all these financial pressures, last year the Academy was forced to use up all of its savings and also resort to "deficit financing" to pay its bills.

For that reason, at the February 6, 1960 meeting of the Academy Council, the Treasurer suggested ways of putting the organization on a sounder financial basis. One of the means requested and granted was the power to drop from the mailing list all those Academy members delinquent in their 1959 dues who failed within three months to respond to the 1960 dues notice mailed to them the first week of January, 1960.

This means, of course, that those readers of this issue of the quarterly Review who are now delinquent in their 1959 and 1960 dues will receive no more Academy material until those dues are received at the Treasurer's office. This is a step we regret to take, but one that is essential if the Academy's affairs are to be conducted on a sound financial basis. We can no longer afford the luxury of carrying those members who will not carry their own share of the load.

D. J. Behling

David J. Behling
Treasurer

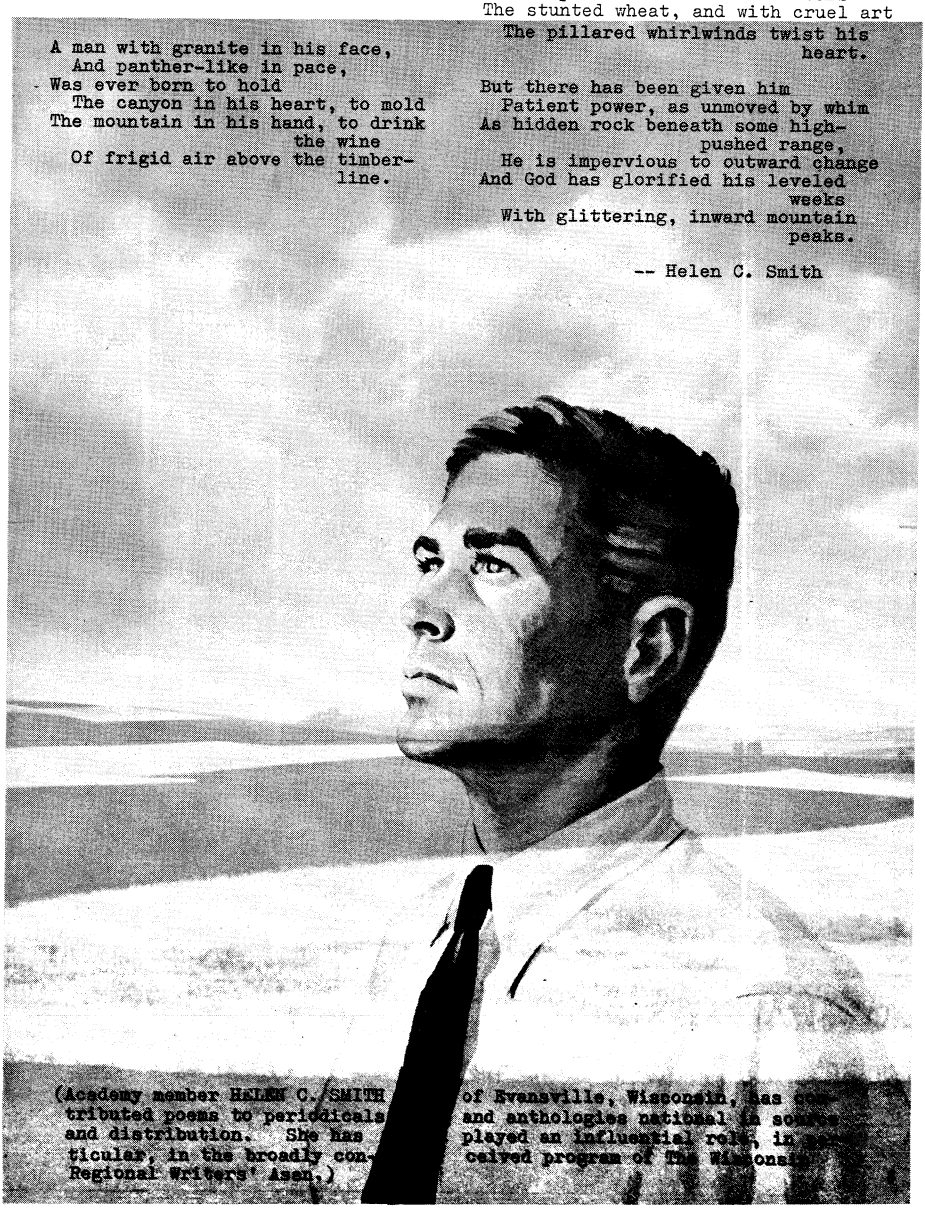
MOUNTAIN PEAKS

A man with granite in his face,
And panther-like in pace,
Was ever born to hold
The canyon in his heart, to mold
The mountain in his hand, to drink
the wine
Of frigid air above the timber-
line.

The world has sentenced such as he
To the field-lark's sweet monotony,
Through the dullness of slow years
On a plain where sun-fire sears
The stunted wheat, and with cruel art
The pillared whirlwinds twist his
heart.

But there has been given him
Patient power, as unmoved by whim
As hidden rock beneath some high-
pushed range,
He is impervious to outward change
And God has glorified his leveled
weeks
With glittering, inward mountain
peaks.

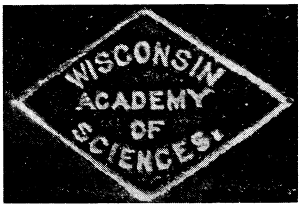
-- Helen C. Smith



(Academy member HELEN C. SMITH of Evansville, Wisconsin, has contributed poems to periodicals and anthologies national in scope and distribution. She has played an influential role, in particular, in the broadly conceived program of The Wisconsin Regional Writers' Assn.)

THE WISCONSIN ACADEMY LIBRARY

By Walter E. Scott, Librarian



Ninety years ago the Legislature approved the Charter for the Wisconsin Academy of Sciences, Arts and Letters. Cited among the objects of this new organization was "the formation of a general library." Today this library, integrated with the libraries of the University of Wisconsin and other state libraries in Madison, contains approximately 40,000 volumes and is valued conservatively at $300,000. A "lozenge" mark carrying the title "Wisconsin Academy of Sciences" is stamped on each of the bound books--when this marking was started in 1881 the Academy's full name was considered too long for the available space.

Lifeblood of the Wisconsin Academy's library is its exchange program in which the TRANSACTIONS is sent to institutions of higher learning (including museums, libraries and scientific experiment stations) throughout the world. The maps illustrating this article, which have been prepared by Harold F. Williams, show present distribution to over 660 exchanges in about 60 countries. Materials annually received in return total about 740 different publications valued at approximately $4,000. A breakdown of this distribution follows:

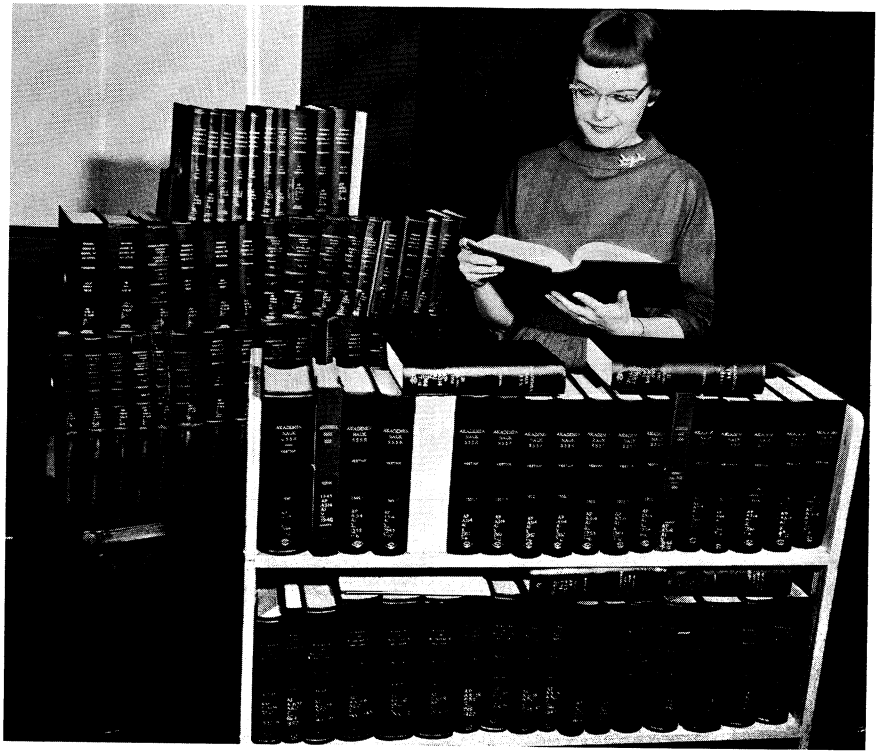
North America	249
Central and South America	16
Europe	300
Africa	13
Australia (and nearby Isl.) . . .	17
Asia and Near East	47
(including 7 to Moscow & Leningrad)	

To illustrate this exchange program, Gerhard Schulz has photographed a sample of the collection and the person presently responsible for shipping and caring for it. The picture shows Miss Laurel Nelson, University of Wisconsin Exchange Librarian, with a set of the Wisconsin Academy TRANSACTIONS in the background and exchanges received in return in the foreground. The top row of exchanges are from Russia and are titled "Akademiia Nauk. SSSR. Vestnik." The bottom row contains two from Germany and Holland titled "Naturwissenschaftliche verein fur schleswig-holstein" and "K. Akademie van wetenschap. Te Amsterdam." These exchange publications, so valuable to students and scholars, also are available on loan to all Academy members and researchers from elsewhere in the country through inter-library loan.

In an article by former Academy Librarian Gilbert H. Doane on this same subject in the first issue of the Wisconsin Academy Review (Winter 1954), he explains the many contributions in manpower, money and space which the University of Wisconsin has expended to help make the Academy library what it is today. In exchange, the University has received the primary use of this invaluable collection over the years without charge from the Academy. Generally, the relationship has been one of friendly cooperation--with the University carrying the brunt of the exchange work load since the libraries were integrated over 50 years ago.

Library's History

The Academy library's history is a rocky road fraught with toil for frustrated and overworked librarians--more than one of whom resigned. In the earliest years there wasn't even a decent place to keep the books even though the state was supposed to furnish housing for the collections "in the Capitol." When such room finally was furnished, it was inadequate and unsatisfactory. There never was enough money for binding the exchange periodicals and they hardly could be made available for use unbound. The unpaid librarians were urged by their colleagues to produce



ACTIVE INSTITUTIONAL COLLECTIONS OF THE TRANSACTIONS OF THE WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS

Source: Academy Exchange and Subscription Records.
Note: Each dot may represent several collections, e.g. Belfast 2, Cairo 3.

EDITOR'S NOTE: The maps with this article were prepared by Academy Member HAROLD F. WILLIAMS who deserves credit for a difficult job well done. After completing this project, he observed that the TRANSACTIONS are one of Wisconsin's best "Ambassadors" for goodwill and understanding of the Badger State throughout the world--and certainly deserved active support by the people of Wisconsin and their elected representatives in government.

A SUGGESTION from Mr. Williams regarding surplus volumes of the TRANSACTIONS: "It is probably safe to say that most small public libraries and school libraries in the state do not have any copies of the TRANSACTIONS. I, and perhaps others, would be willing to contribute enough to have one volume bound, possibly with a description of the Academy, and placed in some small library. Wisconsin material in small libraries of the state is pitifully little." What do other members think of his idea?

catalogues of available materials--only to find the catalogue rapidly outdated and the books soon scrambled on the shelves. It is no wonder that librarian Wm. H. Hobbs said in 1893, "We have already suffered too much from depredations. ..."

Immediately upon formation of the Wisconsin Academy a "General Librarian" was elected and soon a "Standing Committee on the Library" was formed. In 1874 it was reported that the first volume of the TRANSACTIONS "caused interest by learned societies of Europe and America." By 1876 the librarian reported receipt of about 35 items including exchanges from Amsterdam, Bern, Bremen, London, St.Petersburg and Stockholm. Even as the Smithsonian Institution today assists the Academy in its overseas shipments, so also the fledgling organization received similar cooperation 90 years ago. There also were domestic exchanges started in the 1870's such as those from Harvard College and the New York State Museum.

By 1878, when the first catalogue of the Academy's library was issued, there were 744 volumes listed (including pamphlets). Exchanges were active with 17 foreign countries including 17 institutions in Germany and three in Russia. In this year for the first time it was decided to loan books to Academy members "for up to a year," and the first Academy expenditure was made for binding. Such expenses continued for many years, but no calculation ever has been made of the total investment for binding. For the first 25 years or so the Academy was required by law to give 100 copies of its TRANSACTIONS to State Agricultural Society, State Historical Society and State University for their exchange programs--plus a copy to each member of the Legislature and librarian of each state institution.

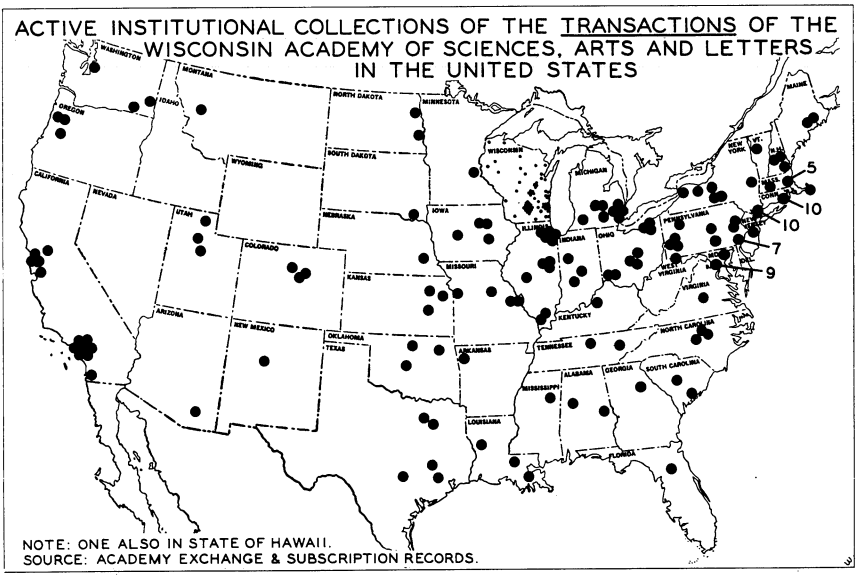
While the 1878 Academy library catalogue contained about 80 exchanges listed in 8 pages, the 1881 catalogue was 22 pages and later ones were much bigger. Growth was so rapid that an "Exchange Committee" was added to help with the job and some clerical assistance had to be employed. By 1899 the list contained 17 exchanges in Russia, 87 in Germany and 49 in the British Isles. After the turn of the century much effort was made to fill broken sets of periodicals by purchase or trade and exchanges were authorized with the Astronomical Laboratory, State Historical Society, Geological and Natural History Survey and University of Wisconsin. It was determined that the "duty and privilege of the Academy...is to accumulate as complete a collection as possible of the serial publications of scientific societies," and this since has been a major goal. In the decade from 1893 to 1903 many historical exchange items were given to the State Historical Society.

In 1908 when the Academy library was integrated with the University of Wisconsin library, it was with the under-

standing that "ownership shall remain in the Academy." The integration project required two years and each Academy volume kept was supposed to contain a bookplate and a mark on the spine. Approval for sale of duplicates was granted and continued for many years. On completion of the job, Chairman of the Exchange Committee George Wagner wrote, "We do not hesitate in saying that the value of our library ...has at least doubled."

Since World War II, the Academy has filled orders from 23 exchanges in 17 countries to complete back issues of their TRANSACTIONS sets. In 1958 a successful effort was made to supply the needs of most all Wisconsin institutions of higher learning and other libraries such as those in larger cities, museums and state scientific research agencies. Now Academy members themselves are being given a chance to build up their sets of the TRANSACTIONS at very little cost. The Academy library includes not only about 40,000 catalogued publications of prime value to scholars, but also about 20,000 back volumes of the TRANSACTIONS---some in over 800 copies! In a general housecleaning, these must be reduced to a reasonable and adequate supply. Meanwhile, several volumes are out of print (Nos. 29 and 35) and on four there are less than 10 copies remaining.

As the Wisconsin Academy moves forward toward its Centennial celebration in 1970, it will have reason to be proud of a number of significant achievements--and not the least of these will be its accomplishment in "the formation of a general library." # # #



JUNIOR ACADEMY NEWS

JUNIOR ACADEMY REPORT

By John W. Thomson, Chairman
Junior Academy Committee

Many of the members of the Senior Academy of Sciences, Arts and Letters will be interested in going to see their local science fair or district meeting of the Junior Academy of Science. At these fairs and meetings you can see some of the finest scientific projects being carried on by Wisconsin high school students. Give them your encouragement by visiting the fair and by talking with the students about their projects. They really appreciate comments and suggestions from Senior Academy members. The spring calendar is detailed below:

March 2 or 9 - Science Fair at Aquinas H.S., La Crosse
March 24 & 25 - Science Fair at Mary D. Bradford H.S., Kenosha
April 2 - NW Dist.Meeting - Wis. State College, Superior
April 2 - Western Dist. Meeting - Viterbo College, La Crosse
April 9 - NE Area Dist. Meeting - Lawrence College, Appleton
April 8-10 - SE Wis.Science Fair - Marquette University
April 23 - Kenosha-Racine Dist.Meeting - Bradford H.S., Kenosha
April 23 - Central Dist. Meeting - Wis. State College, Stevens Pt.
April 23 - SW Dist. Meeting & Sci.Fair - Wis.St. Coll., Plattev.
April 23 - Milw. Dist. Meeting - Milwaukee Downer College
May 7 - Statewide Meeting with Senior Academy at Wisconsin Center Building, Madison
May 14 - Junior H. S. Meeting at Racine
May 14 - Junior H. S. Meeting at UW Extension Center, Wausau

The Junior Academy is delighted to add to some of its committees the names of a number of teachers who are very active in encouraging high school science. They are:

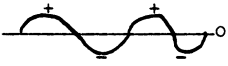
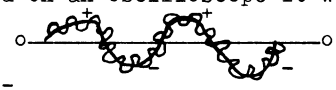
Committee	Teacher	School
NW Area	Jerome Isaacs	Chetek H. S.
"	Ida Olson	Ladysmith H. S.
W.Cent.Area	Larry Nutter	La Crosse Central H. S.
SE Area	Cameron Smith	Racine
	Theodore Curtis	"
	Francis Rogers	"
Milw. Area	Spence Potter	Riverside H. S.
State Comm.	William Siser	Milwaukee Public Schools
	Sidney Jacobsen	Waukesha H. S.
	Jerome Fischer	Nicolet H. S., Milwaukee

VIRGINIA PERNER of Columbus H.S., Marshfield, is among the 40 winners of the National Science Talent Search. Her sponsor is Sister M. LAURETTA. Winners of honorable mention (among 400 highest) are: ROBERT R. COVELLI, Bradford H.S.,Kenosha; JAMES H. MAYNARD, Solomon Juneau H.S., Milwaukee; WILLIAM E. SCHOKNECHT,Rufus King H.S., Milwaukee; DON H. KRATSCH, Oshkosh H.S.; LESLIE A. RUSCHE, Sturgeon Bay H.S.; WILLIAM R. DEVEREAUX, Big Foot H.S., Walworth, JAMES M. VAHL, Waukesha H. S.; and GEORGE N. REEKE,Jr., Abbot Pennings H. S. Green Bay. These and other Wisconsin entrants in the Nat'l Search are eligible for competition for Wisconsin Academy scholarships and Scholarship recommendations. ---

A VACUUM TUBE AND TRANSISTORIZED SINGLE-SIDEBAND SUPPRESSED-CARRIER HANDITALKIE FOR THE 75 METER BAND

By Tim Hulick
Aquinas High School, La Crosse

Perhaps the most recent development in communications is the revolutionary idea of single-sideband transmission. Single-sideband has been in wide use both commercially and by amateurs for about eight years. Most of the long distance telephone calls are transmitted by single-sideband. Amateur radio operators throughout the world have been using this type of emission since it was invented. Let us delve into the process of generating single-sideband and what its advantages really are.

Single-sideband suppressed-carrier transmission consists of only one-third of the signal that is generated by an amplitude modulation transmitter. In order to understand single-sideband, one must first get an understanding of AM. Amplitude modulation consists of the carrier wave which is simply a constant wave emitted by the transmitter at a constant frequency. If this carrier could be seen on an oscilloscope it would look something like this:  Before this carrier can carry intelligence it must be modulated or have a wave at the audio frequency range riding this wave at the radio frequency. This audio frequency is constantly changing both in amplitude and frequency according to the type of audio applied at the microphone. If the amplitude modulated wave were pictured on an oscilloscope it would appear something similar to this:  This AM signal now consists of the carrier and two sidebands on either side of the carrier frequency which are generated by the audio. If there isn't any audio applied to the carrier then the sidebands do not exist. Therefore we can come to the conclusion that the frequency span of the sidebands depends solely on the frequency and amplitude of the audio. Before I mentioned that there are two sidebands; these sidebands are commonly called upper and lower sidebands, because one is on the high side of the carrier and the other is on the low side. If pictured on a graph it would resemble this drawing:

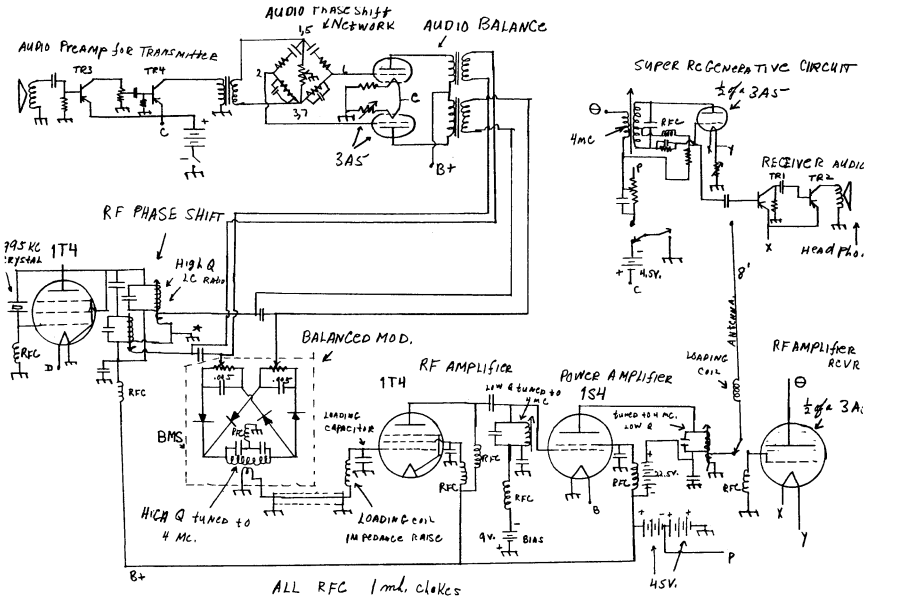
While single-sideband was in its early stages of development, it was discovered that the carrier was unnecessary to the transmission of the intelligence on the sidebands. In fact, omitting the carrier would bring forth many advantages. All of the howls and squeals heard on a radio or receiver are developed because two or more carriers are very close to one another in frequency. When two carriers "heterodyne" in this fashion a third and fourth signal are created at the sum of the two frequencies and at the difference of the two. The one that is audible is the heterodyne that is the result of the difference of the two. Because the difference is usually within the audible hearing range (20- 18,000 cycles) the resultant heterodyne will appear as an undesirable squeal creating unnecessary interference. Therefore, phasing out the carrier is one step forward in getting rid of 95% of the interference and reducing fade which usually affects only the carrier.

Shortly after this suppressed carrier double-sideband was discovered, amateurs and scientists wondered if it would be neces-

sary to keep both sidebands. After much experimentation, it was concluded that only one was really necessary. By omitting one, only half of the double-sideband's frequency was used. In order to be able to listen to the one sideband at the receiving end, the carrier must be injected back to the sideband by some type of local oscillator before it can be read intelligibly. This process is called demodulation. Ordinarily an oscillator called a beat frequency oscillator (BFO) is used at the IF frequency of the receiver. This gives the carrier back to the signal making it sound like ordinary AM.

Now that an understanding of SSB is at hand, we can draw our own conclusions of all the advantages: 1) Very little interference because of the absence of the carrier; 2) Only a fraction of the frequency used by AM is used by SSB because the other sideband is missing; 3) Reduced fading because fade occurs in the carrier and single-sideband hasn't any; 4) Eight times the talk power than that of AM of the same actual power used because all talk power is concentrated in one sideband; 5) Much longer tube life (if tubes are used) because tubes are only used in direct proportion with the audio applied and the power-consuming carrier is missing; 6) A choice of sidebands is at hand if the opposite sideband is in use by other stations. However, switching sidebands does not alter the frequency. Two parties can be transmitting on exactly the same frequency and never cause a bit of interference to one another because they are on two different sidebands.

These are the reasons I chose my project to be a single-sideband handitalkie. To my knowledge, a complete SSB station never before has been put in such a small package. I chose to transmit on the lower sideband because it is the most popular on the 75 meter amateur band. In my circuit diagram sections are indicated to signify the purpose of that particular section. The balanced modulator section (BMS) phases out the carrier by two potentio-

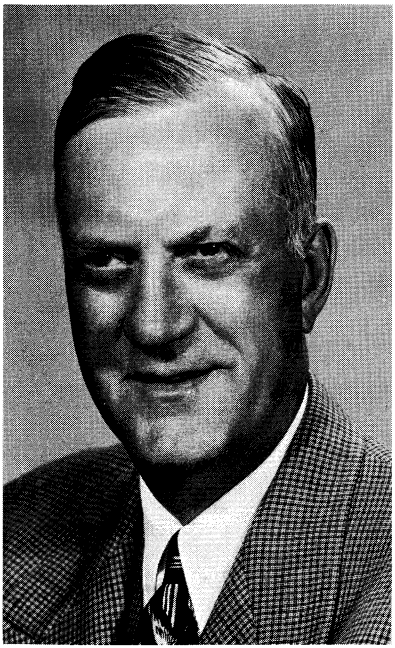


meter adjustments. These pots. are adjusted to make up for any unbalance in the balanced modulator. When the two are in perfect balance the + and - halves of the radio frequency exited at the input of the balanced modulator cancel one another out. They become exactly 180 degrees out of phase with each other. Audio is fed onto the taps on the pots. When any audio is applied, the balance is upset letting the audio pass through at a carrier frequency, but the carrier itself remains suppressed. The output of the balanced modulator is suppressed carrier double-sideband. To obtain SSB, the audio has to be split into two audio signals 90 degrees out of phase with each other. The same has to be done to the radio frequency all the way back at the oscillator. The audio is split up into these two components by the network of resistors and capacitors in the audio phase-shift network. The potentiometer connected across the extremes of the phase-shift network allow the network to be adjusted for a perfect 90 degree phase difference of the two audio signals. These audio signals must now be balanced equally in amplitude, still retaining their phase difference. This is done by the dual triode tube type 3A5. By controlling the emission of the tube's filament the two audio signals can be made equal in amplitude.

A careful juggling back and forth of the potentiometers in the phase-shift network and the audio balance section is required --until both the 90 degree split occurs and they are balanced in amplitude--as the two controls interact on one another. The balanced audio is then fed directly into the balanced modulator. It is necessary to split the RF from the oscillator into two signals 90 degrees out of phase and yet be perfectly equal in signal strength. You'll notice that there are two coils in the oscillator section, not one. One coil is connected directly to the plate of the oscillator tube and the other is connected to the plate through a very small capacitor. This means that one coil is connected inductively and one is connected capacitively. The voltage leads the current by 90 degrees in any case in a capacitor. Therefore the RF phase split will occur in these two coils. The coil with the capacitor is tuned slightly higher in frequency than the oscillator frequency, while that connected directly to the plate of the tube is tuned slightly lower. The critical tuning of these two coils allows for adjustment in obtaining exactly a 90 degree phase-shift. The two signals are balanced in signal strength by the size of the coupling capacitor in series with the one oscillator coil. The output of the oscillator is then fed directly into the balanced modulator where the RF will be phased out. The total output of the transmitter section is about ½ watt. A distance of over five miles was logged for the transmitter.

The receiver section of the handitalkie consists of an RF amplifier stage and a super regenerative circuit and several stages of audio. The sole purpose of the RF amplifier stage is to isolate the regenerative circuit from the antenna. If this is not done the receiver will constantly be changing frequency when the unit is physically moved from one location to another. The regenerative circuit is tuned to the transmitter's frequency. I chose 3995 kc. as this part of the band is not too crowded. The local oscillator for the receiver, so the SSB can be read intelligibly, is the oscillator in the transmitter. In this way, the receiver is always receiving on exactly the same frequency on which the transmitter is transmitting.

SSB is probably unknown to the public because it is confined to commercial telephone, amateur and experimental use. Within a few years it is predicted that single sideband suppressed carrier will be the major type of communications. I can sincerely say that I hope to be a part of it. # # #



LEWIS C. FRENCH

A Retirement Profile

LEWIS C. FRENCH, for 34 years a member of The Milwaukee Journal staff, retired on January 16,1960. He had done general reporting with emphasis on farm news since 1934. Starting work with the Janesville Gazette as a high school sports writer, he joined their staff after graduation, and then went to the Duluth News Tribune. Following service as an artillery sergeant in World War I, he worked for General Motors until operations restored his hearing which had been impaired in the war.

He believed that a newspaper could do much to help farming by carrying articles on what individuals, farm experts and organizations were doing to improve agriculture. He "sold" the idea to the owner of the Janesville Gazette and became one of the first farm editors. On the Milwaukee Journal, he received his greatest recognition for his articles on agriculture and conservation, and also stressed water pollution control. He paid special attention to rural youth projects, assisting 4-H club members and Future Farmers of America.

His story on the national corn husking contest was reprinted in a journalism textbook as an example of outstanding feature writing in 1937 and in 1947 the first annual award of Epsilon Sigma Phi, a fraternity for agricultural extension workers, was given to French for outstanding contributions to Wisconsin agriculture. Other honors were accorded him by the American Assn. for State and Local History and the National Assn. of Conservation Education and Publicity. The University of Wisconsin regents praised him at Farm and Home Week in 1957 for "major contributions to agriculture." Mr. French has been affiliated with the Academy since 1956 and reported the 1958 meeting at Whitewater for the Milwaukee Journal. He plans to continue writing after retirement.

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FRED J. SCHMEECKLE

A Retirement Profile

At the end of the 1959 academic year, FRED J. SCHMEECKLE retired from the teaching staff of Wisconsin State College, Stevens Point. He had been at the college for 36 years and in 1945 inaugurated the first conservation education course to train teachers, which has grown to an enrollment of 300 students. The local chapter of Alpha Kappa Lambda, an association of conservation leaders, honored him at a banquet on May 23.

Active on many committees in the conservation education field, Mr. Schmeeckle was chairman of the Cooperative Education

Planning Program which prepared the Guide to Conservation Education in Wisconsin Schools. He helped organize the Conservation Education Association and is still a director. For many years he was Director of the State College Conservation course at the Trees for Tomorrow Conservation Camp and will be chairman of Coordination of High School and County College Workshops there. He is also on the working group of the Adult Education Subcommittee of the Natural Resources Committee of State Agencies.

He was cited for his work by the Milwaukee County Conservation Alliance in 1949 and in 1952 received the NACEP award for outstanding contribution to the conservation program in Wisconsin. The Wildlife Society presented an award in 1958 for his distinguished achievement in conservation education, and he has also been given the Broughton and Nash awards in the field. He has been active in Izaak Walton League work and affiliated with the Academy in 1954. Recently he assisted in preparation of a new resource guide, "Reading Wisconsin's Landscape" (see p. 36). At his new location in Eagle River he will continue his association with the Trees for Tomorrow Camp in an advisory capacity.

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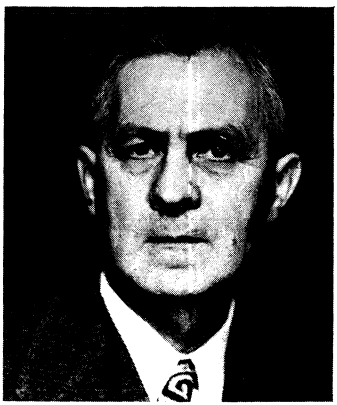
BENSON H. PAUL

A Retirement Profile



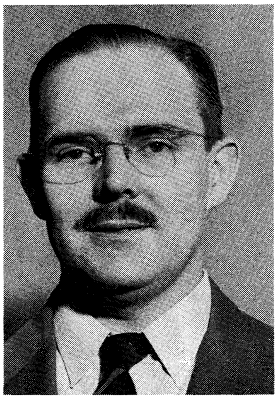
BENSON H. PAUL retired from the U.S. Forest Products Laboratory at the end of 1959 after nearly 38 years of research on the influence of growth conditions upon the properties of wood. The work he pioneered, relating to the control of specific gravity of wood through the regulation of growing space, has given him widespread recognition and is still being carried on in all forest areas of the country and in many foreign nations. His research findings have been described in over 100 published reports, bulletins, and articles.

Before coming to Madison in 1922, he served for seven years as a forester for the New York Conservation Commission. Graduated from the College of Agriculture, Cornell University, in 1913, he received his master of forestry degree in 1915. He plans to remain in Madison as a consultant in silviculture. He has been a member of the Society of American Foresters for 40 years, is a charter member of the Forest Products Research Society, and affiliated with the Wisconsin Academy in 1945. * * *

THE BOOKSHELF

VEGETATION OF WISCONSIN
By John T. Curtis

Univ. of Wisconsin Press
Sterling Court, Madison 6, Wis.
1959 657 pp. illus. $7.50



Frank E. Egler, in an article on the history of American Ecology which was published in Ecology in 1951, made the following statement relative to the ecological research which was being done at the University of Wisconsin:

"An extremely interesting rebirth of Baconian inductive science may possibly be taking place these days in Wisconsin. Norman C. Fassett, John T. Curtis and Grant Cottam and their students have been turning out a series of research publications which are remarkable for being devoid of conventional dogma, and for being precise and thorough in their accumulations of empirical material, obtained by contemporary methods of sampling, analyzed statistically without bias, evaluated with care, and with hypotheses and theories presented as they should be in the light of the inferential reasoning on which they are grounded. It was probably coincidence which brought these men together, but it is to be hoped that their work may continue through these primary empirical stages, and on into the much more unusual intellectual maturity of a full-fledged science. At present their work seems one of the brighter glows on the horizon of American vegetation. . ."

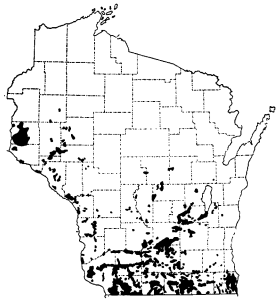
The publication of "The Vegetation of Wisconsin" is tangible evidence that "... one of the brighter glows on the horizon of American vegetation ..." did not fail.

Four decades ago interest in the vegetation of Wisconsin was at very low ebb in the state. The late Norman C. Fassett came to the Botany Department of the University of Wisconsin in 1924 from Harvard. His intense interest and enthusiasm for Field Botany attracted a number of graduate students. Among the graduate students who were influenced by Professor Fassett's strong interest in the flora of Wisconsin was John T. Curtis, who came to the University in the late thirties. Curtis' basic training was in Plant Physiology which provided a fine background for Plant Ecology. In the forties, the Plant Ecology Laboratory of the University of Wisconsin was established. A rather large number of graduate students majored in Ecology.

In 1946, a definite attempt was made "...to survey the entire vegetation of the state and to learn the geographical limits, species compositions, and as much as possible of the environmental relations of the communities composing that vegetation..." The activity of ecological research at the University of Wisconsin resulted in at least 27 Ph.D. theses and 13 Master theses. More than a hundred articles on ecological problems written by Professor Curtis, his colleagues, and students, have been published in scientific journals.

Professor Curtis' ecological concepts are rather simply presented in the following paragraph from the Introduction:

"The vegetation of a region consists of the total of the plants growing on its soils and in its waters. These plants are present as populations of individual species, which occur in mixtures of various sorts called plant communities. Each community is characterized by a particular structure and appearance imparted by the numerical proportions of the particular species which compose it. Each of the component species has certain limits to the environmental variables within which it will thrive. Those species which have similar limits tend to grow together, but since the number of environmental factors which may influence the growth of plants is so very large, no two species have exactly the same limits. As a result, the communities which they form are not precise entities of fixed and unvarying composition, but rather are loose aggregations of species, whose makeup changes from place to place and from time to time in a more or less continuous fashion. The communities, therefore, and the entire vegetation which they compose, cannot be described in the exact language of physical science but must be treated in a statistical manner as a continuous variable."



Original prairies - (From the book)

Anyone interested in the plants and animals of Wisconsin will find all of the 24 chapters very informative. The native vegetation of Wisconsin is divided into 21 major communities and 13 minor communities. A rather unique feature of the book is a key to the plant communities. A chapter is devoted to each major community. The chapters relating to the forest communities bring in life histories of dominant trees, composition of the ground layer, environmental factors such as microclimate, soils, geographical relations, and utilization and current management.

There is a fine glossary that defines ecological terms. There is also a rather extensive bibliography of 26 pages.

This book will be of great value to teachers throughout the state. It is the first time that such a vast amount of information about the plants of Wisconsin, much of which is original, has been assembled in one volume. A monumental contribution, "The Vegetation of Wisconsin" not only establishes a landmark in the study of the plants of the state, but it is almost certain to become a classic as far as ecological publications are concerned. --- Albert M. Fuller, Curator of Botany, Milwaukee Public Museum

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"READING WISCONSIN'S LANDSCAPE" - A New Resource Guide

A new resource guide for Wisconsin's natural resources was introduced at the annual conference for TREES FOR TOMORROW Camp planning committees at Merrill in February. Representatives of agencies who cooperated in publishing the booklet, "Reading Wisconsin's Landscape," are shown inspecting a copy. Seated, l.to r. are JAMES W. BUSCH, I. O. HEMBRE*, and M. N. TAYLOR*; standing, are ARTHUR W. JORGENSEN, FRANCIS HOLE* and FRED J. SCHMEECKLE*. (* - Academy members). The booklet contains maps and text on soils, wildlife, land use, glacial geology, historical sites, the forest products industry, forests, fish and other features of the state's natural resources. Primarily for use at the workshops at Trees for Tomorrow Camp, school and city libraries will have copies for reference purposes, and a limited number may be purchased at 50¢ each from the State Dept. of Public Instruction, Madison 2, Wis. (Courtesy copyrighted CAPITAL TIMES, Madison).

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A BIBLIOGRAPHY OF MUSEUMS AND MUSEUM WORK - (1900-1960) By Stephan F. Borhegyi and Elba A. Dodson	Milwaukee Public Museum Milwaukee, Wisconsin Pub. in Museology No. 7 1960 72 pp. $2.00

This valuable publication is the first of a new series and will fill a long-existing need for a guide to source material on museums and museum work. The senior author is Director of the Milwaukee Public Museum and his collection of reference material was the foundation of this booklet. The junior author is the Museum's librarian. The well organized contents are arranged in 16 broad divisions, list books and pamphlets by author and

periodical articles by subject title. An extensive author index contains the names of several Wisconsin Academy members and especially reflects the extensive work done in this field by Director Borhegyi. ---W.E.S.

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A RESEARCH INVENTORY FOR WISCONSIN
June 1959 Edition
By U.W. Bureau of Government and Legislative Reference Library

Wis. Legislative Ref. Library
State Capitol, Madison 2

Research Bulletin 125
1959 72 p. (mimeo)

Anyone who wishes to know what is going on in Wisconsin state government should have this reference guide close at hand. As indicated in the introduction, it is "a labor of love," and as such, it fulfills a very useful purpose. This compilation is the second of its type and much more complete. Part I lists active or recently completed (since 1956) research projects with some relationship to the legislative or administrative operations of Wisconsin units of government and Part II summarizes recurring basic statistical data on Wisconsin (this latter section still is quite incomplete). Major subjects of interest in each case are divided alphabetically by appropriate titles. --- W.E.S.

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GUIDE TO THE MANUSCRIPTS OF THE STATE HISTORICAL SOCIETY OF WIS.
Supplement Number One
By Josephine L. Harper and Sharon C. Smith

State Historical Society of Wis.
816 State st., Madison 6

1957 222 pp. $5.00

The first supplement to the 1944 Guide continues the listing of manuscript materials of the Society through May, 1956. The 800 entries indicate the continuing scope and depth of the Society's collecting activities and its wealth of holdings. Entries are listed alphabetically and are indexed.

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SOIL SURVEY OF ONEIDA COUNTY, WIS.
By Francis D. Hole and I. O. Schmude

Soil Survey Division
204 Soils Bldg., Univ.of Wis.
Madison 6, Wis.
1959 60 pp. $1.25

Bulletin 82 of the Soil Survey Division of the Wis. Geological and Natural History Survey describes the characteristics of the major soils and landscapes of Oneida county. There are chapters on agriculture and forestry, soil classification, soil productivity ratings, soil ratings for engineering uses, factors of soil formation (geology, climate, vegetation, man), and detailed soil descriptions. Laboratory data are presented in the appendix and the bulletin is well illustrated and accompanied by a large colored soil map. Available in June.

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MISCELLANEOUS BOOKS AND BOOKLETS

These recent publications of interest are free from sources listed unless otherwise noted. * indicates author or editor is Academy member.

From Conservation Department (Box 450, Madison 1): "The Bluegill - Its Life History, Ecology and Management"* by HOWARD SNOW, ARTHUR ENSIGN and JOHN KLINGBIEL; "A Summary of Habitat Destruction and Restoration, 1957"* by D. JOHN O'DONNELL et al; "Tiffany Wildlife Area" leaflet; "Inventory of Forest Resources, Wood County Forest, 1959" and also for "Monroe County Forest, 1959"; "Rock County Wetlands" (limited edition). Cont'd on p.47

Photo by Bertelson Studio

In Memoriam

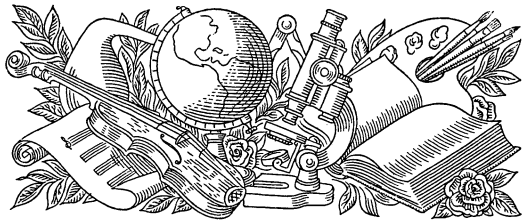
Lucia Russell Briggs
1887-1960

LUCIA RUSSELL BRIGGS, president of Milwaukee-Downer College from 1921 to 1951, its Centennial year, died on January 10, 1960, in Plymouth, Massachusetts.

Carrying on the 30-year record of her predecessor, Ellen C. Sabin, Miss Briggs brought distinction to the office by her family background, her personal character, and her academic leadership. The daughter of LeBaron Russell Briggs, long-time dean of Harvard and president of Radcliffe, and Mary DeQuedville Briggs, one of the earliest graduates of Radcliffe College, Miss Briggs was brought up in the academic surrounding and cultural influences of her home in Cambridge. She became the first daughter of an alumna to graduate from Radcliffe, where in 1909 she received her B.A., and in 1912, after an interval of teaching, her M.A. degree. She accepted the presidency of Milwaukee-Downer College at the age of 34.

Miss Briggs' personal qualifications for the position rested upon a high sense of moral values, a devotion to truth, and a religious faith which she conveyed to the student body and faculty in her daily chapel service. Severe but just in her treatment of offenders, she held them to the highest standards of human behavior, never allowing compromise with practices which might be accepted but were less than the best. Her academic and professional standards led the College to high accreditation, with recognition and membership in organizations which mark excellence. Milwaukee-Downer received commendation and support from the General Education Board and from the Carnegie Corporation; and in 1940 a chapter of Phi Beta Kappa was chartered at the college. Milwaukee-Downer also shared honors in her personal recognition when she was elected to the vice presidency and later to the presidency of the Association of American Colleges, the first woman to hold such office; to the same offices in the Association of Wisconsin College Presidents and Deans; and to the vice presidency of the North Central Association of Colleges and Secondary Schools. Honorary degrees of LL.D. were conferred upon Miss Briggs by Lawrence, Rockford, and Milwaukee-Downer Colleges, and by Miami University (Ohio) and the University of Wisconsin. She was for some years a member of the Wisconsin Academy.

To be cherished along with the memory of Miss Briggs' strength and leadership were the warmth of her friendship and the sense of humor which brightened her relationship with those who knew her. Her deep love of music, of books, of birds and all nature; her talent for the "bon mot," the spontaneous pun; the warmth of her smile and her quick handclasp; all bound to her the friends who now mourn her passing.---Adapted from a Faculty Memorial Resolution by Gertrude B. Jupp of the College News Bureau.



STATE AND ACADEMY NEWS

MILWAUKEE PUBLIC MUSEUM (Wallace N. MacBriar, Jr., Publicity Chairman)

ROBERT RITZENTHALER, Curator of Anthropology, and his wife have recently returned home after six months in Africa and three months in Europe. Most of their time in Africa was spent in the British Cameroon Village of Bafut where they studied the Community. They taped about 15,000 feet of instrumental and vocal music of this culture. Black and white photos, 1000 Kodachrome slides, and 7800 feet of film was exposed in documenting their studies. Over 100 specimens, typical of the area under study, were brought back. In Europe they traveled 10,000 miles visiting museums and archeological sites, studying exhibition techniques and examining collections, particularly West African and prehistoric copper which might prove to be related to our old Copper Culture in Wisconsin. ... EDWARD GREEN, Museum Artist, and his wife also spent last summer on a European tour of Museums. About 120 major museums were visited in this study of exhibition techniques. Thousands of notes, hundreds of slides, and dozens of idea sketches were made to be worked into a series of articles for museum publication. Sketches were exhibited at the University of Wisconsin and are touring the state for a four-month period.

Miss EDITH H. QUADE has been appointed Curator of Education, replacing MURL DEUSING who resigned last year. She has spent 18 years in the Education Division of the Museum where she developed and presented a number of new teaching techniques and methods of presentation of scientific materials to school children who visit the Museum. Her responsibility includes a teaching staff, an audio-visual service, and a television section, and she also lectures frequently. . . . Museum Director STEPHAN F. BORHEGYI and LEO JOHNSON, Photographer, have returned from extensive field work in the vicinity of Guatemala City. For several years prior to his coming to Milwaukee, he cooperated with the Viking Fund and the Bollinger Foundation in his underwater archeological studies of the Maya Culture. This year's expedition has been made possible through the American Philosophical Society and the Museum. They are both experienced skin divers and utilized underwater camera equipment built by EDWARD MOHL, Museum Artist. The equipment enabled Director BORHEGYI to document his underwater archeological techniques and graphically show how specimen material is located and retrieved for future study. His research centered at Lake Amatitlan. . . . JAMES R. NEIDHOEFER, Research Associate in Entomology, and KENNETH MacARTHUR, Associate Curator of Invertebrate Zoology, recently participated in an entomological expedition to southern Brazil where about 8,000 specimens were collected. NEIDHOEFER is best known to Academy members for his research on the fresh water sponges of Wisconsin, published in the TRANSACTIONS, although his field of special interest is the Lepidoptera. MacARTHUR will continue a long-term investigation on the phenomenon of mimicry among the insects and Brazil offers an especially rich field for the work. One of the incidental objectives of the expedition was the collecting (Cont'd on p. 42)

WISCONSIN ACADEMY COUNCIL MEETING

By Roger Schwenn, Secretary

The Academy Council met at the Wisconsin Center of the University of Wisconsin in Madison on February 6 and the following is a summary report of actions taken and matters considered. In attendance were Messrs. Baier, Behling, Darling, Dicke, Hughes, Ihde, Kowalke, Noland, Roeming, Schuette, Schwenn, Scott, Thomson, Pres. Meyer, Mrs. Nelson and Rev. Reis.

1) Chairman of the Program Committee, MERRITT Y. HUGHES, reported on progress being made by his committee in setting up the 90th Annual Meeting in May. A four-page tentative schedule of events for May 6-8 was presented and discussed at length. Chairman of the Local Arrangements Committee, ROBERT J. DICKE, also reported on the plans of his committee.

2) President MEYER reported that the invitation to the Governor and his wife to attend the Annual Banquet of the Academy had been regretfully refused because the Governor would be out of the State on May 7. The President was empowered to extend an invitation to the Governor to send a representative of State government to the Annual Banquet.

3) Mrs. KATHERINE NELSON reported for the Long Range Planning Committee, of which she is Chairman. Possible locations for future annual meetings were discussed. These include: Waukesha (Carroll College), Central Wisconsin (Wausau or Stevens Point), the Fox River Valley, La Crosse and Superior. President MEYER felt that the Committee should present recommendations for future meeting sites and Mrs. NELSON was empowered to commit Waukesha first, and Wausau second if Waukesha fails or withdraws itself from consideration as the site of the 1961 annual meeting.

4) Treasurer DAVID J. BEHLING distributed copies of a financial report and announced that 1131 dues notices had been mailed and that money was becoming available to take care of current obligations. He stated that the basic financial problem still was the annually recurring cost of publishing the TRANSACTIONS. The invoice for publishing Volume 48 had just been received and amounted to $3,255. The Treasurer was empowered to inform members who are delinquent in dues that their names will be dropped from membership three months after notification that dues for the past year and for the current year remain unpaid.

The Treasurer reported the following gifts which were accepted: Dec. 7, 1959, from the Wis. Public Service Corp., $50; Jan. 8, 1960, from C. M. Goethe, Sacramento, Calif., $50; and Jan. 17, 1960, from Harry Steenbock, Madison, $100.

5) Finance Committee Chairman JOSEPH BAIER made a preliminary report based on two meetings of his full committee. Various individuals and sub-committees have gone to work to: establish long range needs of the Academy and the means of raising financial support, conduct an analysis of past and present membership make-up, project future policy concerning scholarships and fellowships, publish a new membership invitation brochure and plan for the Academy's Centennial celebration. This is only a partial listing of the Committee's plans.

6) Chairman of the Membership Committee ROBERT ROEMING presented their plans for a spring campaign and other proposals.

7) Secretary ROGER SCHWENN distributed and commented upon a membership chart he had drawn up covering the period 1945-1960. Also, a list of new members was approved.

8) Chairman JOHN THOMSON reported for the Junior Academy on the spring schedule of science fairs, regional meetings and competitions. He stated that he had had no word regarding the projected March 1960 U. S. Army Ordnance science symposium for Wisconsin junior scientists. Discussion of Professor FRANCIS HOLE's letter to Senators PROXMIRE and WILEY and Representative KASTENMEIER and their replies concerning the Army's program and its implications followed. The Council reaffirmed the decision made on this matter at its meeting of October 24, 1959. (See item 7, p. 181, Fall 1959 Academy Review).

9) President-Elect MERRITT Y. HUGHES reported on progress to date in developing a new Junior Academy of Arts and Letters. There is much interest in such a project and the future for such an organization appears bright. President HENRY MEYER was instructed to communicate with University of Wisconsin President CONRAD ELVEHJEM regarding arrangements for a meeting of appropriate University of Wisconsin officers and appropriate officers of the Academy concerning the desirability of initiating activities in the area of arts and letters, which will parallel programs and activities now supported in Junior Academy of Science work. The Academy President was empowered to make the necessary appointments of Academy personnel for such discussions, which also may include other subjects.

10) Editor of the Review WALTER E. SCOTT summarized the contents of the Winter 1960 issue. He also gave the Librarian's Report, in which he made the following recommendations concerning charges for TRANSACTIONS back volumes, which was approved: That all volumes of which the Academy has less than 25 copies be sold for at least $1.00 (except to Wisconsin-centered libraries) and that when this number is down to 15 copies the price increase to $3.00 and that after stock is down to only five copies, the price should go up to $5.00 per volume. (This does not involve the rare Volume 1 which the Academy will continue to hold at $50.00).

11) KENNETH MAHONY's offer to bring the index of the TRANSACTIONS up to date was accepted, subject to consultation with a committee consisting of WALTER E. SCOTT and STANLEY BECK.

12) Chairman WALTER E. SCOTT of the Publicity Committee reported on their plans and the preparation of a suggested Proclamation concerning the 90th Anniversary Meeting which might be issued by the Governor this spring, and which was approved in substance.

13) President HENRY MEYER announced that the following members have consented to serve on the Nominations Committee: STEPHEN F. DARLING (Chairman), HENRY A. SCHUETTE, JOSEPH G. BAIER and Rev. RAYMOND H. REIS. The President also read a letter received from DAN Q. THOMPSON concerning Junior Science Talent Search Committee work.

14) MERRITT Y. HUGHES moved (Second by LOWELL E. NOLAND) that the Academy create two new classes of membership, namely institutional members and student members, and that this change be made by amending the introductory statement in Article III of the Constitution to read "The Academy shall include eight classes of members, viz.: life members, honorary members, sustaining members, patrons, corresponding members, institutional members, student members and active members, to be elected by ballot" and by adding a 7th and an 8th section to Article III defining these new classes. Motion carried and the proposal will be voted upon by the membership at the annual meeting after required announcement in the forthcoming issue of the Academy Review.

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Milwaukee Public Museum News (Continued from page 39)
of a representative series of samples of Brazilian soil for soil organism analysis, as part of the National Chemotherapy Cancer Research Program. The Brazilian expedition is being sponsored by Neidhoefer & Co. of Milwaukee of which Academy Member JAMES R. NEIDHOEFER is President. . . . Other activities of interest at the Museum has been the revision and modernization of the Woodland Indian Hall opened December 15, 1959. . . . A working model of a Firefly (Photinus pyralis), 250,000 times the bulk of the real specimen, was placed on exhibit recently. Thermo-plastic was used in forming the wings and feet and thermo-setting used in the body. The abdomen flashes as in the live insect. Patrons operating a switch can place the exhibit in darkness except for the flashing apparatus, thus simulating the appearance of what one might see at night.

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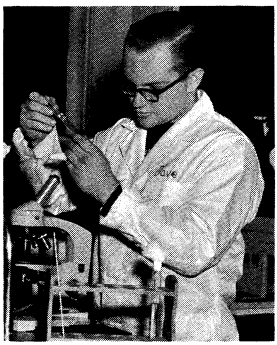
LAKELAND COLLEGE (Bob Spatt, Reporter)

STUDENT PERSONALITY PROFILE: David Wacker, 19-year old Lakeland College sophomore, was one of six 4-H youths in the United States to be named a national electricity project winner last year. For building his own electric welder, he earned a $400 scholarship and an all-expenses paid trip to the National Club Congress in Chicago in November. While attending the Congress, Wacker, a chemistry and biology major, was selected as the most outstanding of the six national winners. David is the son of Mr. and Mrs. Frank Wacker, route 2, Plymouth. A gifted student, he's never had a grade lower than an A. After a semester at the UW, he transferred to Lakeland so that he could assist his father on the recently inherited mink farm. His dad didn't know much about raising mink but David did, for he had helped his grandfather for many years. David found it quite a chore to keep up his studies and water and feed the mink. An automatic watering system cost $3,000 --more than they could spend--so David built his own, using 2,000 feet of copper tubing from an old mink food storage freezer and tin cans for watering cups. The system cost him $275, including a new pump for more pressure. Result: a faster job and larger, more valuable mink. They now weigh more because water is available and the animals eat more after each trip for water. In addition, he has installed a water spray to keep his mink cool in summer and has the pens completely wired for floodlighting. Now he is reading up on genetics. He has a cream colored mink strain which could triple the value of the pelts. He also has devised a simpler way of pelting and can scrape the fat from the hides in just 45 seconds. David is always busy with 4-H projects or activities. His aim in life is to become a biochemist in industry or to teach these subjects.



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UNIVERSITY OF WISCONSIN-MILWAUKEE (Peter J. Salamun, Reporter)

UW-M inaugurated a Freshman Forum course last semester with the theme "What Does a University Mean?" Chairman of the committee is JOSEPH G. BAIER, and other Academy members on the committee are JAMES F. MARSHALL, ADOLPH A. SUPPAN (coordinator of the course) and RUTH I. WALKER. Among the 16 lecturers are Profs.

BAIER, MARSHALL and SUPPAN and Academy members J. MARTIN KLOTSCHE, ROBERT F. ROEMING and Mayor FRANK P. ZEIDLER. ... JOHN BAXTER was the recipient of a $4,300 grant from the Nat'l Science Foundation to study the Rusts of southwestern U.S. and northern Mexico. ... ELDON WARNER has returned to resume his duties as chairman of the department of zoology after a leave of one year, when he was a Science Faculty Fellow under a grant from NSF and worked at the Univ. of California, Marine Biological Laboratory at Woods Hole, and the Univ. of Wisconsin. ... Two new assistant professors have joined the staff of the zoology department, ANDREW McCLEARY and CLINTON OLMSTEAD.

Notes from the Marquette Univ. News Bureau and Professor Scott Kittsley, Reporter

Father ADRIAN J. KOCHANSKI, S.J., dean of Marquette's College of Liberal Arts, has been granted an indefinite leave of absence to assist with the spring opening of the Jesuits' new university in Seoul, Korea. He will serve as educational consultant to the new university. ... Institutes for senior high school teachers of biology and mathematics will be offered during Marquette's 1960 summer session under grants from the Nat'l Science Foundation. Applications were accepted through Feb. 15 with stipend winners announced March 15. ... DONALD J. McDONALD, newspaper editor and columnist, has been named editor of the new Marquette Magazine. Publication of the quarterly magazine devoted to objectives and problems of higher education will start in March, 1960. ... JACK B. GREENE, assistant professor of physics, has been awarded a National Science Foundation faculty fellowship for advanced work in solid state physics at the Massachusetts Institute of Technology during the 1960-61 school year. ... Marquette's College of Engineering has been awarded an additional grant of $64,815 by the AEC to expand the new nuclear energy laboratory there. ... Marquette's petition to establish a chapter of the Society of Sigma Xi has been granted by the national organization of research scientists, and 82 members of the Milwaukee Sigma Xi club will become charter members.

REZNEAT DARNELL, assistant professor of zoology, has been granted $12,000 by the NSF for research at Marquette and at the Duke Marine Laboratory, Beaufort, N.C., on "Quantitative Aspects of Secondary Production in Estuarine Fish Populations." ... Father LAWRENCE FRIEDRICH, S.J., chairman of Marquette's physics department, Prof. RAYMOND McCALL, chairman of the psychology dept., and JOSEPH SCHWARTZ, associate professor of English, lectured in an "Operation Update" program of Marquette alumnae March 17, 24 and 31, when a limited number of alumnae return to campus classrooms for a review of developments in the humanities, physical and social sciences. ... Father FRIEDRICH became the new dean of the graduate school on Feb. 1, as well as chairman of the University's library board and committee on research. ... A $71,000 endowment was made to the Medical School in the name of the late Oscar Plotkin, Milwaukee industrialist, for research on Alzheimer's disease and related neurological disorders.

BELOIT COLLEGE (Prof. Carl Welty, Reporter)

Ten of the small, liberal arts colleges of this part of the country (Beloit, Carleton, Coe, Cornell, Grinnell, Knox, Lawrence, Monmouth, Ripon and St. Claf) have formed an organization known as the Associated Colleges of the Midwest to study and to work out mutual problems. The organization, under the presidency of BLAIR STEWART, formerly of Oberlin College, has been operating about a year under a grant from the Ford Foundation. ... Two of the current concerns of the special

science committee (made up of one representative from each college) are: 1) The "Argonne Semester." This educational enterprise, which is to start next September, involves a semester of research and study in atomic chemistry, physics or biology for highly selected students majoring in those fields from member colleges. The student will spend a semester at the Argonne Nat'l Laboratories, will be paid for part-time (research) work done there but will receive credit toward graduation at his own college. Part of his study at Argonne will be supervised by Argonne staff members and part by three faculty members at Argonne from their respective colleges. These latter will be appointed as Argonne Research Associates, will work at Argonne for a calendar year on leave from their respective colleges, be paid partly by Argonne and partly by their colleges, and will be selected from the fields of biology, chemistry and physics. These three faculty members will do research in their fields insofar as Argonne facilities afford. 2) These same colleges are planning a summer biological station for faculty research and for undergraduate field study in various botanical and zoological fields that the several colleges either offer at present in their curricula, or feel they have the facilities and trained personnel to initiate. Location of the station has not been settled and consideration of a new site in the north or an already established one is coupled with proposals for sites on the Gulf Coast and Guatemala. Academy member DANIEL Q. THOMPSON heads the committee studying the possibilities. ... On Saturday, February 13, Beloit College marked the opening of its 115th school year with the announcement of an "Educational Blueprint for the Future" by President MILLER UPTON. Besides proposed new buildings including both a library and science unit, plans called for expanded opportunities for overseas studies as well as even more attention to special programs for superior scholars and studies in American and Russian subjects. The Beloit student body now numbers about 950. ... Beloit College has received an early 16th century German painting from the estate of Mr. and Mrs. Charles H. Morse of Lake Forest, Ill. "The Adoration of the Magi" is the work of Lucas Cranach the Elder.

UNIVERSITY OF WISCONSIN (Notes from U.W. News Serv.)

Three courses of liberal studies will be offered Wisconsin alumni again this summer. Held at the Wisconsin Center in Madison, they will deal with "Nature, Man, & God in the 17th and 18th Centuries," "Conflicts of Science with Tradition in the 19th and 20th Centuries," and "The Arts in Modern Western Culture." Leaders will be Academy members AARON IHDE, ROBERT C. POOLEY, and FREDERICK M. LOGAN. ROBERT SCHACHT is the UW Extension Division organizer. Other Academy members who will lecture are ERWIN HIEBERT, HASKELL M. BLOCK, JOHN E. WILLARD, AARON BOHROD, JONATHAN W. CURVIN, and UW President C. A. ELVEHJEM. ... The first Extension Center building erected specifically for that purpose was dedicated by UW President C. A. ELVEHJEM at Wausau recently. Director HENRY C. AHRENSBRAK of this Marathon County Center presided at the ceremonies. The college, supported largely by the local community, will accommodate up to 260 students and is equipped to assure a quality program for the first two years. ... A recent report in School and Society magazine states that the Univ. of Wisconsin ranks third in the number of doctorate degrees granted from 1948 to 1958. ... Valuable books in the field of agricultural economics from the library of the late Prof. GEORGE S. WEHRWEIN have been given to the Univ. of Wisconsin libraries by his widow. In addition, a large collection of his personal papers was presented to the State Historical Society.

Two Academy members, D. M. BENJAMIN and R. L. GIESE, were among those announcing the recent finding that insects probably are responsible for the "maple blight" spreading into Wisconsin these last few years. Their report was made to the Entomological Society of America. ... The Racine Chamber of Commerce has presented $8,000 to the Wisconsin Alumni Research Foundation to establish the JOHN C. WALKER lectureship, honoring the UW plant pathologist, who is a native of Racine. ... FARRINGTON DANIELS, emeritus professor and former chairman of the chemistry department, has been elected a fellow of the American Nuclear Society. ... UW Pres. CONRAD ELVEHJEM has received the honorary LL.D. degree from the University of California and delivered the inaugural address for Dr. EMIL MRAK, new chancellor of the Davis campus. ... Prof. JOHN D. FERRY, chairman of chemistry, has been elected vice-president of the Society of Rheology. ... Prof. VINCENT C. RIDEOUT, electrical engineering and Mathematics Research Center, has been elected a fellow of the Institute of Radio Engineers. ... Prof. JAMES F. CROW, chairman of medical genetics, has been elected president of the Genetics Society of America. ... Prof. SEWALL WRIGHT, genetics, received an honorary degree at the University of Chicago in connection with the Darwin Centennial. ... The Explorer VII satellite launched into successful orbit Oct. 13 included "heat budget" experiment instruments developed by a team of University scientists led by Prof. VERNER SUOMI. ... The University ranks seventh in the nation in full-time enrollments and eighth in grand-total enrollments in the annual survey of U.S. colleges and universities by RAYMOND WALTERS of the Univ. of Cincinnati. ... A new literary magazine, "Wisconsin Studies in Contemporary Literature," is to be published semi-annually at the University with Prof. FREDERICK J. HOFFMAN of the English department as advisory editor. The magazine will be distributed nationally and editors plan to draw contributors from critics and scholars throughout the United States.

HARRY STEENBOCK was one of nine U.S. scientists recently honored by the Borden Co. Foundation for outstanding research achievements and his biography was reviewed in their 1959 Awards Directory in addition to presentation of a gold medal and $1000. ... AARON BOHROD, UW artist in residence, recently held another one-man show of his recent paintings at the Milch Galleries in New York City. ... An unusual Gemstone Prospecting Tour of the Rocky Mountains has been announced for 28 days from July 8 through August 14 this summer with Prof. ARTHUR A. VIERTHALER in charge. Additional information can be secured from ROBERT H. SCHACHT, Assist. Dir., Informal Instructional Services, 303 Ext. Bldg., Univ. of Wis., Madison 6.

MISCELLANEOUS COLLEGE NOTES

Ripon College observed the 109th anniversary of the granting of its charter in January with President FRED O. PINKHAM presenting the address for this ceremony. ... Ripon also has added a third year to its Russian language course and Professor WACLAW JEDRZEJEWICZ, former Minister of Education for Poland, reports that this will make their program in the field equal to the country's leading colleges and universities.

President PERCY L. DUNN of Milton College has announced a Development Campaign for the building of a Girls' Dormitory and cafeteria and also a new athletic center. As of January 1960 almost one-half million dollars had been pledged. It is expected both structures will be well underway by this summer.

Second semester enrollment of four-year students on the Wisconsin State College campuses totals 13,453 compared with 13,030 in 1959. Of these, 8,201 are studying to be teachers. * * *

HONORS AND AWARDS

The following are honors and awards of Academy members in addition to those reported elsewhere: MERLE CURTI, UW professor of history, received a $10,000 prize for "extraordinary scholarly achievement" from the Am. Council of Learned Societies recently. ... LOUIS E. WISE, Senior Research Associate of the Institute of Paper Chemistry (Appleton) received the 1960 award of merit presented by the Technical Assn. of the Pulp and Paper Industry. ... FARRINGTON DANIELS, UW professor of chemistry, received an honorary degree from the University of Dakar in French West Africa for his work in solar energy research. ... IRA L. BALDWIN, special assistant to the UW President, was recently presented an honorary recognition certificate by the Wisconsin Chapter, Soil Cons. Soc. of America, for his work in conservation. ... The late VERNOR C. FINCH was honored posthumously by the McGraw Hill Book Co. in marking sale of the 250,000th copy of his textbook on "Elements of Physical Geography." ... An oil portrait of the late Chief Justice MARVIN B. ROSENBERRY, presented by his son, Atty. Samuel Rosenberry of New York, has been hung in the foyer of the court chambers. ... HJALMAR R. HOLAND of Ephraim is one of two honorary curators of the Wisconsin State Historical Society.

A number of Academy members have been honored by feature articles about them or similar recognition as follows: WILLIAM E. SIEKER in the Capital Times (Madison) of Jan. 8, 1960; HELEN C. WHITE in the Milwaukee Journal of Feb. 28, 1960; CARRIE CROPLEY in the Kenosha News of Dec. 18, 1959; ERHARDT C. KOERPER in the Milwaukee Journal of Feb. 6, 1960; KARL O. WERWATH in the Milwaukee Journal of Feb. 1960; Dr. CHARLES KEMPER in "Let's See" Magazine (Milwaukee) for Jan. 9, 1959 and HERBERT VANDER BLOEMEN in the Milwaukee Journal of Feb. 22, 1960.

NEW POSITIONS

The following are new positions of Academy members not noted elsewhere in this issue: ELLEN H. HOY (Minocqua) recently was re-elected to the Board of Directors of both the State Radio Listeners, Inc. and the Northland Historical Society. ... Academy members active in the newly organized Wisconsin Arts Foundation and Council, Inc. include ROBERT E. GARD (Pres.), ROBERT H. SCHACHT, (Sec.), S . JANICE KEE and AL P. NELSON (Directors) and MILTON WEBER (Arts Committee). ... EMIL TRUOG, UW Emeritus prof. of soils, has been elected Vice-Pres. of the Wis. Chap. SCSA. ... UW Bacteriologist P. W. WILSON has been named to a national committee on microbiology training. ... Forester CHARLES H. STODDARD, Director of the Nat'l School of Forestry and Conservation (Minong) has been appointed to the Exec. Committee for the 5th World Forestry Congress to be held in Seattle, Wash. Aug. 20-Sept. 10 this year. ... Dr. ARNOLD S. JACKSON of Madison is President of the JACKSON FOUNDATION dedicated to medical research and other scientific and benevolent purposes. ... State Forester JOHN A. BEALE is a new member on the Lincoln Fellowship of Wis. Board of Directors. ... Rev. ALFRED W. SWAN was elected chairman of the Div. of Ecumenical Relations of the Wis. Council of Churches which includes membership on their Board of Directors. ... FRED A. PAEGELOW (Slinger) was elected President of the Wis. Campers Assn., Inc. for 1960. ... Prof. FRANCIS HOLE is the new chairman of the Madison Peace Center. ... EMIL KAMINSKI has been elected to the Middleton Sportsmen's Club Board of Directors. ... ALBERT M. FULLER is continuing this year as Chairman of the State Board for the Preservation of Scientific Areas. ... Dr. CHARLES KEMPER is Vice-Pres. of the Inland Bird Banding Assn. ... GEORGE M. CHESTER was elected Secretary of the reorganized Friends of the Museum, Inc. (Milw. Public Museum). ... WARREN J. WISBY has transferred

for new fishery research work to the Marine Laboratory, Univ. of Miami (Florida). ... New officers of the Wis. Chapter Soil Cons. Soc. of America include Council Members CYRIL KABAT and M. N. TAYLOR as well as Membership Chm. MARVIN BEATTY. ... E. B. FRED has been appointed by President Eisenhower to a two-year term on the International Development Advisory Board.

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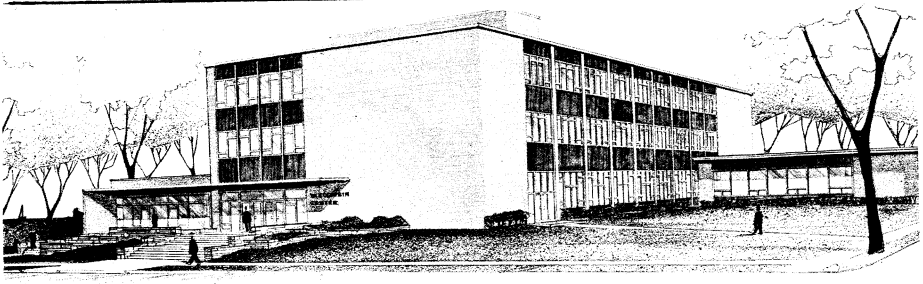
PUBLICATIONS AVAILABLE: (Continued from page 37)

From Other State Agencies: Coordinating Committee on Higher Education (Wis.Center Bldg., Madison 6): "Coordinating Higher Education in Wisconsin," and mimeographed reports and summaries, "Wisconsin College Enrollments, Fall 1959," "1958 Corporation Support of Higher Education," "Degrees and Diplomas Granted by Colleges of Wisconsin with Certain Comparisons on a National Basis," "Status of Guidance Services in Wisconsin," "A Study ... Dealing with the Feasibility of a Longer School Year for Wisconsin's Public Colleges and Universities," "College and University Faculties," "The Junior College: An Overview," "Patterns of Organization and Support in Public 2-Year Colleges;" from State Dept. of Public Welfare (State Office Bldg., Madison 2) "Wisconsin Legislation Pertaining to Recreation;" from Bureau of Government (UW Extension Div., Madison 6): "County Government and the Problems of Urban Expansion;" from office of Prof. J. Kenneth Little (Bascom Hall, UW, Madison 6): "Explorations into the College Plans and Experiences of High School Graduates;" from UW College of Agric. Bulletin Mailing Room (Madison 6): "The Growth of Agricultural Research in Wisconsin "* and "The County Extension Agent in Wisconsin."

From Other Sources: U.S. Geological Survey (Quality of Water Branch, Columbus, Ohio): "Sediment Investigations of Wisconsin Streams," by C. R. COLLIER from data supplied by F. T. SCHAEFER,* C.L.R. HOLT, Jr.* et al; U.S. Fish & Wildlife Service (Washington, D.C.): "Lake Superior Limnological Data, 1951-57," Sp.Sci.Rpt. Fisheries No. 297; from Metropolitan Study Comm. (Memorial Ctr.306, Milwaukee 2): "Regional Planning Legislation in Wisconsin: A Final Report with Recommendations;" from USDA Forest Products Lab. (Madison 5): "The Effect of Environmental Factors on Wood Quality,"* Rpt. 2170, by BENSON H. PAUL; from Lake States Forest Exp.Station (St. Paul 1, Minn.): "Influence of Ownership on Forestry in Small Woodlands in Central Wisconsin;" from Trees for Tomorrow, Inc. (Merrill): "15th Annual Report, Trees;" from USDA Agr. Res.Service (Rm. 128S, State Capitol, Madison): "Impacts of Changes in Land Use - A Study of an Urban-Rural Area of Southeastern Wisconsin."

Available for a price: "Soil Survey Horizons" is a new quarterly published by N.C.R. Workshop of Coop. Soil Survey, 203 Soils Bldg., UW, Madison 6, at $2 per year, edited by FRANCIS D. HOLE* et al; "Wisconsin tales & trails," a magazine about Wisconsin and its people, will appear quarterly beginning in March at $5 per year, edited by LeROY GORE, Ft. Atkinson; "Arts in Society" Winter 1960, 75¢, from The Bookstore, UW Ext. Div., Madison 6, will have a new editor in Spring, EDWARD L. KAMARCK of the Wis. Idea Theater; "Wisconsin Press," the "revived" official publication of Wisconsin Press Assn., 235 Washington Bldg., Madison 3, is $2 for 6 issues; MOORE's "Who Is Who in Wisconsin" was published recently containing biographical sketches of at least 30 members of the Wisconsin Academy and will be reviewed in the next issue; "Municipal Street Trees" is $3 from the League of Wis. Municipalities, 30 E. Johnson st., Madison 3 and is A Manual for Public Officials and Municipal Foresters. # # #



WISCONSIN CENTER

ATTEND 90th ANNIVERSARY MEETING AT MADISON
FEATURING SYMPOSIUM ON WISCONSIN LAKES

May 6-8, 1960

PROGRAM HIGHLIGHTS

May 6, Friday evening - Reception: Early registration (fee $1.00)
Exhibit on Wisconsin lakes - Art exhibit, maps and photos
Meet your friends - Enjoy music and refreshments
Exceptional movies in Center auditorium climax of evening
(Orders of back issues of TRANSACTIONS may be picked up)

May 7, Saturday morning - Welcome by UW Pres. Conrad A. Elvehjem
Symposium on Wisconsin Lakes: Chairman, William B. Sarles
Limnology - Arthur E. Hasler and Reid A. Bryson
Problems - G. A. Rohlich and Edw. E. Schneberger
History - Frederic G. Cassidy and Alice E. Smith
Saturday afternoon - Papers sessions: Three simultaneous meetings featuring biological sciences, physical sciences and arts and letters. Business meeting follows paper sessions

Saturday evening - Banquet: Great Hall, Memorial Union
Toastmaster - Robert C. Pooley
Governor's greetings delivered by Lt. Gov. Phileo Nash
President's address by President Henry Meyer
Announcements of Junior Academy of Science winners

May 8, Sunday - All-day field trip
Hydrobiology Lab and boat trip on Lake Mendota
Guides - Arthur E. Hasler and assistants
Lunch on Picnic Point
Bus trip to Edgewood Biological Lab on Lake Wingra
Thence to UW Arboretum
Guides - Grant Cottam and Robert A. McCabe and assistants

NON-MEMBER GUESTS ARE INVITED TO ATTEND

Junior Academy of Science
also will hold an all-day session on May 7
at Wisconsin Center

NEW MEMBERS

Sustaining:
JOHN S. LORD, Chicago 3, Illinois

Family:
Mrs. WILLIAM D. BURDICK, Milton (he is a member)
Mr. and Mrs. JOHN GUY CARLTON, Jr., Madison
ONAN and SELMA EIDE, Prairie du Chien
Mr. and Mrs. VERNON E. HILL, Spring Green
LeROY and EVELYN KINGSBURY, Turtle Lake

Active:
JACK R. ARNDT, Madison
E. W. BLACKFORD, Wausau
ANTHONY J. CATANA,Jr., Green Bay
WILLIAM D. DOWLING, Green Bay
AROL C. EPPLE, Stevens Point
Miss NANCY HALLIDAY, Beloit
MELVIN A. HINTZ, So. Milwaukee
THEODORE P. KAFKA, Withee
ROBERT A. KIMBROUGH, Madison
DAVID B. LELLINGER, Ann Arbor, Mich.
HOWARD W. MEAD, Madison
WALTER A. ROWLANDS, Madison
MATHILDE M. SCHOESSOW, Milw.
CHARLES W. SCRIBNER, Appleton
DARROLL D. SKILLING, St. Paul Minn.
JAMES C. WARD, Wausau
LESTER H. WILLIAMS, Green Lake
Dr. HOWARD A. WINKLER, Pardeev.
JULES R. VAUTROT, Whitewater
The Rev. LIBRARIAN, St.Norbert Abbey, De Pere

ATTEND 90th ANNIVERSARY MEETING
FEATURING SYMPOSIUM ON WISCONSIN LAKES
May 6-8, 1960

OFFICERS OF THE WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS

PRESIDENT: Henry A. Meyer, Wisconsin State College, Whitewater
PRESIDENT-ELECT: Merritt Y. Hughes, Bascom Hall, U.W., Madison
VICE-PRESIDENTS: Sciences: Aaron J. Ihde, Univ. of Wis.,Madison
Arts: Douglas Knight, Lawrence College, Appleton
Letters: Berenice Cooper, Wisconsin State College, Superior
LIBRARIAN: Walter E. Scott, Madison
SECRETARY: Roger E. Schwenn, Univ. of Wis., Madison
TREASURER: David J. Behling, NW Mutual Life Ins. Co., Milwaukee
THE COUNCIL: The above-listed officers and the Past-Presidents: Paul W. Boutwell, A. W. Schorger, H. A. Schuette, L. E. Noland, Otto L. Kowalke, E. L. Bolender, Katherine G. Nelson, Ralph N. Buckstaff, Joseph G. Baier, Jr., Stephen F. Darling, Rev. Raymond H. Reis, S.J., and Robert J. Dicke

COMMITTEES: Publications: The President and Secretary, ex officio, and the Editor of the TRANSACTIONS, Stanley Beck
Membership: Robert F. Roeming, Chairman; Harry G. Guilford; and C. W. Threinen

REPRESENTATIVES ON COUNCIL OF A.A.A.S.:
Robert J. Dicke, Madison Stephen F. Darling, Appleton

CHAIRMAN, JUNIOR ACADEMY OF SCIENCE: John W. Thomson, U. W.

EDITOR, WISCONSIN ACADEMY REVIEW: Walter E. Scott, Madison

EXCHANGE LIBRARIAN: Miss Laurel Nelson, Memorial Library, U. W.

UNITED STATES OF AMERICA

The State of Wisconsin

EXECUTIVE DEPARTMENT

A PROCLAMATION

WHEREAS, the Wisconsin Academy of Sciences, Arts and Letters was chartered by the State Legislature on March 16, 1870 as an incorporated society serving the people of Wisconsin by encouraging investigation and dissemination of knowledge in the sciences and humanities, and

WHEREAS, this organization has served its high purpose without interruption through the publication of Transactions distributed to six hundred institutions of higher learning throughout the world, through the establishment of a library of exchange publications totaling approximately 40,000 volumes constantly available to Wisconsin scholars, and through the creation and support of a Junior Academy of Science to promote these worthy objects among the youth of the state, and

WHEREAS, the Wisconsin Academy of Sciences, Arts and Letters is celebrating its 90th Anniversary meeting at the Wisconsin Center in Madison from May 6 to 8, 1960:

NOW, THEREFORE, I, GAYLORD A. NELSON, Governor of the State of Wisconsin, do hereby proclaim the first weekend of May as

WISCONSIN ACADEMY TIME

and urge all citizens of Wisconsin to consider the high and significant purposes of this society and to give it their support and counsel to the full extent of their related interests and abilities.

In TESTIMONY WHEREOF I have hereunto set my hand and caused the Great Seal of the State of Wisconsin to be affixed. Done at the Capitol in the City of Madison this second day of March in the year of our Lord one thousand nine hundred and sixty.

Gaylord Nelson

GOVERNOR

By the Governor:

Secretary of State