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Walter Colquhoun 1959

WISCONSIN ACADEMY REVIEW

Fall, 1959

PUBLISHED QUARTERLY

THE WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS

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ATTEND 90th ANNIVERSARY MEETING AT MADISON

FEATURING SYMPOSIUM ON WISCONSIN LAKES

May 6-8, 1960

WISCONSIN ACADEMY REVIEW

Published quarterly in February, May, August and November by the Wisconsin Academy of Sciences, Arts and Letters. Active membership fee or library subscription of \$4.00 per year includes subscription to both Wisconsin Academy Review and the annual TRANSACTIONS. Address all correspondence concerning Academy business to: Roger E. Schwenn, 209 Extension Bldg., Univ. of Wis., Madison 6. Correspondence concerning the publication should be sent to the Editor concerned. Single copies 25¢ each.

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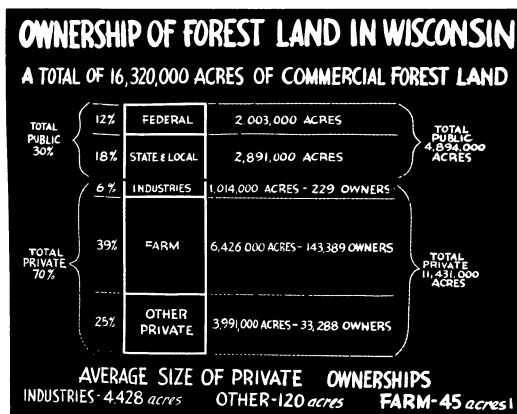
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FORESTS OF WISCONSIN — TODAY — TOMORROW

By Howard J. Makela
U. S. Forest Service, Milwaukee

In the minds of many, Wisconsin is a state whose once extensive forests were destroyed decades ago by axe, saw and fire. But reports of growing forests become more numerous every year. Just what is happening in the forest lands of the state is best summarized in a report of a recent study* that covers the conditions nationwide. In Wisconsin are 16,325,000 acres of commercial forest land, of which 70 percent--11,431,000 acres--are privately owned; the rest is in public ownerships of various kinds.



Public-owned forest land, less than 5,000,000 acres, and the million acres owned by industry are similar in one basic respect. Both are producing high yield of timber products. This is facilitated by large ownership, e.g., an industry holding thousands of acres of forest land has found it necessary to have foresters managing their lands to increase profits through higher yields of wood products.

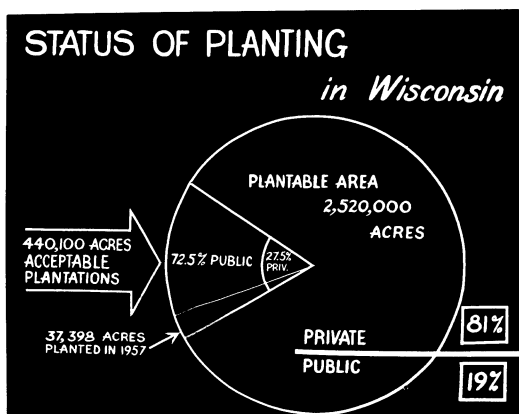
However, 64 percent of the Wisconsin forest land is in small tracts scattered through the state and is owned by more than 175,000 individuals. These properties readily fall into two general categories: (a) the farmer-

* - "Timber Resources for America's Future" published in 1958, is a 713-page report culminating a three-year study of the timber resources of America. State agencies, industry, forestry schools, and others cooperated in the venture. Commercial forest land, forest land, land forest, small private forest ownerships farm, and farm woodlands, etc., are used synonymously. By definition in the report, commercial forest land is land which is (a) producing or physically capable of producing crops of wood, usually saw-timber; (b) economically available now or prospectively; and (c) not withdrawn from timber utilization.

owned woodlands and (b) the other small private forest ownerships. Farmer-owned forest properties average 45 acres, and the other small private forest ownerships 120 acres. They are sick forests where administration from foresters depends on the owner's whim and on availability of help.

Conditions causing foresters most concern were found in the farmer-owned woodlands. Although in this category is 39 percent, or more than 6,000,000 acres of the state's forest land, they were found to be in the poorest condition for producing timber crops. More than 143,000 individuals who own this land determine how, or if, it will be managed, and not enough of them recognize the potential income from managing the land for high yield of timber crops. Sometimes the advice of foresters on how the forest should be managed to increase profits in the future is rejected in favor of lesser but immediate cash.

In only slightly better condition were the other small private ownerships that include a quarter of all forest land in the state. With more than 33,000 owners, the size of the average holding is only 120 acres. Reasons for possession vary, but frequently include recreation, hunting, fishing, speculation, etc., so managing the land for high yields of timber products is seldom practiced. The help of service foresters is available, but many do not seek it, or if they do, often disregard it when it conflicts with their beliefs or purposes results. However, more and more of these small owners are asking for technical forestry advice.



If Wisconsin is to hold its place in the nation's forestry picture annual growth of wood must be increased about 107 percent by the start of the 21st century. This can be done only by:

- (a) continuing the good management of public and industry-owned forest lands;
- (b) inducing the 175,000 small forest land owners to improve management of their properties;
- (c) plant-

ing more than 2,000,000 acres (mostly privately-owned) of potential forest land now unproductive; and by improving quality of timber grown, especially on the small private holdings.

In summary, public and industry-owned forest land in Wisconsin is now well managed for high yield of timber crops but the land in small ownerships, 64 percent of the total, is producing wood at much below the potential capacity of the land. Annual growth in Wisconsin must be doubled by the year

2000 if the state is to hang onto its current status in forestry. This cannot be achieved without improving productivity of the forest land in small ownerships. More than 175,000 owners of small forest tracts must be induced to manage their properties for higher yields of wood.

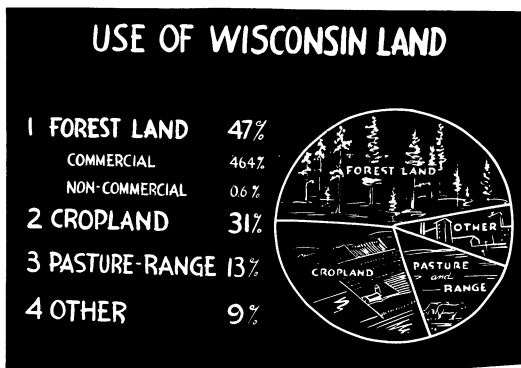
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A NOTE ON THE COVER PAINTING

During the summer of 1959 WARRINGTON W. COLESCOTT, Chairman and Associate Professor of Art and Art Education at the University of Wisconsin, conducted a study group to Europe. The tour activities included drawing and painting and a survey of the contemporary as well as the historical art forms of England, France, and Italy. The cover drawing is one done by Colescott in England and its subject is that of one of London's new "high rise" apartments thrusting up from among the older, lower London buildings.

Professor Colescott studied at the University of California, California School of Fine Arts, Academie de la Grande Chaumiere, and the Slade School of Art, London, and joined the University faculty in 1949. He was a Fulbright Scholar in 1956-57, when he worked in the processes of etching and engraving in London. His work in painting and in the graphic arts is shown widely in the Midwest and nationally, and he is represented in the collections of the University, Government of Norway, Brandeis, New York Public Library, Cincinnati Art Museum, National Gallery of Art, Victoria and Albert Museum, London, England, Metropolitan Museum, Museum of Modern Art, Brooklyn Museum and in many other public and private collections.

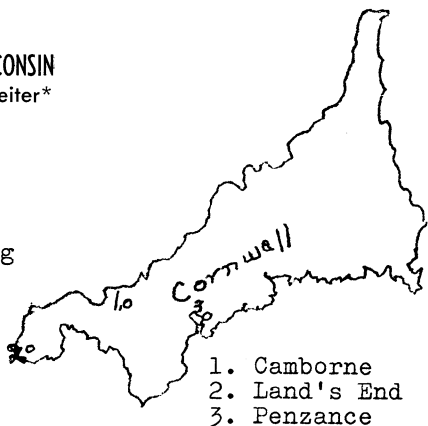
He has been Chairman of the Department since September of 1958, and is a frequent lecturer on the arts, both here and in other colleges and universities. Occasionally he has written critical articles including one on the work of Frank Lloyd Wright for Esquire. ---Frederick M. Logan



THE CORNISH IN WISCONSIN

By Mrs. A. H. Ableiter*
Platteville

Near Camborne, Cornwall, in 1819, an adventurous man with slightly more education in mining than the average Cornishman, heard about the various mines in the United States. In this little city of 8,000 population the very famous Dolcoath mine was in operation, famous for its copper and its tremendous depth, the deepest mine in history (235 fathoms).



Most likely, the man mentioned had worked as an apprentice in the Dolcoath mine or a nearby one as most all the Cornish boys did in the vicinity; and he probably learned of copper and tin and its uses in the parish schools. Each youth attended one of these for a very few hours a day, if he chose. No mining school was built in Cornwall until after 1840.

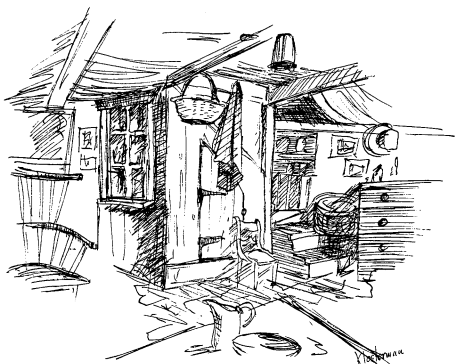
By 1819 this man was married and had a family, but his enterprising spirit made him leave his family and set sail for America. He landed in Maryland, mined and prospected there for a period of two years. Then he sent for his family. They moved on to Virginia and later to Kentucky in a period of nine or ten years.

Many people having heard of the lead region, the Eden or "Smoky Mountain Country" in Michigan Territory, were migrating north in the spring of the year. When fall came they had moved back, hence they received the name of suckers after a migrating salt-water fish. The gentleman mentioned above decided to go north with his family too. He landed at Galena and then went west to a place called Gratiot's Grove where a fort was located two miles south of Shullsburg. Thus in the spring of 1827, the first Cornishman landed in Michigan Territory. He was Francis Clyma.

New Diggins, Hazel Green (Hardscrabble) and Benton had been settled by this time. The white man was very much at work with digging and prospecting as they followed the paths of Indian trappers. The Indians, to blast, set fire

* - Mrs. Ableiter, though not Cornish, grew up among them in southwestern Wisconsin. This account is an abbreviation of her presentation at the Academy's 89th annual meeting at Platteville, May 2, 1959.

to brush on top of the rocks, heated the rocks this way and they threw cold water on to crack them. The white man, in his first blasting, lit powder in quills and straws. To Francis Clyma, this was slightly out of date. A Cornishman called Davis had invented a fuse with a long cord. As the fire ignited and ran along the cord, everybody had time to get out of the way before it blasted at the end. Knowing, also, how adept the Cornish back home were at mining, he wrote many letters to his friends and relatives in Cornwall urging them to come over. He saw a future for them.



Interior of Cornish Cottage

Quite likely he told them that the Winnebago War had been fought in 1827 and there was no immediate danger from the Red Man. The government had the land again. He probably quoted the price of land per acre (\$1.25) or informed them that ore could be used for renting land, for such was the truth. Surely he mentioned their great leader, Col. Henry Dodge, who had become a land "squatter" and refused to give up his land at a place about 40 miles north called Dodge's Grove.

Perhaps he said that America had no child labor laws such as the severe one of 1832 in England. The writer talked with a Cornish woman in Platteville whose ancestors had experienced the hardships of this law and her remark was, "At night the mothers would come and pull their children out of the rubble after they pounded ore rock all day, and their hands were cold and stiff from barren raw winds of Cornwall."

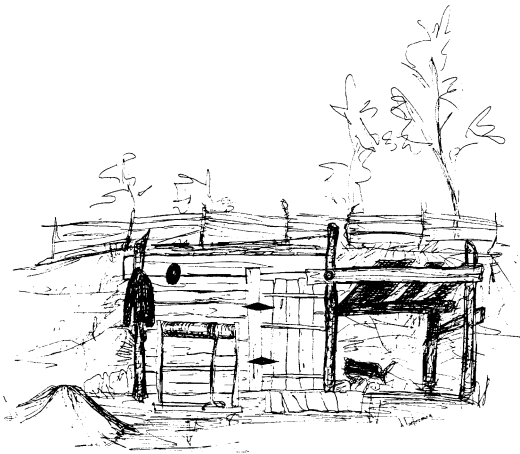
Wages were twice as high here, \$15 to \$20 a month; and 50 cents bought in America what one dollar would in Cornwall. Supposedly, he told them that their homes would have to be dug-outs or holes in the side of hills at first, until they earned enough and had time to build something more substantial. However, they were more cozy and comfortable than the grey granite homes on the moors in Cornwall.

Surely, fun and enjoyment were just as necessary as anything else and in Cornwall people had parish picnics and Kiddley-Winks or saloons. Here they had Fourth of July celebrations. Suitable for a letter was the story about

the Fourth of July dinner at White Oak Springs that lasted until four o'clock in the afternoon; and the collapse of the platform made of boxes that brought the speaker and the committee down to the ground, furnishing merriment for the rest of the day.

Maybe he told them about the race between Hulings' horse "Glass-eye" and Samuel Scales' "Old Betsey," when Huling bet and lost everything he had including his whole estate. They wrestled too in this new country, and liked it. Then there was the circuit minister, Rev. Howe, who was making his rounds regular and they could go to church at various places not over 10 or 12 miles away. This Rev. Howe had three marriages. He had two daughters from the last marriage and named them after his first two wives.

Francis Clyma's letters had weight. From 6000 to 7000 Cornish people came over in the following 15 years between 1827 and 1842. Leaving the sheer, hostile, barren coastline of Land's End, they embarked for the final journey from Penzance, on the English Riviera, and one or two other cities. They came in sail boats and each family had the use of a stove in a common kitchen. There was no way for keeping milk for younger children or babies. Salted foots, such as fish and anything that would keep, were taken from home. A prominent Cornishman in Platteville told the writer, "My Grandmother fed her infant (my mother) bread soaked in tea to keep it alive toward the end of the journey."



A Miner's Hut

It took around seven weeks to reach their destination. If they landed in New York, they went up the Hudson to the Erie Canal, then sailed to Buffalo, on to Toledo or Pittsburgh and down the Ohio river. Short distances were made by coach. Some landed in Montreal and came to Buffalo going on with their journey the same as those who landed in New York. If they landed in Philadelphia, they sometimes went to New Orleans by boat and came up the Mississippi to Galena where they were met by a stage coach. Theirs was a shorter land trip for the others had to go the length of what is now Illinois by coach. The trips were hard and difficult but one helped the other.

Many of them were here to help fight and defeat the disillusioned Blackhawks in 1832 with Col. Henry Dodge as their leader.

Sir Walter Scott said: "By tre, pol and pen, you'll know the Cornishmen."

So the influx of the Cornish brought Tremellings, Tregonings, Tregloans, Tresidders, Tregilgus, Tremont, Treloars, Tredinnicks, Trewarthas, Treweks, Trenarys, Tremains, Pollards, Polkinghorns, Penhalligons, Penrose, Penwicks, Penberthy, Pengilly, Penglaze and a few others not in keeping with the rhyme such as Stevens, Perkins, Harveys, Rowe, Richards, Chappells, Biddicks, Rundells, Beckerlegs, Vivians, Skillicorns, James and Smiths. They settled in Shake Rag (Mineral Point); Peddlar's Creek, (Linden) five miles west; and Dodgeville, but a few went to Shullsburg, New Diggins, Benton, Hardscrabble (Hazel Green) and Platteville.

Their language was a branch of the celtic. Their dialect was very odd and funny at times. They failed to sound their "h's" where they should and put them where they shouldn't. If they meant heat they'd say 'eat, if they meant eat, they'd say heat. It was a great deal like London's East End Cockney brogue such as we heard in Pygmalion, or its adaptation, My Fair Lady.

One old man, greatly concerned about his horse's hoofs when hauling ore said, "It ain't the 'ard, 'ard work that 'urts the 'orse's 'oofs, 'tis the 'ammer, 'ammer, 'ammer on the 'ard 'ighway."

The expression "there 'tis" was used by the Cornish to mean a great deal and it was put in most any place where there was a lack of other words to give meaning. Professor Chamberlain, a geology professor from the University, came out to Hazel Green to see a lead mine as he contemplated buying one. Directed to a Cornish farmer who had a mine, he asked, "Mr. Oates, how do you know where there is lead from the surface of the ground?" With an all-knowing tilt

of his head, Mr. Oates snipped back, "Dashy man, where 'tis, there 'tis. You go and find it!"

Another there 'tis story ran like this: Tom said to Jim, who had recently buried his wife, "How be gettin' on, Jim, without the ould woman?"

"Slight, sure nuff, at first, but there 'tis."

"Do 'ee miss her?"

"Ess, sure, Ess tes lonely, but tes quiet. There 'tis."

Much was said in favor of the Cornish miner's stick-to-itiveness. The Germans and Irish worked the surface and moved on but the Cornish stayed with a lead until it was exhausted. They were accustomed to digging in hard rock and put their souls into their work. Monotony was not irritating to a life that was more or less pointless for they didn't aspire to become great landowners. They were here to better themselves materially in a small way. Content to be employees only, they came home at eventide with songs in their hearts. The Cornish miner stopped work at noon on Saturday. He spent the afternoon in the Kiddley-Wink or saloon drinking beer, playing cards, and sometimes gambling and dancing if he were of that calibre. There was the other kind too, who belonged to the Sons of Temperance.

The Cornishmen have always been noted for their ability to cut and work with stone. No finer monument to this skill has existed than the Iowa County Court House at Dodgeville, which celebrated its centennial this year. A Dodgeville pioneer who superintended some of the work on the Court House relates this story: Some Cornishmen who were toiling away on the stone became very tired and discouraged one day. They said, "We're not getting anywhere and we want to quit right now. This is too slow." I said to them, "Don't be discouraged, fellows. Patience and Perseverance will help you." One of them spoke up, "Who be they? If they can do it, so can we."

The Cornishmen contributed their share, if not more, to the development of the early lead mines of Wisconsin.

The writer has prized this little Cornish line:
"To zay wells gude, but to du wells a zight better."

#

CORRECTION: On page 59, Spring 1959, Conservation Commissioner Russell D. Stauffer was incorrectly listed as Asst. Director G. E. Sprecher.

#



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

May 6-8, 1960

Reception Friday Evening

- ...Exhibits of lake maps,
photos and paintings
- ...Movies and refreshments
- ...Good fellowship
- ...Registration and pick-up
of back TRANSACTIONS

Saturday A.M. Symposium

- ...Six invitational speakers
on Wisconsin lakes and
lake problems

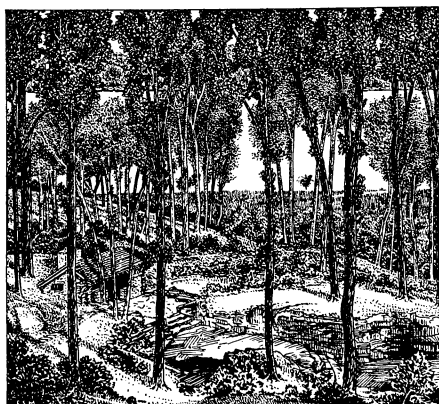
- ...Afternoon papers in three separate sections of
Biological Sciences, Physical Sciences and the
Humanities
- ...Junior Academy Sessions and Business Meeting
- ...Evening Banquet with Outstanding Program

Two Sunday Field Tours for Everyone

- ...With expert guides, see
U.W. Arboretum and
Edgewood (Lake Wingra)
Hydrobiology Laboratory
- ...Review Limnology studies
on Lake Mendota by boat
- ...Lunch on Picnic Point in
Lake Mendota

CHECK YOUR CALENDAR FOR THE
90th ANNIVERSARY MEETING AT MADISON

May 6-8, 1960



U.W. Arboretum and Lake Wingra

COLLEGE-LEVEL NATURE TRAINING: NEED AND OPPORTUNITY*

By James H. Zimmerman
Madison

Paradoxically, as research unravels the mysteries of nature, knowledge of its mechanisms, values and meaning is becoming less and less available to the layman. For successful curatorship of our vanishing native flora and fauna, he now needs prompt access to simple but vital facts--such as that the vectors of Dutch elm disease may be controlled as effectively by persistent destruction of dead elm wood as by widespread use of insecticides which injure desirable city bird and insect life. For wisely shaping our society so as to make existence more secure and more worthwhile, he now needs a deeper understanding of the efficient systems of coexistence, achieved through millenia of co-evolution in mature (closed) natural communities, of which few examples remain. For learning how to solve our multiplying human problems fast enough, he could benefit now, as never before, from the mental discipline of personal investigation, in the wild, of the unevaluated source material of evolution, ecology and behavior--a rare exercise even in advanced college science.

Yet, as these needs intensify with every day, so do agriculture and urbanization, which steadily eat away at the per capita quota of accessible nature. In the absence of the stimulation and interest through repeated contact with plants and animals which our parents took for granted, today we actually feel uncomfortable, not only in undrained wetland, but even in unraked forest or unmowed roadside. Worst of all, specialization in professional training now denies effective field experience to the majority, who in



college have time for only one introductory course in biology. For this acute shortage of accessible study areas, trained teachers, and flexible curricula, I propose three remedies.

1) Encourage a new category for justifying preservation of natural land. At present we reserve breeding grounds for the sportsman's quarry--such as wetlands; recreational areas--such as state parks; technological training grounds--such as many school forests; and scientific areas for specialists who will not abuse them--such as many of Wisconsin's 30 natural areas. My fifth category is for places devoted to basic nature training toward better awareness, appreciation, interpretation and understanding of nature. They must be natural (no culling; no planting); but the more convenient their location for repeated visits, the less ideal their composition need be. At Madison, for example, the unique accessibility within one- and two-hour class periods of the University's eight-acre woodlot-on-campus is far more important than the fact that it has suffered from indiscriminate trampling and accelerated erosion. It is still a new world to the students taken there each spring. (Muir Park--A perfect laboratory for nature study. Wisconsin Alumnus, May '59)

2) Encourage extracurricular programs combining research and high quality education. The students now receiving college credit for studying the virtues of our state parks and guiding their visitors could become the nucleus of an expanded ranger-naturalist program which provided permanent positions for field biologist-educators in every park and natural area. In the Cooperative Migration Study, begun in Wisconsin in 1951, a thousand amateurs now follow common birds across the continent each spring and fall; personal observations of nature are thus encouraged by giving them interest and meaning through interpretation by professional ornithologists who are unable to amass sufficient data by themselves. With a similar combination of aims, a network of volunteer phenological observers is being recruited this year from many outdoor professions and avocations in all parts of Wisconsin, on the pattern established in Europe, for the study of earliness and productivity of plants in relation to weather. (Information on





these two programs available on request.) Through inter-agency cooperation, the observers, in return have access free of charge to identification services, uniform plant materials distributed for study, and periodic reports on the results. Such a clearing house for information offers tremendous possibilities for broadening the knowledge and outlook of many professionals whose training was too specialized to include familiarity with the native flora and fauna and their behavior, as well as for encouraging amateurs, especially school teachers and their students, to explore nature on their own.

3) Encourage, in our colleges, single-package opportunities for balanced and thorough nature education--with emphasis not on lecture and text but on self-training through repeated contact with the outdoors. For the specialized student, the U.W., for example, could offer (a) an advanced-level, fall-and-spring course in nature appreciation, and (b) a comprehensive field course

for high school teachers returning to college in summer--when longer class periods and maximum availability of flora and fauna would compensate for the shortness of the eight-weeks session. (Preliminary outlines and sample exercises available on request.) For the general student, the University could (c) incorporate more spring field work into the large introductory biology classes. Experimentation in the Integrated Liberal Studies' biology course (of about 100 well-prepared sophomores) revealed that much could be accomplished in only two weeks, providing the six to eight hours spent afield were carefully utilized to synthesize the previous work on the structure, physiology, genetics and evolution of both plants and animals. Unfortunately, large classes must be handled in sections which meet too briefly to go far afield; hence this eye-opening introduction to nature could become available to large numbers of students only at the few colleges which can afford to maintain wild land adjacent to the classroom.

I stress the college level as the best point of departure because nature training--as distinct from nature study in the usual sense--is difficult as well as unconventional. But certain other approaches which show promise merit equal encouragement. For example, most of Stewart's Wood--Madison's new school forest--is to be left undisturbed and its marked trails used intensively in a semi-self-teaching program for teachers, their pupils, and the interested public.

Condensed from talk at 89th Annual Meeting, May 2, 1959.



HERE COME THE BIOLOGISTS

By Gordon MacQuarrie

Now that the airplane is here to stay and no one objects to vaccination against smallpox, it is remembered that yesterday's fishing and hunting man got his information about coming seasons from a whiskered old guide who lived a quaint and smoky life back in the cutover. This oracle of the gurgling pipe was an eminent figure of his time. He tested the thickness of muskrat houses and peeled onions in the dark of the moon to forecast weather. In the off seasons when he wasn't guiding, he had a lot of time to think, and he could show you how a hair from a horse's tail would turn into a snake if you put it in a rainbarrel. A few of them are still around, but not too many, and those that persist are often synthetic, self-made characters upholding an old tradition for the sake of local color, and usually sadly in need of dry cleaning.

The genus began disappearing as long as 20 years ago when bright young men with book l'arnin' began getting interested in game and fish. In the hey-day of those uncombed fakers, if a hunter wanted a prognosis about an impending duck season, the old fraud would provide him with a prediction based on the bluewing teal nests he encountered in casual rambles between his still and his salt lick.

Today there is no guessing on continental duck production. The game managers, the game biologists, the conservation wardens, of all the states and the prairie provinces of Canada just pile up a factual picture of the duck population by going out in the field and counting them. That count and attendant forecasts of plenty or scarcity has been reliable for more than 15 years, and gets more accurate with each passing year.

They will tell you, will these bright young men from the universities, what the average size of the duck clutch was in Manito-



This article, never before published, was written by Gordon MacQuarrie shortly before his death on Nov. 10, 1956. MacQuarrie founded the Milwaukee Journal's outdoor page in 1936 and was the state's foremost outdoor writer for two decades.

Since his death, the Gordon MacQuarrie Foundation, Inc. has been established to promote conservation journalism.



ba, how the birds made out in the critical drought periods, and during moulting, and when the wildfowl get off for the south, it is these trained men of science who forecast with remarkable accuracy what the duck hunter may expect along the flyways of America.

So it goes in a world of change and progress. The old giveth 'way before the new. The prophet with the whiskers and the gurgling corncob did give something to the world, but not much, except humor, on this order: At a wordy public battle in Wisconsin, this reporter listened to the whiskered pundits of the backwoods. They declaimed in the presence of several qualified and patient biologists, plus William J. P. Aberg, who was then chairman of the state conservation commission. Pains were taken to set the old geezers aright. Toward the end of the day, Bill

Aberg, waving the olive branch, asked one particularly rock-headed bush rat what he really thought about the proposed deer management plans. The gaffer did then asseverate:

"I haven't made up my mind. But when I do I'm going to be damn bitter about it."

The changing scene of conservation and wildlife requires trained eyes to prescribe for it. Twenty years ago the word "biologist" was just becoming known in the picture of natural resources conservation, as the public saw it. It was in the 20's and 30's that the era of transition set in, when "biologist" came into the picture, and when the prophetic old timers who quoted their grampaws began to assume less importance in what is a very scientific and complicated business.

Today no state in the union is without its corps of fish and game biologists, game managers, foresters, forest entomologists, pathologists, and their like. Some state departments are now demanding that the bright young men they hire hold doctor's degrees, no less. If this revolution in management of fish and game--this whole new attitude toward the soil, its landscape and its creatures--must be attributed to one person, it would have to be the great Aldo Leopold, who honored the University of Wisconsin with his civilized mind in the last 20 years of his life.

There is not a man in this field who will deny that the modest Leopold, with the brain of a scientist and the heart of a poet, was the fountainhead, the inventor, the pioneer genius. He is fast becoming legend. All over the United States today, and in Canada, and some foreign lands, you will find Leopold's boys--men who took degrees under him while he was director of Wisconsin department of wildlife research. Author of hundreds of scientific papers, Leopold was also the author of the more tender and possibly immortal "A Sand County Almanac," in which he set down the foundations of his thinking.

Leopold originated the concept of "the land ethic." He said

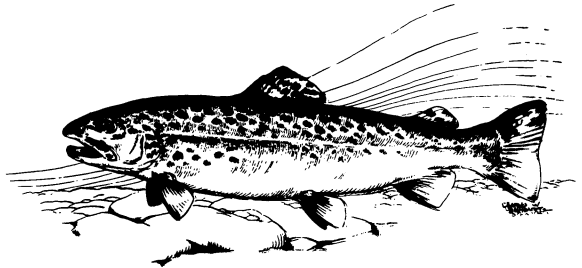
a great many things now quoted widely, but let it not be forgotten that in his day he was upbraided--even reviled--by those assorted ignorami whose knowledge of wildlife ended with what grampaw told them. Leopold said:

"We abuse land because we regard it as a commodity belonging to us. When we see land as a commodity to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of civilized man, nor for us to reap from it the esthetic harvest it is capable, under science, of contributing to culture."

Leopold owned a little shack on 160 acres of land on the Wisconsin river near Portage. There he liked to putter around with bird banding and wildlife habitat improvements, and if you got up early enough in the morning, he would supply you with sourdough pancakes baked on his open hearth.

Returning from his shack to Madison, one day, with his son Starker, the latter halted the car in a little town for a pack of cigarets. From the store came the blare of a radio, broadcasting a critical football game between the Chicago Bears and the Green Bay Packers. This puzzled Leopold. When Starker returned he was asked, in complete seriousness: "Starker, who are the Packers?"

It took just about one year for this newspaper reporter to convince Aldo Leopold that he was really interested in the things stirring in the Leopold department at the University. Once he made up his mind that I would not brutalize the facts of this tender, beginning science, he became the greatest news tipster of my experience. He was alive with ideas, and it should be added that he knew news when he saw it, and knew what to do with it.



I sat beside him one day in 1938 at a conservation meeting of some kind, I forget what. Leopold leaned over and tapped me on the knee---"Get in touch with David Thompson and the others in the Illinois Natural History Survey. They know something new about fish management."

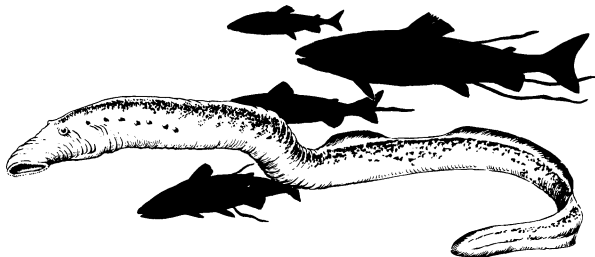
The story that came out of that tip was of the Illinois scientists almost completely upsetting old theories of fish management. They put the fish hatchery in its place, a subordinate place. They stressed management of habitat. They urged more hook and line pressure on public waters, less restrictions on sports angling. That basic concept has spread to almost all of the states.

Leopold's influence is greater today than when he lived. His own sons and hundreds of others are going at the business of producing fish and game by methods undreamed of two decades ago. And yet, they often fail. But they expect that, as doctors expect to lose patients. Then again, they often succeed, and quite gloriously.

Wisconsin's deepest lake, Big Green, provides lake trout

fishing for sportsmen, although, since the 90's when lake trout were introduced in it, that fish has not been able to reproduce itself in Big Green. The youngsters in fishery biology in the Wisconsin Conservation department figured out what was wrong and solved the problem.

By skin diving, they learned that the lake bottom was muddy, with no rocks. Lake trout eggs fell to the smooth bottom and were being gulped by thousands of mud puppies. So, these bright young men persuaded the Green Lake county board to dump thousands of tons of big rocks and little rocks into 80 feet of water. Thereafter, the lake trout eggs fell between the rock crevices where the mud puppies could not get at them. Big Green is now reproducing lake trout; there is no further need to plant it with fish brought expensively from a distance.



Those same young fishery biologists think ahead, too. Since the sea lamprey, invader from the Atlantic, has practically exterminated the lake trout of Lake Michigan, they guess, now, that some day, when the lamprey hordes are controlled--if ever--they will have to go back to Big Green for lake trout and lake trout eggs for re-planting Lake Michigan. It is important to them that the lakers in Big Green are Lake Michigan lake trout, a strain well suited to that lake--and possibly for biological reasons not now known.

They go out of their way, do these young biologists and game managers, to provide good hunting and fishing for sportsmen, and often they wonder if they are being appreciated. Like as not they are not appreciated much; in fact they are not even well understood, and it is a fact that they are their own poorest public relations agents.

A trained biologist testifying before a state legislature's committee is a sitting duck. They are not trained in debate. They know nothing of the parliamentary tricks. Any apple knocking assemblyman with an axe to grind can take these youngsters apart without reaching too deeply into his mental resources.

There's a big, shallow duck lake by the name of Mud, in Columbia county, Wisconsin. All of its shoreline was privately owned and the owners contended that the lake was not navigable, and so, charged the public hunters who used their shoreline for duck blinds. Fred Zimmerman, waterfowl biologist, put a stop to that nonsense. He did it by the simple process of dropping a boat in the lake and rowing around in it to prove it was navigable. He made quite a fuss about it, and, in the fullness of time the case got to the Wisconsin public service commission, which controls all water levels in the state. The commission ruled that Zimmerman had proved Mud to be a navigable body. That softened up the shoreline owners so that they listened to reason and leased 500 acres of Mud lake's shoreline to the state, for public access. It is doubtful, today, if a dozen hunters remember that it was young Zimmerman who proved Mud lake's non-navigability was a myth.

No contests in which these biologists have been engaged have been more bitter, or more fraught with sloppy emotion, than the problem of managing deer in this country, especially the white-tailed deer. Pennsylvania, New York, Michigan, Colorado, Minnesota, to name a few, have gone through the battle to reduce deer herds to the point where the animals can be sustained by their natural food, without dying of malnutrition in hard winters.

Not all of the states have won that battle. This is because they permit, for political reasons, the untrained and the emotional to have a hand in the management of this crittur.



The biologists are not guessing about deer; they don't care a fig what grampaw said about them, or how he made the popple trees bend and sway with the ba-r-o-o-o-m of his .45-90. The biologists have pitted their conclusions, drawn from long study, against the empirical opinions of the whiskered, gurgly pipe school--and in many states they have won, at least for the present. But, the barbershop biologist, lineal descendant of the "old guide," is a tough and resourceful fellow, and he will be around for some time to come, albeit in a diminishing role as the years pass by.

When these young scientists first pressed into the conservation picture there was some resentment from some game wardens. It was natural, and it was expected. The game wardens saw these youngsters becoming important men in local communities, asked to speak before the luncheon clubs, too! Mostly that human difficulty seems to have been resolved and the wardens are on the team--some of them more vehement than the trained biologists in sticking up for science against guesswork.

I think I saw the perfect example of that cooperation at one of those white-hot state hearings on deer management in a northern town. A particularly vocal local expert was opposing the biologists on everything, and repeatedly breaking into deliberations without permission from the chair. This bird had a system. He would stand up and yell: "I can take you out there and show you just what is going on in the woods."

He was getting to
A husky game
booming voice

be very tedious.
warden with a
saw his chance.
The nuisance
jumped to his
feet and began,
"I can take you
out there---"
Whatever else

he said was
drowned in the roar-
ing voice of the game
warden: "Take HIM out
there, right now!" Three
hundred or so people in the





crowded room laughed as one and before the hearing was finished the biologists had their way--thanks to an assist from a big brother warden.

The nature fakers, who have not been effectively squelched in this country since Teddy Roosevelt's classic blasts at them from the White House, get short shrift from the young men of game biology. At a meeting of trappers I heard one of

the barbershop experts tell a conservation commissioner that a beaver can think. George Knudsen, Wisconsin's beaver study leader, put an end to that foolishness by explaining, with many examples and photographs, that beaver are actually given too much credit. Among other things, he showed how they fell trees so that they cannot possibly be used for food, or dam building.

It took the biologists of the country to teach the muskrat trappers to take the rat crop as it came along, and not permit them to increase beyond the carrying capacity of their habitat, with resultant disease. The biologists get out in the marshes and wade, lifting the tops off muskrat houses in the spring to see how many young are being produced. They can forecast heavy or light rat production from such spring surveys.

The biologists re-make trout streams. Hundreds of them have been brought back to good trout production. Wisconsin's one-time famous Prairie river of Marathon county, is as good an example as any. A young fishery manager, Ralph Jones, with a crew, worked on the Prairie for five years. He found a river of shallow, gravely rapids, with few holes and too warm summer temperatures. Stream structures were put in to create holes. Cattle were fenced out, but crossings and watering places left for them by intricate fencing which prevented them from trampling down banks. Trees that halt soil erosion were planted by the tens of thousands. The Prairie has come back.

Quite often, the stream biologists deflate fishermen by proving that streams alleged to be "fished out" actually carry big populations of highly desirable trout. A classic example of this came off in California under the direction of Paul R. Needham, a fisheries man so good that California stole him from New York.

Needham counted the trout in a California stream where "nobody was catching any fish." In 10 sections of the stream he counted more than 24,000 brown trout of catchable size--and he never said a word about fish being smarter than fishermen.

The biologists and managers are putting lands to use so that they fulfill their best potential. Wisconsin's 30,000-acre Horicon marsh is one of scores. Both federal and state men have had a hand in these jobs. Horicon had a long history of land abuse, via expensive attempts to drain it and grow crops. It didn't work. Everybody lost money. But, gradually, the state and federal governments acquired the 13-mile long marsh. They re-established water levels, for water is a chief and simple tool of the managers. In an average year nowadays, 50,000 Canada geese call Horicon home in autumn and spring.

The managers are good at little, patchwork jobs, too. A typical such is French creek, 1200 acres in central Wisconsin. The biologists and managers took a look. Nobody wanted it. The state bought it, cheap. In one day, the managers, with one bulldozer, pushed up the earthen wings of a little dam. The next day they finished the dam with poured concrete and plank flash boards and that put the French creek flat under control with that all-important tool, water.

The result: unwanted wire grass was killed. In its place came plants valuable to wildlife--cattails, bulrushes, roundstem, and smartweed, the latter a prime mallard food. That worked so well, by attracting waterfowl, that the state went a step farther. It leased 3,000 acres around the French creek marsh for a public hunting ground. The once useless flat has been put to work at what it can do best.

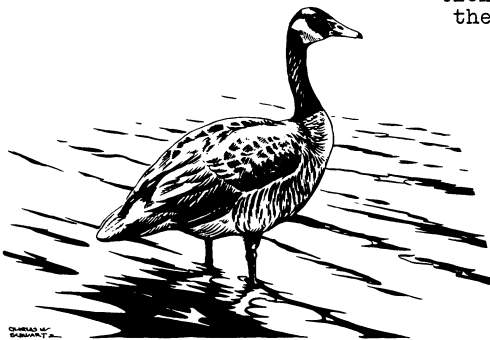
Despite the public scorn they have been subjected to, these new scientists are quiet and orderly fellows. They just keep on plugging away. They like their jobs because they feel they are being useful. It is not so much a business with them as a way of life.

There's a plant, leatherleaf, that likes shallow water and damp ground. It is a plant created by nature as a machine for turning water into solid ground. It is worthless to game, except for cover. The northern states are full of it. In places in the north it is as great a curse as the floating hyacinth of Florida. It crowds out useful plants, like wild rice. Up north, on Rice Creek flowage in Wisconsin, Larry Jahn, Wisconsin waterfowl research leader, went to work on a thousand acres of leatherleaf with chemicals. The cost was slight. When it was killed back, he spent \$50 of the state's money for wild rice, purchased from a Menominee Indian. The rice now dominates that marsh and it is a favored duck hunting place.

The little jobs they do are so often overlooked, or forgotten. Up in northwest Wisconsin, George Curran, a game manager, found Totogatic lake, headwaters of a good-sized river, plugged with an illegal dam, put there by real estate interests to raise the lake's level and provide better swimming. Curran brought that case to the public service commission. The commission directed Curran to knock out the dam and restore Totogatic to its natural level. Curran did it the next day, with two boxes of dynamite. Totogatic's level dropped a couple feet and within two years the drowned wild rice in it completely covered the lake. Back came the ducks--and back came the Indians of the nearby Odanah reservation to harvest wild rice there for the first time in 10 years.

Always the managers and the biologists are working uphill, against pre-fixed public notions of how game and fish should be managed. No one goes to a barbershop to have his appendix out, but when it comes to calling the shots on fishing and hunting, everyone is an expert.

The young men know, as they go along, that education



is their best ally. They peg away hard at this, with literature, movies and lectures. It is a fact that very often, after the public has been thoroughly briefed, it strings along with the bright young men with the college degrees.



It takes a trained biologist to say "I don't know." The rest of us have all sorts of glib answers for nature's mysteries. James W. Kimball was a game biologist in Nebraska and South Dakota before he became Minnesota's director of fish and game research. He was in South Dakota during the biggest irruption of ringneck pheasants known in the world. Flocks of a thousand or more were quite common. They declined in numbers and Kimball, who undoubtedly knew more about the birds than anyone in South Dakota, said, when asked why they declined: "I don't know the cause." He speculated. He discussed his endless investigation. But he finally said what only brave men say, "I don't know."

A lot of battles have been won and a great many more remain to be fought. The public is learning. And it is hard, hard work for the young men of scientific fish and game management. They remind me of the story of the boy who acquired a stepfather after his mother's divorce. His own father was permitted to visit the boy at intervals. Once, visiting his offspring, the father asked how things were going.

"Pretty good, dad."

"You get enough to eat, son?" "Yes, plenty to eat."

"You get some spending money now and then?" "Yes, dad, plenty of spending money."

"How about recreation?" "Well, my stepfather takes me for a rowboat ride every morning. No, dad, I don't mind the rowing. And I don't mind my stepfather throwing me overboard every morning. It's fighting my way out of that sack that gets me down."

ACKNOWLEDGMENTS - Sketches p. 149 and 150 by Mrs. Dale Klosterman, Platteville; photo p. 153, UW Badger (1922) and sketch from copyrighted "Southern Wisconsin Through the Windshield" by Harold McClelland and Frank S. Moulton by permission; photo p. 154 from State Planning Board Bull. No. 14 (1941); sketches p. 155 & 156, Cornell Nature-Study Leaflets No. X and XVI; sketches wildlife pp. 157, 159-164 by Chas. W. Schwartz courtesy Wis. Cons. Dept.; sketch p. 158, "Tales of a Vanishing River" by Earl H. Reed; sketch handshake p. 161 and leaves p. 187, "Whirring Wings," Mo. Cons. Comm.; sketch p. 177, "Annals of the Glen" by Wilfrid J. Dorward; photo p. 168, "50 Years of Graduate Education at Wisconsin" by W.A.R.F.; sketch of lady p. 187, St. Nicholas Magazine, 1870's. Portrait photos: p. 157, Wis. Cons. Dept.; p. 170, top, Lainson's Studio, Milwaukee; p. 170, bottom, Virtue Studio, Platteville; p. 188, Harold N. Hone; p. 189, U.W. Photo Laboratory.

HONORS AND AWARDS

The following are honors and awards of Academy members in addition to those reported elsewhere: ELLEN GIBSON (Mrs. Gordon MacQuarrie) was cited for outstanding work in newspapering at the 30th Anniversary dinner of the Milwaukee alumnae chapter of Theta Sigma Phi, national journalism sorority. ... KARL PAUL LINK recently received the coveted John Scott award from the City of Philadelphia including a \$1,000 check for his discovery of dicum-arol. ... U.W. President Emeritus E. B. FRED was cited by the Wisconsin Council of Agriculture cooperative for his contributions to agriculture and also received the distinguished service award of the Milwaukee U.W. Club at their 110th Anniversary dinner. ... RAYMOND T. ZILLMER, Wauwatosa attorney, was presented a plaque by the National Campers and Hikers Association for his efforts to preserve natural areas for public use. ... FRED J. SCHMEECKLE (Eagle River) received an award from the Wildlife Society for distinguished achievement in conservation education. ... Mrs. F. L. LARKIN of Milwaukee recently was presented the Wisconsin Garden Club Federation's bronze award for her work in conservation.

The Wisconsin Regional Writers recent writing contest turned up three Academy members in first place positions with Mrs. MARIAN PAUST (Richland Center) in poetry and ANN C. ROSE (Gilmanton) in creative non-fiction. Mrs. ROBERT FRIEND (Hartland), Editor of Creative Wisconsin, received a special award for a series of articles on Wisconsin industries and Mrs. Paust was given the traveling "poet's chair" because she had won in this category previously. ... Both MURL DEUSING and WALTER E. SCOTT were among the honored guests at the 20th Anniversary banquet of the Wisconsin Society for Ornithology because of their contribution to the organization in its early years. ... In recent months five Academy members have been featured in the Milwaukee Journal by special articles. They are Mrs. ROBERT E. FRIEND (Hartland), Miss RUTH L. HINE (Madison), Mrs. ALFRED J. KIECKHEFER (Milwaukee), Mrs. FRANK NELSON (Milwaukee), and FRANCIS ZIRNER (Hayward). Also, former State Geologist ERNEST F. BEAN was written up in "The Story of Shorewood Hills" because he is a past-president of that village.

NEW POSITIONS

LEONARD HASS has been appointed President of Wisconsin State College-Eau Claire, by the State College Board of Regents and an introductory story about him will be in the next Academy Review. ... President DOUGLAS M. KNIGHT of Lawrence College has been named chairman of the Wisconsin Rhodes Scholarship Committee. ... Dr. ARNOLD S. JACKSON of Madison is Vice-president of the International College of Surgeons and recently was made an "honorary fellow" of their organization. ... Both J. J. HICKEY and A. W. SCHORGER have been elected directors of the American Ornithologists Union. ... HOWARD YOUNG is chairman of the Wisconsin Society for Ornithology's research program. ... K. E. RINDT now is Director of the U.W. Extension Division's Bureau of Community Development. ... Mrs. ORRILLA BLACKSHEAR has been elected Vice-president (and president-elect) of the Wisconsin Library Association. ... DANA AKERS (Superior) is a regional vice-president of the Wisconsin Fellowship of Poets and both EDNA MEUDT (Dodgeville) and Mrs. LOUISE LEIGHTON (Baraboo) are directors. ... The Governor has appointed STEPHEN F. DARLING (Appleton) to the State Food Standards Advisory Committee and PERCY DUNN to his Committee on the United Nations. ... RICHARD L. COSTLY has been promoted from Milwaukee to a special staff position in Washington, D.C. with the Recreation Resources Review Commission. # # #

EXISTENTIALISM AND THE ARGIVE LEGEND

By Robert M. Davis
UW Dept. of English

(The following study in philosophies and techniques should evoke thoughtful responses because of the implications it offers for the critical reader and the general student of humane letters as well. It is strategically selected from a longer article by a member of the English Department of the University of Wisconsin. The Academy Review welcomes the submission of more or less brief articles of this essentially informative and interpretative character.---Ralph A. McCanse, Associate Editor in Letters)

* * *

Man's total freedom and man's responsibility only to himself provides the basis for that version of existentialist philosophy advocated by Jean Paul Sartre. The concept serves as a major theme in Sartre's novels and plays. While The Flies (translated by Stuart Gilbert, in No Exit and Three Other Plays, New York, Vintage Books, 1958) shares this philosophical concern with his other plays, this play is unique in that it transmits to the stage Sartre's concern with the individual in constant action. The Orestes of The Flies, unlike Garcin in No Exit, is not merely a passive object, whose essence is fixed forever at the moment of death; nor is this hero content merely to accept the consequences of his action, as does Hugo Barine in Dirty Hands. Both of these latter plays demonstrate Sartre's philosophy admirably, but in The Flies he has achieved a fusion of philosophic and dramatic values. This happy combination may be a result of Sartre's manifestly studied adaptation of the traditional story of Orestes' revenge upon his father's murderers.

The theme of freedom indicates a major deviation from the treatments that Aeschylus, Sophocles, and Euripides gave the Argive legend. Sartre acknowledges these treatments in The Flies when he shows that his hero Orestes desires a goal, even one imposed upon him by destiny or by his subconscious. That Sartre's Orestes is, however, free from such driving forces is sufficient indication of the gap between him and the classical Orestes. Unlike his predecessors, Sartre omits any mention of Clytemnestra's motive--revenge for the sacrifice of Iphigeneia--in killing her husband. This omission removes some of the story's moral tension, which is further reduced by Sartre's conception of Orestes as eager to act even without the motives of filial piety and horror at his mother's and Aegisthus' deed. This Orestes is neither the tortured young man of Aeschylus' The Choephoroi nor the god-driven and conscience-

stricken pawn of Euripides. In Aeschylus, the moral order must be restored in the final play of the Agamemnon trilogy; in Euripides, the gods are blamed for inflicting such suffering upon men. The Orestes of The Flies shuns remorse and submission to any law; instead of railing against the gods, he ignores them and goes his own way. He is similar to the rather matter-of-fact avenger characterized by Sophocles; but Sartre's Orestes seeks self-fulfillment rather than revenge.

Sartre has used the characters and events of one Greek myth in combination, conscious or not, with the theme of another: the Prometheus legend. Sartre's Orestes, in conflict with the gods rather than primarily with himself, becomes the focus of hatred for both gods and men: he knows he is free; the knowledge of his freedom prompts him to confront and overthrow, in his own mind, the equally powerless Zeus and Aegisthus, both kings of slaves; and he destroys the people's comforting self-deception and leaves them his own despair, a quality which is, in Sartre's philosophy, the beginning of wisdom.

By thus shifting motivations and moral values and by clearly defining the opposing camps, Sartre has managed to introduce melodrama into an intense story. In this play, however, melodrama is not objectionable, since Orestes does develop from a restless boy to an assured and mature man. The melodrama is shrewdly enhanced by staging: the final scene, with the isolated Orestes standing above the crowd in physical and moral superiority, is strikingly effective and accords well with the theme of the free man's isolation. As the play ends, the protagonist flings himself from the stage, followed by the Furies in the debased forms of flies. But Orestes is going towards a goal, not yielding to flight.

The Flies does have some weaknesses: the speeches are largely devoted to philosophical discussion and argument, and the unusual attention to debate makes this a rather talky play. But much of the philosophy is impassioned; and the passion and the spectacle, which is absent in most of Sartre's other plays, are consonant with his philosophy of freedom. Certainly the roles, particularly that of Orestes, should be actors' delights; this is the most consciously theatrical of all his plays. The Flies, its borrowed plot providing Sartre with a dramatic frame, is also probably the best of them, when one considers construction, production values, and sustained intensity.

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A GRADUATE EDUCATION PROGRAM TO IMPROVE TEACHING IN WISCONSIN'S SCHOOLS

By Phyllis Hawthorne
Member, Joint Staff
Coordinating Committee for Higher
Education in Wisconsin

Progress toward improving teaching in Wisconsin's schools was achieved when the Coordinating Committee for Higher Education approved a plan for teacher graduate education in their October 1959 meeting. The Committee authorized a cooperative program of graduate studies at the Master's degree level between the University of Wisconsin and the several state colleges, and among the state colleges, for the classroom teacher of the elementary and secondary schools.

Careful studies indicate that there is a need and demand for a program of this type in Wisconsin. An appreciably smaller proportion of Master's degrees in the field of education are granted by Wisconsin colleges than by colleges in the nation as a whole. Also, the proportion of Wisconsin's present elementary and secondary school teachers with Master's degrees is lower than that in neighboring states and lower than the national average. More effective teaching and teachers with better training are necessary for the welfare of our nation. Surveys of the state colleges of possible enrollments indicate that there are enough teachers who would like and are qualified for such a program to justify its establishment.

Following two years of study, therefore, the Joint Staff Committee on Graduate Education, composed of faculty members from the state colleges and the University, has developed the basic outline for such a plan. Briefly, the essential characteristics are:

The Program

The program is designed to improve the effectiveness of the experienced classroom teacher and differs markedly from the usual Master's degree program in Education. Each student will carry work in three broad areas: 3 to 12 credits in Liberal Arts Foundations, 9 to 15 credits in the Area of Specialization, and 3 to 9 credits in Pedagogical Foundations. The program for each student, however, will be individually developed to suit his background and need.

The Participants

It is expected that each of the state colleges and the University of Wisconsin will participate in the program to some extent, but for the present the degree will be granted by the University of Wisconsin, or by one of the state colleges which now has a Master's degree program. A larger portion of the new program can be utilized by Superior State College than by La Crosse and Stout since the Master's degree program at Superior is more general in character. La Crosse and Stout could use only a limited portion of the new program because they grant Master's degrees in highly specialized fields.

The Requirements

Admission standards will be those of the University of Wisconsin Graduate School. The minimum requirement for the Master's degree will be one year (four eight-week summer sessions) full time graduate work beyond the Bachelor's degree, and at least one-half of the work must be taken at the institution granting the degree.

The specific recommendations which were presented to and approved by the Coordinating Committee authorize the following:

1. A cooperative program of graduate education for elementary and secondary classroom teachers at the Master's degree level would be established between the several state colleges and the University, and among the state colleges, in certain broad areas of subject matter to begin with the summer session of 1960.
2. The program would be started on an experimental basis with courses especially designed to meet the needs of experienced elementary and secondary classroom teachers at the Master's degree level. It is recommended that work be started in four broad areas: namely, science and mathematics, the social studies, the language arts, and elementary education.
3. The program would be started on a limited basis with only carefully chosen courses, thought to be adequate in numbers and kinds to meet the needs of classroom teachers in the different parts of the state, with all the state colleges participating as they see fit according to their resources.
4. The two Boards of Regents would be notified of the actions taken by the Coordinating Committee under 1, 2 and 3 above.

Now that the above recommendations have been approved, the Committee on Graduate Education and its subcommittees will work out further details of the program. Each state college will be requested to consider the substantial merit of and need for this experimental program, and to develop a specific proposal regarding the 1960 summer session for the Board of Regents of the State Colleges concerning the nature and extent of the courses to be offered, the staff and other facilities required, budgetary estimates, and an analysis of the need for that program at that institution. Representatives of the state colleges and University will proceed with the cooperative development of course outlines and of criteria to be used in the selection of graduate faculties for the courses.

It is hoped that this high-quality graduate program designed to increase the competence of the classroom teacher will help meet the growing demand and need for more effective teaching at all levels of schooling in Wisconsin.



INTRODUCING — DAVID J. BEHLING



DAVID J. BEHLING, new Treasurer of the Wisconsin Academy, is Editor of Field Publications at The Northwestern Mutual Life Insurance Company. He joined the firm as an agent while attending the Univ. of Wisconsin in 1927. The same year, shortly after he graduated, Behling came to the Milwaukee Home Office. Starting as a Clerk in the Agency Dept., he worked his way up to Agency Assistant. In 1945, he became Associate Editor of the Company's Field Publications. Seven years later, Mr. Behling became an Officer and assumed his present position. The official secretary for the Agency Dept., he directs all Field Publications, including Field Notes, the General Agents' Review, C.L.U. Bulletin, the Honor Booklets, Meeting Proceedings and several commercial publications with a

joint subscription list of over 130,000 copies. A frequent contributor to national insurance magazines, Mr. Behling also has been active in Company, community and political affairs. He is past president of the Company's independent employee union, of its Supervisors' Assn., and of its Officers' Club, as well as of the Milwaukee County Conservation Alliance.

INTRODUCING — R. E. GUILLES



On July 1, 1959, R. E. GUILLES assumed the presidency of Wisconsin State College at Oshkosh. A Wisconsin product, President Guiles was born at La Valle in December, 1907, attended schools at Reedsburg and Platteville State Teachers College, and obtained his Ph.M. and Ph.D. degrees from the Univ. of Wisconsin. After several years of teaching, he became director of teacher education at Wisconsin State College, Platteville in 1942, and was Dean of administration there before coming to Oshkosh. He is active in many educational societies, contributes to several school journals, and in 1948 was commissioned by the Board

of Regents of Wisconsin State Colleges to make a Study of Practices, Conditions and Trends in Relation to the Function of Wisconsin State Teachers Colleges.



JUNIOR ACADEMY NEWS

JUNIOR ACADEMY REPORT

By John W. Thomson, Chairman
Junior Academy Committee

Of very great interest in the Junior Academy activities this year is the plan of a group of science club sponsors in the Milwaukee area to produce a motion picture dealing with science club and extra-curricular science activities. The committee is headed by Sidney Jacobson of Waukesha High School, assisted by Jerome Fisher of Nicolet High School of Milwaukee and others. A source of support for production of the motion picture is being sought. Junior Academy activities will, of course, form an integral part.

Another new activity of interest to Academy members is a Junior science symposium, planned to be held at the University of Wisconsin with the support of the Office of Ordnance Research and with the help of the Junior Academy. Over 200 high school boys and girls will spend three days on the campus probably during the spring. Speakers from among the outstanding scientists of the country will discuss research in action in their various fields. Students will have an opportunity to see examples of research conducted on the University campus and also, in a "curbstone clinic," have an opportunity to discuss future careers in science. Detailed plans will be announced later.

A strong increase in science club activity in our state the past year is shown by the annual survey of science clubs in Wisconsin made by the Junior Academy of Science. There are 186 clubs with about 4,700 student members. General Science clubs lead with 99 and 41 are photography clubs. There are nine clubs each in conservation, chemistry and physics, seven clubs whose major project is radio work, while only four are confined to biology. There are three interested in hunting and fishing. Four clubs are up to date with a major interest in space and jets. Two clubs are mainly interested in visual aids with one each expressing an interest in weather, hematology, and just plain hobbies. Any Academy member interested in obtaining the complete list may write to the Chairman of the Junior Academy Committee.

The increased interest in science club work in Wisconsin is most encouraging. The Junior Academy work is expanding also and an active year culminating in seven district meetings is being planned prior to the state meeting at Madison in May, at which the best papers will be presented before the Senior Academy. In addition, there will be the meetings for Junior High School students in the 7th, 8th, and 9th grades.

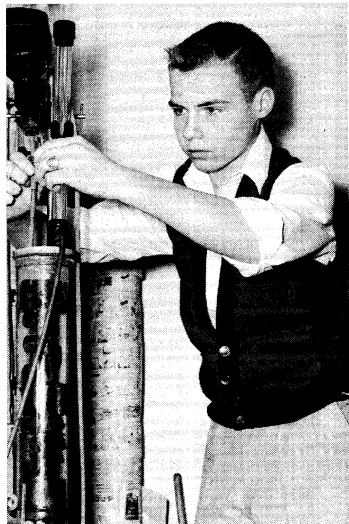
Those Academy members familiar with our state committee on Junior Academy will be interested to know that Ole Oines of La Crosse Central High School will be at Ohio State University for a year on a fellowship. We will be looking forward to his return next year.

BIOCHEMISTRY OF VINEGAR

By Ronald Gates
Columbus High School, Marshfield

The main methods used in the vinegar industry today are the Quick Vinegar Process and the much older Orleans Method. I used both methods with some modifications of my own. I made 22 different kinds of vinegar; six with the Quick V. Process, 15 with the Orleans Method, and one original variety from cattail roots according to a formula I arranged. All vinegar samples in this project were obtained from the following substances either fresh or dried:

1. Fruits and vegetables
 - a. Plums, elderberries, high bush cranberry, grapes, apples (as cider), pineapple, sumac berries, beets
 - b. Carob pods with raisins and alcohol as well as plums and alcohol
2. Grain - Malt
3. Flowers - dandelion flowers with oranges and lemons
4. Sugar - honey, cane sugar, brown sugar
5. Roots - Cattail Rhizomes



Since the Quick Vinegar Process depends on the circulation of an alcoholic feed during the time of its oxidation to acetic acid, I had to provide a suitable apparatus for it. Consequently, I built an all glass generator modeled after the glass experimental vinegar generators described in the Vinegar News Letter by F. M. Hildebrandt but with considerable innovations of my own. The vinegar charge was allowed to drip over beechwood shavings provided with vinegar bacteria.

The six vinegars made with this generator followed similar procedures. A pint mixture of 9 parts grain alcohol and 91 parts of either diluted cider or fermented fruit juice previously prepared by the Orleans Method and then strengthened with nutrients, and autolyzed yeast was permitted to flow through the generator at the rate of about two runs per hour at nearly 29°C. Running time was extended to eight days at eight hours per day. Checks showed that the allotted time was sufficient for the bacterial oxidation of the alcohol. Yields from this process were clear with an average 5% to 9% acid content.

I was unable to follow the Orleans Method as it is usually practiced. So I reduced its rather laborious procedure to a few simple steps by which it was possible to prepare the generating material from crushed fruit, dissolved sugar and yeast in quantities small enough to be allowed to ferment in quart fruit jars over a period of six to eight weeks at 70-75°F. When it was evident that fermentation action was completed, vinegar bacteria was added as a starter for the acidification step. Clarifying of the mixture indicated when the acid conversion was finished, at which

point the filtered vinegar sample was pasteurized at 140°F. The length of time for both fermentation and acidification varied from sample to sample. However, in spite of the fact that the Orleans Method is slow, I obtained some of my most aromatic samples with it.

Eleven of the 15 samples made with this method were made according to the above routine. The other four vinegar yields followed formulas only remotely resembling it. In one trial grapes were permitted to ferment on their own yeast. In another the acetobacter xylinum was added to an alcohol-cider mixture and left to stand. In still another instance only yeast and cider were used with the yeast being spread on the underside of a small float and placed yeast-side down on the surface of the liquid. Within eight weeks the preparations produce vinegar. I also tried making vinegar from an alcohol yeast combination in the same sugar solution to which carob-pods and raisins had been added in one instance and carob-pods and plums another. Although these trials showed no visible signs of fermentation, the resulting vinegars, one a light yellow in color and the second a very pale pink, acquired what is regarded as a rich bouquet, a quality which includes taste, flavor, and odor.

Malt vinegar was also made in a different way. The starch in the malt had to be saccharified with the aid of the diastase in the grain. This was effected by keeping the malt mixture at 125°F. until the iodine test no longer showed blue. When this was attained, sugar was added and sudden chilling of the mixture followed. Fermentation was introduced with the addition of yeast and continued until vinegar bacteria was added six weeks later.

The preparation of my original variety of vinegar from cattail roots had a problem all its own. The attempted saccharification of the starch in the rhizomes using the malt method showed that diastase would solve the problem. Therefore, about four ounces of malt extract saccharified at 125°F. were added to the rhizome solution and saccharifying was continued until the iodine test showed negative. From here on the procedure was the same as for malt vinegar, with this difference, that the cattail extract took a longer time to ferment and acidify.

The last part of the project provided a series of interesting observations of the bacteria and enzymes occurring in vinegar-making. I observed that the acetobacter xylinum grown in the Orleans samples appeared similar to that taken from a pure culture of xylinum appearing as small thin rods occurring in groups. The shorter and somewhat thicker rod bacteria found in samples from both processes I identified as possible acetobacter pasteurianum. Bacteria from the top and bottom of the Quick Vinegar generator showed some difference in shape. Cultures made from the bacteria grown on the beechwood shavings of the generator were found to be non-motile and arranged in pairs or singly in large numbers. Their negative iodine test identifies them with the acetobacter schützenbachii bacteria common to generators. Although yeast does not continue growing when vinegar bacteria begins to multiply, I obtained photomicrographs of the two organisms in the same culture showing that this influence must be gradual.

The most practical conclusion to be drawn from this project is that vinegar-making is a simple process, possible to be conducted in the home. Furthermore, vinegar may be prepared from the juices of most fruits thus changing the flavor and aroma according to the fruit used. For entirely different vinegars one must use different bacteria. --- (Ed. Note: Ronald Gates was one of the 40 1959 National Science Talent Search Winners.)

LIE DETECTOR

By Jon Leu

Columbus High School, Marshfield

LIE DETECTOR



My lie detector consists of three parts: the resistance unit, the amplifying system and the two probes which serve as electrodes. I did not find making it difficult.

Resistance is very significant in the operation of a lie detector. Skin resistance is the measurement in ohms of the actual resistance from one part of the body to another. For convenience with my lie detector the measurement was made from hand to hand simply by having the probes attached to the index fingers. Normally with my detector, the skin resistance registers about 250,000 ohms at room temperature. At higher temperatures the reading is lower.

I made my tests on friends. The subjects tested were not taken one at a time, because skin reactions were more pronounced when a subject was questioned in the presence of others. Sometimes I would lead up to the question; at other times I would use the surprise attack.

When testing I turned on the detector and at the same time set the vacuum tube voltmeter, the heart of the detector, on the 0 to 5 scale. Then I adjusted the "balance" control until the meter needle rested in the lower third of the scale. Sometimes my subjects felt a little tingle from the electrodes, but this is harmless.

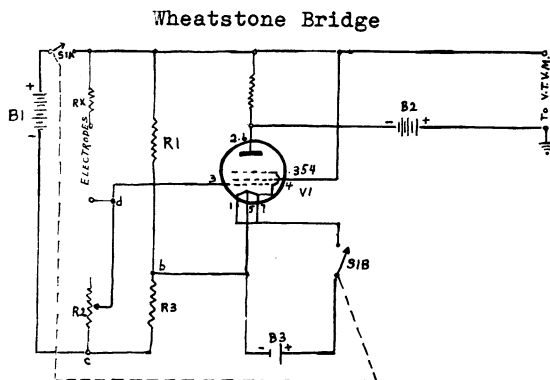
In most of my tests I carried on a normal conversation with the subject. When the response was positive, the meter needle swung upward after only a moment's hesitation. Usually at this point the detector had to be re-balanced because the skin resistance does not return immediately to its normal value.

Altogether I tested eight boys and six girls using the 0 to 5 volt scale. The results show that the girls gave a more pronounced response, shown by a higher voltage reading. The boys' tests gave a 3.5 volt average, while the girls' average under the same conditions rose to 4.2 volts. In the second series of tests I had four boys and two girls. Here I used the 0 to 15 volt scale. Just as in the first test the girls again showed a higher voltage reading. In fact, I noticed that the girls showed much more nervousness and in each set of tests the highest voltage reading spots the nervous girl. The questions I used were personal and referred to a place or thing. Not all subjects responded readily and easily, but a little practice sets a pattern for the operator.

The basic circuit in my lie detector amplifier is what is known as a Wheatstone Bridge, which is used for measuring unknown resistances. The four resistors that are involved in balancing the bridge are marked on the schematic as R_1 , R_2 , R_3 , and R_x . The circuit is balanced when R_x is to R_2 as R_1 is to R_3 . The

purpose of the tube in the center of the circuit is to detect any unbalanced condition of the bridge.

When operating the device R_x is used to represent the skin resistance and R_2 is the variable resistor which is adjusted so that no current flows through the tube. At this point no reading is registered across R_4 by the vacuum tube



voltmeter. Now if the skin resistance were to decrease then the point shown on my diagram as "d" becomes positive with respect to point "b" and the current flows through the tube and is shown on the vacuum tube voltmeter as a voltage drop across R_4 . When the skin resistance increases or returns to normal value, the reverse situation occurs. With the aid of batteries the detector is protected against voltage changes that would disturb the needle balance of the bridge. R_1 and R_3 draw about 10 milliamps when switch S1A is closed.

This instrument employs vacuum tubes in all measurement functions to insure good sensitivity and stability. The sensitive 200 microamp meter is placed in the cathode circuit of a 12AU 7 twin triode. The zero adjust control sets up a balance between the two sections of the triode.

Some of the uses for my lie detector are to show students how a lie detector works. It can teach physics classes about skin resistance and how a Wheatstone Bridge works when using a vacuum tube. This lie detector is also a lot of fun at a party or an outing at a camp.

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PUBLICATIONS AVAILABLE: (Continued from page 179)

Available for a price: From Supt. of Documents (Washington 25, D.C.): "Soil Survey--Richland County, Wisconsin" (an exceptional series of maps with text--price not listed), "Conservation Methods for the Upper Mississippi Valley (Payette Soil Area)--Farmers Bull. 2116, 10¢, "Pine Root Collar Weevil" - Forest Pest Leaflet 39 by D. C. SCHMIEGE*, 5¢; From U.W. Extension Div. (Madison 6): Fall 1959 Arts in Society for new price of 75¢ and "Land Subdivision Rules and Legal Precedents" by ARTHUR D. KIDDER, 60¢; From U.W. Press (430 Sterling Ct., Madison 6): "Plant Pathology--Problems and Progress, 1908-1958"--a report on 50th Anniversary meeting of Am. Phytopathological Society including some papers by Academy members; from Thomas O. Nelson Co. (Fergus Falls, Minn.) a new "Atlas of Wisconsin" including complete alphabetical list of lakes and places, \$12.50; from Milwaukee Chamber of Commerce, a new leaflet on Milwaukee, 25¢.

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THE BOOKSHELF

A TICKET TO THE CIRCUS By Charles Philip Fox

Superior Publishing Company
Seattle, Washington
1959 184 pp. \$10.00



A true "rags to riches" story unfolds in the picture story of the Ringling brothers of Baraboo, who began their circus career in 1884. Mr. Fox searched public and private collections to secure advertising material, train routing schedules, purchase orders, correspondence and other materials for this first complete history of any circus. He looked over more than 4000

pictures in selecting the 360 which are used in this "stupendous story of the incredible Ringlings in all its amazing detail from humble Wisconsin beginnings to world-wide glory." "One of their intangible assets was their good bringing up, robust constitutions, striking personalities, courage, high moral viewpoint and loyalty to each other." The preface and one chapter of the book have been written by two daughters of the famous brothers, the only time a member of the Ringling family has written for publication except for Alf T. Ringling's "Life Story of the Ringling Brothers" in 1901.

The author is one of two United States members of the Union of Circus Historians, who must have had circus material published to be eligible for an invitation to membership. He is also vice-president of the Circus Historical Society and a director of the Circus World Museum, opened last July in Baraboo in the winter quarters buildings. His book is a showpiece item for collectors and a joy to readers who remember when the circus made small towns, with its brass bands, free parades, and spectacles from other worlds. The author was one of the "moving spirits" who engineered the securing of the last circus train and considerable valuable circus paraphernalia which recently made its final trip from Florida to Baraboo, Wisconsin.

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ROBERT KIMBALL RICHARDSON

1876-1952

Edited by Helen L. D. Richardson

Privately published by
 Mrs. R. K. Richardson
 829 Church st., Beloit, Wis.
 1958 No price

This memorial volume on the life of a former president of the Academy, and long-time professor at Beloit College was edited and published by his wife a few years after his death. She wished it to be a book in which he spoke for himself; accordingly "the bulk of the volume is his own writing." He served as vice-president for Letters in the Academy for some years and was president in 1949-50. The TRANSACTIONS printed four substantial papers by him, the last of them his presidential address, "A Beloit Episode in the Life of Carl Schurz" (1952). He exerted a profound influence on the college which he served for nearly half a century and was active as well in civic and religious activities. "Those who knew him are still missing his outgoing nature and twinkling eye, his quick and pithy sayings, his resilience after the blows of Fortune, his high principles and good taste, his real learning and dogged industry, his vital and present application of his learning, and his kindliness to all people."

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THE STORY OF DURWARD'S GLEN

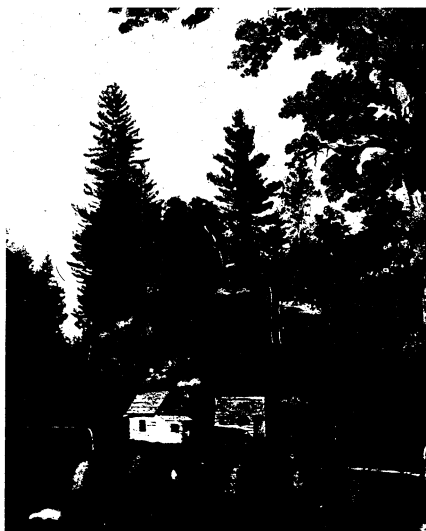
By Mary Grace Terry

Copyright by St. Camillus Inst.
 Available from author, Milwaukee
 1958 \$1.00 Wis.

Through the years, Durward's Glen in Columbia county has had a special place in the hearts of Wisconsin people and their visitors from other places. Several books have been written about this "jewel" among the Baraboo Hills which has many of the same characteristics as the nearby Parfrey's Glen--and also some other cultural attractions of significance. Besides having on the grounds the state's largest Norway Spruce and a competitor for the largest white oak, the history of the Durward family of naturalists, artists, poets and prophets is woven throughout both the glen and this little 73-page illustrated booklet.

In cooperation with the St. Camillus Fathers who now maintain this shrine and the hilltop chapel called "St. Mary's of the Pines," Miss Terry has summarized all earlier records in an authentic historical narrative. It was a labor of love and the result of a lifetime of sympathetic research. Here is another type of "Scientific Area" preserved for the public to visit and enjoy--an important study in the state's cultural heritage about a Glen full of natural and spiritual inspiration. -- W.E.S.

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A HISTORY OF NEENAH

Compiled by S. F. Shattuck
Chairman of Committee

Pub. privately; available from
Wm. Krueger Company
Neenah, Wis.
1958 459 pp. \$3.50

A committee of citizens has compiled the essential facts, happenings and movements of the Neenah community since the last history was published 80 years ago. More complex than the 1870 compilation, Part I takes a birds-eye view of that era, evaluates the significance of the Fox waterway in development of the area, and cites the many products of science and invention which have affected the people. Part II is a story, by decades, of the growth of Neenah. It is a beautiful example of both the book-maker's art and the compilation of community history.

WISCONSIN PROFILE — A Summary of Water Use and Administration

By League of Women Voters of Wis.

League of Women Voters of Wis.
119 E. Washington ave., Madison 3
Oct. 1959 24 pp. (ill.) 60¢

This summary report is the result of work by individual Leagues on their local watersheds in cooperation with their national "Know Your River Basin" study program. Although it is a compilation, it does contain general statements on Wisconsin's water use problems which deserve critical consideration by anyone interested in this subject. Many people cooperated in the project, but Academy member I. O. Hembre, Executive Secretary of the State Soil Conservation Committee, is given special mention for reading the manuscript for general content.

One of the most important parts of the processed 8 1/2 x 11 inch booklet is the series of five maps, four of which were prepared for a "Reading Wisconsin's Landscape" project by a committee including Academy members Francis D. Hole, M. N. Taylor and Fred Trenk. (See back cover for one on "How Wisconsin's Land is Used") Other maps here published are on "Wildlife Resources," "Fishery Resources" and "Wisconsin Glacial Deposits." The "landscape" maps are for classroom use throughout the state and by bus tour students enroute to the Trees for Tomorrow camp at Eagle River.

LET ME LEARN by Marion Tempero Hext

Pub. by Creative Wisconsin
Hartland, Wisconsin
1959 46 pp. \$1.00

This Anthology of Poetry and Prose by the late Marion Tempero Hext has just been issued under the imprint of Creative Wisconsin, the official periodical of the Wisconsin Regional Writers Association. The revealingly human contents have been compiled by Neita O. Friend and Margaret Freer. Illustrations by Libbie Nolan add to local color in this memorial volume. The profound esprit de corps among Wisconsin regional writers has been manifested from time to time in similar publications--nowhere more poignantly than here.

MISCELLANEOUS BOOKS AND BOOKLETS

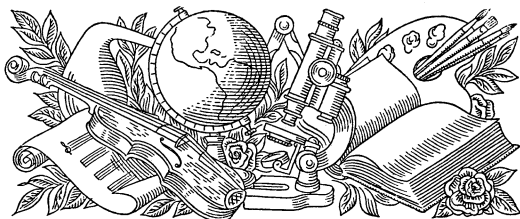
These recent publications of interest are free from sources listed unless otherwise indicated. * indicates author or editor is Academy member.

From Conservation Department (Box 450, Madison 1): "Forest Trees of Wisconsin - How to Know Them"* by F. G. WILSON; "Tree Planting in Wisconsin;" "Rough Fish Control"* by NICHOLAS J. MILLER, CLIFFORD L. BRYNILDSON and C. W. THREINEN; "County Park Survey;" "Five Lakes Project - 1958 Progress Report"* by WARREN CHURCHILL; "Fish, Game and Forestry Research Projects Four or More Years in Operation"* by L. CHRISTENSEN, J. HALE, D. MACKIE;

"Walworth County Wetlands;" "Annual Progress Report of the Habitat Evaluation Project" by RAY J. WHITE; "Wisconsin Watershed Developments 1958-59;" "Forest Resources of Eight Counties in Southwestern Wisconsin" and two "Inventories of Forest Resources" for the Eau Claire and Jackson County Forests; leaflets on the "Powell Marsh Wildlife Area," "Unit Hunting--What's in it for Me?" and "Wisconsin--for Fun Filled Family Vacations." Available now is a new W.C.D. forest protection movie film called "Story in Smoke."

From Other State Agencies: Friends of the Library--The University of Wisconsin (Louis Kaplan*, Secretary-Treasurer) issued their No. 1 issue of the Messenger in April 1959; from State Dept. Agr. (State Capitol): "Wisconsin Farmers and Their Non-Farm Jobs;" Governor's Commission on Human Rights (State Capitol): "Negro Families in Rural Wisconsin;" State Board of Health (State Office Bldg.): "Water Use in Wisconsin" by HARVEY E. WIRTH; Coordinating Committee on Higher Education (Wis.Center Bldg., Madison 6): "A State-wide Inquiry into Decisions of Youth About Education Beyond High School--Follow-up Studies" by J. KENNETH LITTLE, "College Student Migration to and From Wisconsin," "High School Programs and College Attendance in Wisconsin," "Housing Study--Wisconsin State Colleges and the University of Wisconsin," "Some of the Significant Actions and Accomplishments of the Coordinating Committee for Higher Education" and "Legislative Action on Proposals and Bills on which the Coordinating Committee Has Taken a Position;" from State Board of Vocational and Adult Education (Madison): "The Scope of Vocational-Technical Education in Wisconsin;" from U. W. College of Agr. Bulletin Mailing Room (Madison 6): "Pruning Pine Plantations for Higher Economic Return and Fire Protection" (leaflet), "Population Characteristics, Resources and Prospects in the North Central Region" by DOUGLAS G. MARSHALL*, and Forestry Research Notes No. 43* - "The Effect of Different Methods of Tree Planting on Survival and Rate of Growth of White Pine on Superior Clay Soils" by S. A. WILDE and G. K. VOIGT, No. 44* - "Rooting Habits of Oak and Pine on Plainfield Sand in Central Wisconsin" by N. V. DeBYLE and I. C. M. PLACE, No. 46* - "Timber Growth and Labor Opportunities for Sustained Harvest Cuts on Argonne Timber Harvest Forest" by J. H. STOECKLER, F. B. TRENN and R. O. STROTHMAN, No. 47* - "Wage Income from Improvement Harvest Cuts - Argonne Timber Harvest Forest"(same authors as 46), No. 50 - "Sprouting Capacity of Oak Stumps in Southern Wisconsin by DILWYN J. ROGERS and PRISCILLA H. ROGERS and No. 51 - "Some Effects of Fire in Southern Wisconsin Woodlots" and Research Reports 1 and 2 on the Phyto-Climat of Wisconsin by JEN YU WANG and V. E. SUOMI on "The Growing Season" and "Temperature: Normals and Hazards."

From Other Sources: U. S. Soil Conservation Service (3010 E. Washington ave., Madison): "Woodland Conservation Handbook for Wisconsin" (restricted distribution); from U.S.Forest Products Lab., (Madison 5): "List of Publications on Pulp and Paper" and "Partial List of Reference Works on Pulp and Paper;" from Lake States Forest Exp. Station (St. Paul, 1, Minn.): "Forest Tree Improvement Research in the Lake States," "Direct Seeding and Planting of Balsam Fir in Northern Wisconsin," and technical notes as follows: No. 556 "Trampling by Livestock Drastically Reduces Infiltration Rate of Soil in Oak and Pine Woods in Southwestern Wisconsin," No. 559 - "Simple Measures Can Improve Wisconsin's Farm Woodlands (The Mixed Oak Type)," No. 562 - "Commercial Forest Land in Wisconsin Counties by Forest Type," No. 563 - "Sawtimber Log Grades in Wisconsin," No. 568 - "Defect in Wisconsin Timber" and No.569- "Timber Volume in Wisconsin Counties." (See also page 175)



STATE AND ACADEMY NEWS

WISCONSIN ACADEMY COUNCIL MEETING

The Academy Council met at the University of Wisconsin Memorial Union Building in Madison on October 24 and the following is a brief unofficial report (by the Editor) of matters considered and actions taken at this meeting. In attendance were: President Meyer, President-elect Hughes, Vice-president Ihde, Secretary Schwenn, Treasurer Behling, TRANSACTIONS editor Beck, Junior Academy Chairman Thomson, Librarian and Academy Review Editor Scott, Past-presidents Baier, Buckstaff, Dicke, Kowalke, Noland, Father Reis, and Schuette, Membership Committee Chairman Roeming and committee member Threinen, and Associate Editor (Letters) of Academy Review, McCanse.

Motions Passed:

1) To recognize and accept gifts to the Senior Academy of \$1,100 from the Brandenburg Foundation, Inc. of Madison and a \$10.00 Memorial gift for the late Samuel C. Wadmond from his daughter, Elizabeth W. Fibiger; and for the Junior Academy, \$50.00 from the A. O. Smith Corporation, \$25.00 from each the Wisconsin Telephone Company and Murco Foundation, Inc. and smaller gifts from O. L. Kowalke, E. P. Koerper, and both Wausau and Nicolet (Milwaukee) High Schools.

2) To accept a list of new members including one Sustaining, 23 Active, six Family and two Library subscriptions (see inside back cover for list). Names of 21 Junior Academy winners who receive a membership award for one year also were announced.

3) To approve the free distribution to members on a "first come, first served" basis of surplus copies on 40 back volumes of the TRANSACTIONS with only a 10¢ handling charge per copy. A check sheet will go to all members at the time dues notices are sent out in January and distribution will be based on postmarked dates on return envelopes to the Librarian. All such cartons of back volumes must be picked up at the 90th annual meeting in Madison, May 7, 1960.

4) To attempt to make arrangements for mailing of the Academy Review under second class matter rates starting with the Winter, 1960 issue in order to save on postage expense.

5) To name as Life Members of the Academy: FARRINGTON DANIELS (Madison), CHARLES DRECHSLER (Beltsville, Md.), ELOISE GERRY (Madison), JOSEPH H. MATHEWS (Madison), WALTER H. SNELL (Providence, R. I.) and WILLIAM N. STEIL (Milwaukee) - all of whom have been Active members for about 40 years.

6) To cooperate in a Junior Science Symposium for about 225 of the state's young scientists next March at the University of Wisconsin. Sponsor of the project is the Office of Army Ordnance. This cooperation was only for the current academic year and would

not in any way interfere with or supplant the Academy's own Junior Academy of Science program.

7) To authorize the Academy officers to meet with University of Wisconsin officials, if necessary, to work out an agreement on financing the Academy TRANSACTIONS and its related library and exchange program, and this agreement to be submitted to the Council or the membership for approval. The motion carried the consensus opinion that if the Academy budget was transferred by the Joint Finance Committee and the Legislature to the U. W. budget (which plan was favored), any agreement should require that the U. W. funds cover "cost sufficient" for publication of the TRANSACTIONS and that the Academy retain full control of the TRANSACTIONS editorial policies.

8) To empower a committee of the Secretary, Treasurer and Chairmen of the Membership and Publicity Committees to prepare a new brochure about the Academy and proceed with its preparation at the earliest opportunity.

9) To set a dollar registration fee for all Senior Academy members attending the 90th annual meeting of the Academy on May 7, 1960 at the Wisconsin Center Building in Madison.

10) To authorize the Chairman of the Publicity Committee to request that the Governor issue a proclamation calling public attention to the Academy's 90th Anniversary Meeting.

11) To require that all Wisconsin libraries (except the co-operating U.W. libraries and the Legislative Reference Library) pay the full library subscription fees and that none receive free exchange TRANSACTIONS or other publications in the future. All affected libraries are to be informed of this new policy by the Secretary and subsequently billed by the Treasurer.

President's Committee Appointments and Announcements

President Meyer announced the following committee appointments: FINANCE (Jointly for both Junior and Senior Academies) - Chairman Joseph G. Baier, Jr., 3611 N. 101st st., Milwaukee 16, and members David J. Behling, Ralph W. Buckstaff, Robert J. Dicke, Merritt Y. Hughes, O. L. Kowalke, William McCoy, W. E. Noland, and Carl W. Steiger. PROGRAM FOR 1960 ANNUAL MEETING - Chairman Merritt Y. Hughes, 358 Bascom Hall, U.W., Madison 6, and members Berenice Cooper, Aaron J. Ihde, Douglas Knight, and Roger Schwenn. LOCAL ARRANGEMENTS FOR 1960 MEETING AT MADISON - Chairman Robert J. Dicke, 3 King Hall, U.W., and members J. T. Medler, Roger Schwenn, Walter E. Scott, and William E. Sieker. JUNIOR ACADEMY STATE COMMITTEE - Chairman John W. Thomson, 209 Birge Hall, U.W. and members Eleanor Cox (Stout Inst., Menomonie), Mary A. Doherty (Mary D. Bradford H.S., Kenosha), Jerome Fisher, (Nicolet H.S., Milwaukee), Alfred Hornigold (Lincoln H.S., Wis. Rapids), Sidney W. Jacobson (Waukesha H.S.), Sr. M. Lauretta (Columbus H.S., Marshfield), Ole Oines (Central H.S., La Crosse), Charles W. Scribner (Appleton Sr. High), Harold R. Wolff (Milwaukee Public Schools), and Amos H. Yonke (Wausau Jr. High), plus the chairman of each district committee ex-officio. JUNIOR ACADEMY OF ARTS AND LETTERS - Chairman Merritt Y. Hughes, 358 Bascom Hall, U. W., and members Frederick M. Logan, Robert F. Roeming, and John W. Thomson. LONG-RANGE PROGRAM PLANNING - Chairman Katherine G. Nelson, 1515 N. Franklin Place, Milwaukee 2, and members Joseph G. Baier, Robert J. Dicke, Francis D. Hole, Robert H. Irrmann, Rev. R. H. Reis, S.J., H. A. Schuette, and John W. Thomson. PUBLICITY

AND PUBLIC RELATIONS - Chairman Walter E. Scott, 1721 Hickory dr., Madison 5, and members David J. Behling, Victor Hicks and Robert Taylor. It should be noted that the President authorized committee chairmen to add members to their groups if they so desired and that both the PUBLICATIONS and MEMBERSHIP committees are elected (see inside back cover for lists).

Other announcements by the President included the following:

1) Because he could not attend the Academy's budget hearing before the Joint Finance Committee on October 29, he appointed President-elect Hughes to represent him and it was decided to have Walter E. Scott make the basic presentation with others assisting as necessary.

2) All members in arrears for dues will be sent a second billing in the near future and a group under Chairman Roeming (including Messrs. Baier, Behling and Scott) will formulate a letter to such delinquent members.

3) The President recently signed 141 Junior Academy Award Certificates and Charters for five new groups cooperating in the Junior Academy program.

4) A special meeting on Academy financial problems was held at his home on July 8 after which an emergency budget supplementation of \$2,500 was requested for this year. On September 24 a group of five officers and council members made an appeal for needed budget funds. Now the new Department of Administration had a plan to transfer the Academy's budget to the University of Wisconsin budget calling for a "sum sufficient" for publication of the TRANSACTIONS. He called on Secretary Roger Schwenn to explain the details known on this plan. Meanwhile, it was decided to proceed with publication of both the TRANSACTIONS and Academy Review with the expectation that these financial problems would be settled more or less favorably in the near future.

5) Although formal invitations have not as yet been received, informal inquiries have been made by institutions in La Crosse, Ripon, Superior and Waukesha regarding future annual meetings of the Academy.

Reports by Other Officers

Reports by other officers included the following:

1) Treasurer Behling said his up-to-date financial report showed a current deficit of \$496.70 and it would either be necessary to cut on expenses or find new revenue--or both. It is planned to get after the collection of delinquent dues immediately and bill paid-up members promptly after the new year starts in January.

2) Editor of TRANSACTIONS Stanley Beck reported that low bid for the 1959 publication of Vol. 48 was for \$3,815 by the Democrat Printing Co. of Madison. Bids by two Milwaukee firms were \$5,200 and \$6,375. The copy already is at the printers and should come out about December 15.

3) Chairman of the Junior Academy, John Thomson, reported about \$170 in bills still outstanding and due. He discussed details on the proposed Junior Scientists' Symposium (see motions for action) which will be held at the U. W. early next March. Also, he announced plans for the production of a Junior Academy movie in cooperation with the U. W. Bureau of Audio-Visual Instruction and possibly the National Science Foundation.

4) Chairman Roeming of the Membership Committee reported on recommendations by his committee including need for a more detailed statement of the Academy's relation to other professional societies and possible promotion of the Academy through maintenance of a booth at annual meetings such as those of the Wisconsin Education Association.

5) Review Editor Scott reported details on plans for securing Second Class Matter mailing privileges through the Madison post-office and further recommended that continued efforts be made to finance publication of Junior Academy articles in a separated JUNIOR TRANSACTIONS and also use available copies of back issues of the Review for samples in membership solicitation.

6) Librarian Scott reported on plans for distribution of surplus back copies of the TRANSACTIONS and also the recent free delivery of available sets to Lakeland College, Manitowoc Public Library and the Library of Wisconsin State College, River Falls. A check sheet suggested for use in disposal of surplus TRANSACTIONS was approved.

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THE ACADEMY'S BUDGET REQUEST

The following Statement on Academy Budget Matters was read to the Joint Finance Committee of the Legislature on October 29, 1959 by Walter E. Scott as authorized by the Council.

* * * *

Chairman Risser, and Members of the Joint Finance Committee:

About 90 years ago, on March 16, 1870, the Wisconsin Academy of Sciences, Arts and Letters was incorporated by an Act of the Legislature. Since that time it has continued as an effective and productive state-sponsored membership organization very similar to the State Historical Society in legal structure. Over the years it has counted among its members many of the state's most eminent scientists, scholars and professional, industrial and political leaders. Never in its history has it been so firmly based on a broad cross-section of Wisconsin citizens represented in well over 1,000 dues-paying members.

The Legislative Act incorporating the Wisconsin Academy listed as one of their specific objects "the formation of a general library" and the "diffusion of knowledge by the publication of original contributions to science, literature and the arts." In compliance with this mandate, the Wisconsin Academy has published 47 volumes of TRANSACTIONS since the 1870's and exchanged these with other learned societies and scientific institutions throughout the world. Our library now contains well over 35,000 volumes valued conservatively at \$300,000. This year we exchanged our TRANSACTIONS for about 600 other publications valued at about \$4,000.

The Wisconsin Academy operated its library as a separate entity until 1908 when it was integrated with the University of Wisconsin library with the understanding that ownership of the books would remain in the Academy. All such books are clearly marked with the Wisconsin Academy bookplate and they are available through inter-library loan to all Academy members and Wisconsin scholars throughout the state. Over the years the Legislature has appropriated about \$100,000 to assist in the publication of these Wisconsin Academy TRANSACTIONS and the University of Wisconsin has expended funds to assist in binding, filling broken sets, storage of back issues and servicing the exchange program.

The background given here may be necessary to an understanding of the Wisconsin Academy's budget request today and its financing plan in the future. In recent years our Legislative appropriation has not been sufficient to pay for the cost of the TRANSACTIONS and the Academy has drawn on its meager resources until these have been exhausted. In fact, a deficit of about \$497 was reported by the Treasurer at a Council meeting last week. While our annual

appropriation is \$1,500 each year of this biennium, the lowest bid received for our annual TRANSACTIONS Volume 48 now at the printers was about \$3,800. If we are to continue this publication exchange program so important to all the state's institutions of higher learning--all of which are represented in the Wisconsin Academy--we must have assurance that it will have continuous and sufficient financial support. The Academy's funds from membership dues are needed to promote other essential activities such as the Junior Academy educational program and the Wisconsin Academy Review.

Because of these problems, the Wisconsin Academy Council on July 9, 1959 requested an emergency appropriation of \$2,500 to supplement its \$1,500 budget allowance for the present fiscal year. As Volume 48 of the TRANSACTIONS will be published in December of this year, some adjustment is urgently needed. It would help if the entire \$3,000 biennial appropriation could be assigned to this present year. The Academy is making every possible effort to save money and also expand its membership base for greater financial support from the people of Wisconsin. Possibly we could make up the difference in this expenditure--if that is absolutely necessary.

The Academy Council recently was informed of the recommendation for our future financing made by the State Department of Administration. Although this plan had been considered one of last resort, they voted to approve the proposal, with the understanding that the University of Wisconsin budget assign a "cost sufficient" amount for the publication of the Wisconsin Academy TRANSACTIONS annually and that the editorial policy of this publication and ownership of the exchange publications received remain in the Wisconsin Academy of Sciences, Arts and Letters. Therefore, in effect, this still remains as a state appropriation to the Academy for the publication of its annual TRANSACTIONS, and the Academy will continue its international exchange program and its agreement to house this valuable library in the Memorial Library of the University of Wisconsin.

If the Joint Finance Committee approves of this plan, the Academy Council has authorized its officers to prepare a written agreement, in consultation with the University of Wisconsin officials and Director of Libraries, which will express this plan and these understandings in more detail. This document would be signed after approval by the Academy Council or the membership. As no written agreement exists at present in relation to the Wisconsin Academy's library, this is considered a desirable and favorable development.

We wish to thank the Joint Finance Committee for its patience and consideration in allowing so much time for an explanation of this small appropriation request. The Department of Administration also deserves credit for its efforts to resolve this recurring problem. The future program and potential for good work of the Wisconsin Academy is at stake in this decision today. For this reason we hope the committee's decision will be one which will recognize the significance of our organization to the State of Wisconsin and guarantee its opportunity for continued service. At this time when the need for greater educational efforts and better public understanding of scientific and scholarly activities is vitally necessary, we feel no other decision can be considered.

* * * *



MILWAUKEE DOWNER (Mrs. Russell E. Jupp, Reporter)

September marked the opening of the 109th year since Milwaukee-Downer College was chartered as one of the first institutions to offer education at the college level to women. The obligations of the educated woman to her community were pointed out in a state convention of intercollegiate Associated Women Students at which Milwaukee-Downer College and its neighbor, the University of Wisconsin-Milwaukee, were co-hosts October 24. The keynote speaker exemplified the role in the person of Mrs. Vel Phillips, only woman member of the Milwaukee Common Council, and member of the Democratic National committee. Prominent Milwaukeeans introduced discussion areas for the women students and deans from Wisconsin's colleges and universities: Judge Robert W. Landry, government; Rev. John W. Cyrus, religion and education; Mrs. Richard E. Krug, politics, Mrs. George P. Ettenheim, social welfare. Mrs. Henry S. Reuss served as moderator of the panel. Topics were pursued at "topical tables" during luncheon, with student leaders directing the conversation along lines which college women are interested in exploring: communication; individual moral values in college; courtship and college; college drop-outs, why? The convention was planned and managed by students.

The new dean replacing Miss MARGARET KNUEPPEL is FRANCES E. FALVEY. She is a native of Texas and had been dean of women at Millikin University, Decatur, Ill., since 1948. Previously she had taught at Hollins College in Virginia, Ward Belmont College in Nashville, and at Southern Methodist University in Dallas, where she did her undergraduate work. She holds her doctorate in education from Teachers College, Columbia University, N. Y.



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

Father LAWRENCE W. FRIEDRICH, S.J., chairman of the physics department, has been named associate dean of the graduate school there. He continues as department chairman. ... A biology class is meeting in a Milwaukee theater this semester as the University experiments with use of the theater for large lecture groups. Special lighting and sound installations were used to convert the theater for classroom use. ... Three National Science Foundation grants became effective this fall. They are as follows: \$23,000 to PAUL J. CRESSMAN and EDGAR D. BERNERS, physics instructors, for basic research in nuclear physics on "Lifetimes of Excited States of Certain Atomic Nuclei;" \$14,000 to WALTER STRICKS, associate professor of chemistry, for "Polarographic Studies with the Rotated Dropping Mercury Electrode;" and \$15,600 to ARTHUR G. BARKOW, professor of physics, for basic research on "Elementary Particle Reactions in Photographic Emulsions." ... EUGENE S. McDONOUGH, professor of botany, is engaged in research at the government's communicable disease center in Chamblee, Ga., on the natural habitat of a fungus which causes blastomycosis. He is working under a U.S. Public Health Service grant and will continue the project at Marquette when he returns to Milwaukee in January. He has been on leave from Marquette since September, 1958, and the leave has been extended to September, 1960. ... JOHN W. SAUNDERS, Jr., chairman of the biology department, and PETER ABRAMOFF, assistant professor of biology, have been awarded a U.S.P.H.S. grant of \$34,034 in support of their studies of tumor antigenicity. The grant covers a three-year period starting September 1, 1959. ... N. J. TOPETZES of the education department recently was elected secretary of the Wisconsin

Personnel and Guidance Association for 1959-60. ... CLEMANS B. HANNEKEN, asst. professor of mathematics, was elected chairman of the Wisconsin Section, Mathematical Association of America. ... Father JOHN P. O'BRIEN, C.S.V., has announced that the biology department has acquired a 250,000-volt research x-ray unit for research and teaching purposes. ... The Engineering College has added a nuclear energy laboratory with the aid of a \$15,500 grant and the loan of 5,500 pounds of uranium metal from the Atomic Energy Commission.



BELOIT COLLEGE (Prof. Carl Welty, Reporter)

Prof. NEVILLE L. BENNINGTON of Beloit's biology department will spend the next year in Washington, D. C. as Director of the programs for In-Service Institutes for High School Teachers (of the National Science Foundation). He will be on leave from his position as professor of zoology at Beloit for that period.



LAKELAND COLLEGE (From Bob Spatt, Reporter)

RALPH LEY of Waukesha, chairman of the Board of Trustees, has announced two new Trustee additions-- WILLIAM PETERSON of Wheatland, Iowa, and Rev. NATHAN WIERWILL of Archbold, Ohio. ... Another faculty member has been added to the college's expanding science department. He is Prof. CARL HOEPPNER, a 1945 University of Wisconsin graduate, who is an instructor in the chemistry department.



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

The University of Wisconsin began its 111th school year in September with the largest enrollment in its history. The total enrollment of 25,490 students includes 18,167 on the Madison campus, 5,367 at the UW-Milwaukee, and 1,956 at the eight Extension Centers. ... JOHN D. FERRY, new chairman of the chemistry department, was announced as winner of the \$1,000 Kendall Award in Colloid Chemistry from the American Chemical Society. ... Recent University faculty appointments include: JESSE E. BOELL of the State Historical Society as director of University Archives and E. E. LeMASTERS of Beloit College as director of the School of Social Work, effective Feb. 1, 1960. ... HOWARD BECKER of the UW sociology department was installed as president of the American Sociological Assn. at its annual meeting in Chicago in September. ... Elections at the American Chemical Society annual meeting in Atlantic City, N.J., included these University scientists: JOSEPH O. HIRSCHFELDER, director, Theoretical Chemistry Laboratory, as chairman-elect of the Physical Chemistry Division; DAVID E. GREEN, co-director, Enzyme Laboratory, as chairman of the Biological Chemistry Division; and EDWARD E. SMISSMAN, School of Pharmacy, as chairman of the Division of Medicinal Chemistry. ... President CONRAD A. ELVEHJEM received the honorary doctor of science degree as Northwestern University's Medical School held its centennial observance in September. ... Bascom Hall, the University's "Old Lady of Lincoln Terrace," observed its 100th anniversary on August 10. ... DALE WURSTER of the UW School of Pharmacy has developed a process which cuts the time needed to coat tablets of granules from days down to minutes and may "revolutionize" the drug industry. ... W. R. MARSHALL, Jr., associate dean, College of Engineering, and associate director of the Engineering Experiment Station, has been named 1959 winner of the \$1,000 Professional Progress Award from the American Institute of Chemical Engineers. # # #



THE AUTUMNALL



No Spring, nor Summer Beauty hath such grace
 As I have seen in one Autumnall face...
 If t'were a shame to love, here t'were no shame,
Affection here takes Reverences name.
 Were her first yeares the Golden Age; That's true
 But now shee's gold oft tried, and ever new...
 Here, where still Evening is; not noone, nor night;
 Where no voluptuousnesse, yet all delight...
 If we love things long sought, Age is a thing
 Which we are fifty yeares in compassing.
 If transitory things, which soone decay,
Age must be loveliest at the latest day...
 Since such loves naturall lation is, may still
 My love descend, and journey downe the hill,
 Not panting after growing beauties, so,
 I shall ebbe out with them, who home-ward goe.



--- John Donne

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In Memoriam

Ralph M. Kingsbury - 1902-1958



RALPH M. KINGSBURY was born near Turtle Lake, Polk County, Wisconsin on Nov. 5, 1902 and died at Madison, Nov. 27, 1958. He graduated from Lawrence College in 1927 and later did some work at George Washington University in Washington, D.C.

From 1927 to 1929 he worked for the Thillmany Pulp and Paper Co., Kaukauna, then transferred to the old Bureau of Chemistry & Soils, U. S. Dept. of Agriculture (later the Bureau of Agricultural Engineering). Most of his time was spent in Washington, D.C. though he did some work on potato starch in Mississippi and on sugar cane in Louisiana. During the war he came to Madison to do research on Resins at the U. S. Forest Products Laboratory and stayed on in the pulp and paper section.

He was active in the Technical Association of the Pulp and Paper Industry (TAPPI) and a member of the Wisconsin Academy since 1956.



In Memoriam -

Herbert Pulse Evans - 1900-1959

HERBERT PULSE EVANS was born in Chattanooga, Tenn. on Jan. 5, 1900 and died at Madison, Wis., on June 2, 1959. He came to the University of Wisconsin in 1920 as a student after serving in the Navy in World War I. Receiving the bachelor's degree in electrical engineering in 1923, he did research for the Bell Telephone Laboratories before becoming an instructor at the UW in 1925. Earning his Ph.D. degree in 1929, he became full professor of mathematics in Extension Division Department of

1942 and was chairman of the Mathematics since 1945.

For many years Professor Evans tirelessly supervised the teaching of elementary mathematics at the University in Madison classes, in the Extension Centers, and throughout the world through correspondence study courses. He taught graduate level courses in residence and took an active part in the affairs of the residence department of mathematics, the division of physical sciences, and many University-wide committees. His advice on mathematics textbooks and the content of mathematics courses was sought and was highly prized by his colleagues. He was a member of several mathematical societies, Sigma Xi, a fellow of the AAAS, and had been associate editor of the American Mathematical Monthly for some years. He affiliated with the Wisconsin Academy in 1954. Dedication to duty and zeal for maintaining high standards of instruction in mathematics characterized his work and generations of colleagues and students have valued his helpfulness, his sense of humor, and his rare gift for comradeship.--Adapted from resolution of MEMORIAL COMMITTEE: Richard H. Bruck, Wilbur M. Hanley, Mark H. Ingraham, Rudolph E. Langer, R. D. Wagner, chm.



Vernor C. Finch - 1883-1959

Emeritus Professor VERNOR C. FINCH was born in Tecumseh, Mich. in 1883 and died at Madison, Wis. on October 23, 1959. He received his B.S. from Kalamazoo College, did graduate work at the Univ. of Chicago and received his Ph.D. degree from the UW in 1916. He came to the UW in 1911 as an assistant instructor in geography, rose to chairman of the department upon its creation in 1928, and taught a whole generation of Wisconsin students in basic geography courses. Upon his retirement in 1954, the Review published a profile in the Fall 1954 issue which carries details of his career and honors he received.



Alfred Joseph Wojta - 1909-1959

ALFRED JOSEPH WOJTA was born at Menominee, Mich. on Jan. 5, 1909, and died at Madison, Wis. July 21, 1959. He received his B.S. and M.S. degrees from the Univ. of Wisconsin, and his Civil Engineering diploma from the International Correspondence Schools of Scranton, Pa. He was a registered Professional Engineer in Wisconsin, serving in various technical capacities with the Soil Conservation Service here from 1933 to 1945. From then until the time of his death, he was a staff member of the Departments of Agricultural Engineering and Soils of the Wisconsin College of Agriculture.

While with the Soil Conservation Service he served in many different capacities. A member of the College Grassland Farming Committee since its origin, he played an important part in conducting the very successful Grassland Field Days in 1946 and 1947. Under his guidance as general manager and Executive Secretary of the Wisconsin Farm Progress Field Days, they grew to be known as the "Wisconsin World Series in Agriculture." Perhaps his greatest contribution to Wisconsin total land use was the development of a simple, effective system of land forming for the economical removal of excess surface water from both upland and low-lying fields, a system accepted enthusiastically both in Wisconsin and neighboring states. He was a member of the American Society of Agricultural Engineers and an active leader and past chairman of the Soil and Water division of this Society. At the time of his death he was State Drainage Engineer and the University representative on the State Water Regulatory Board. He also served on several working committees of the Natural Resources Committee of the State and had lately become a member of the Wisconsin Academy.---Adapted from resolution of MEMORIAL COMMITTEE: H. D. Bruhn, F.V. Burcalow, M. F. Schweers, O. R. Zeasman, L. E. Engelbert, chairman.

Harold Nelson Kingsbury - 1912-1958



HAROLD NELSON KINGSBURY was born at Milwaukee, Wis. on May 13, 1912 and died at Madison on April 19, 1958. Graduated from the Univ. of Illinois in 1934, he received a Master of Public Health degree from the Univ. of Minn. in 1948. He was district engineer for the State Board of Health from 1936-50, with three years out for service as sanitary engineer in the Medical Corps. From 1950-57 he was associated with the State Committee on Water Pollution and then became a consulting engineer for The Sanfex Co. of Atlanta. He specialized in odor control in industry. He was secretary of the Wis. Society of Professional Engineers from 1955-58 and affiliated with the Academy in 1957.

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

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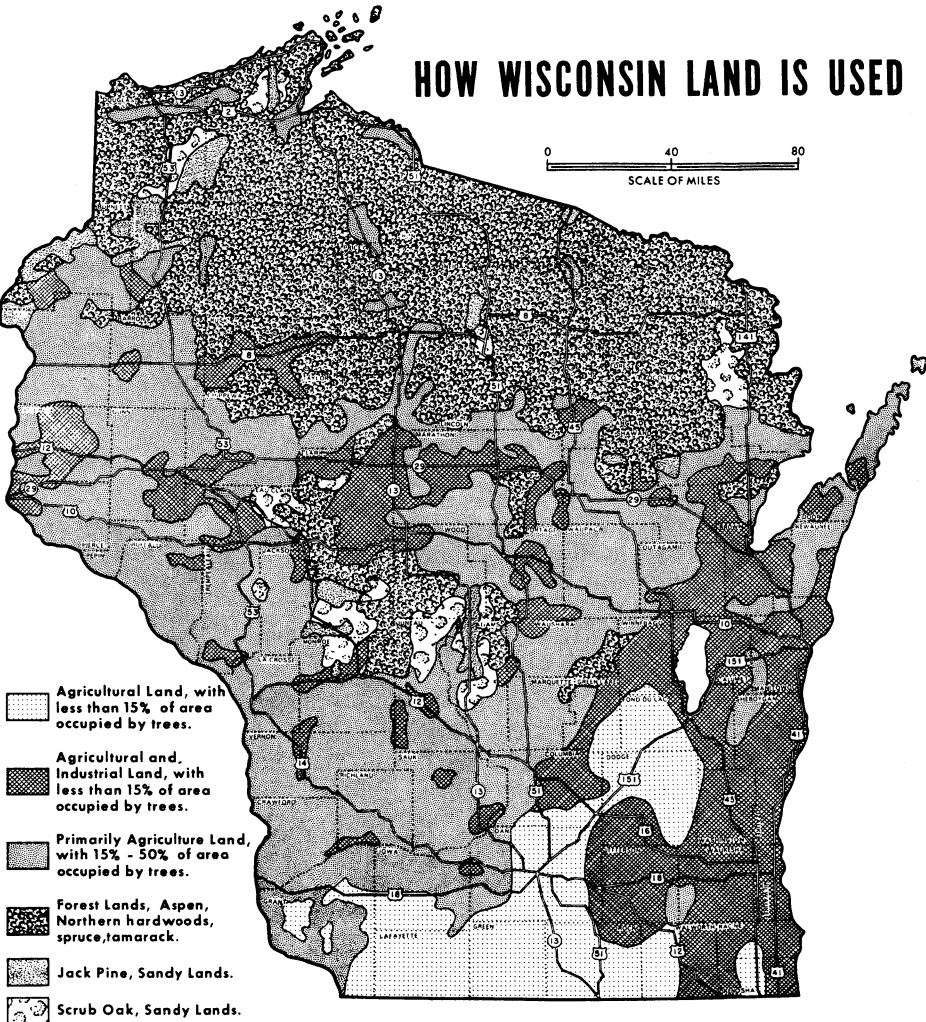
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HOW WISCONSIN LAND IS USED

0 40 80
SCALE OF MILES



From

WISCONSIN PROFILE — A Summary
of Water Use and Administration

(see page 178)