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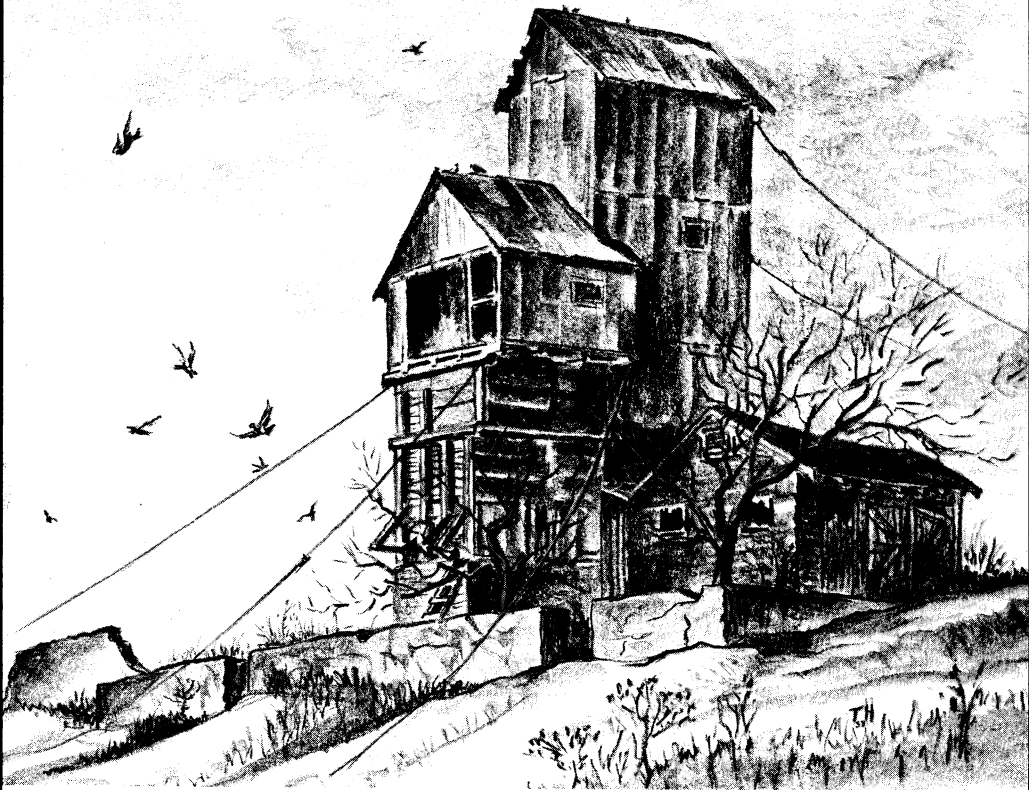
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*Lead Mine, Platteville*

*Thomas C. Hendrickson*

# WISCONSIN ACADEMY REVIEW

Spring, 1959

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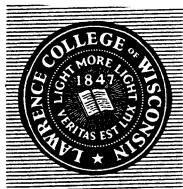
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## THE CHEMISTRY OF COSMETICS

By Stephen F. Darling  
Professor of Chemistry, Lawrence College

In his recent book, "The Affluent Society," John Galbraith makes the point that "a direct link between production and wants is provided by the institutions of modern advertising and salesmanship." This is particularly true in the field of cosmetic manufacture because there exists in our modern cosmetics little or no fundamental demand for these preparations as there is for food, clothing, and shelter. Every magazine, every radio and television outlet, our daily newspapers, and even our mail takes time and space to extol the supposed qualities of this or that exotic skin or beauty preparation.

The real value of cosmetics is only possible to assess if one compares the claims and uses to which they are put with their actual chemical composition. It will be the main purpose of this article to relate the composition of some familiar cosmetic preparations in order to allow an objective analysis of claims versus actual chemical content.



Let us start with one of the commonest cosmetics, the skin cream sometimes also called simply cleansing cream, cold cream or more sophisticatedly tissue cream, suppling cream, or yet more fanciful names. These creams are all a sort of glorified grease. They are usually emulsions of water and simple oils like mineral oil with modern emulsifying agents. Their consistency can be modified to the taste by numerous variations in the proportion of oil to water but to a chemist they are still a glorified grease. To make certain brands distinctive from others minor constituents like vitamins, hormones, royal jelly--yes, even mink oil, orchid pollen, powdered silk, and juice of water lily leaves are claimed to be present. To the best of my knowledge to get any good from vitamins and the like they have to be taken internally. To rub creams containing vitamins, hormones, royal jelly or anything else on the skin with the hope of altering metabolism by the penetration through the skin to the blood stream of these substances is wishful thinking, to say the least. These preparations command ridiculous prices for such simple preparations. In the January 1958 New Yorker magazine appears an ad for a royal jelly cream selling for \$10,



\$18, and \$30 a jar. Quite an outlay for a few ounces of glorified grease! The best you can say about these preparations is that they will probably do the skin no harm.

Recently bath oils are receiving more attention. According to Modern Cosmetics, an authoritative formula handbook for cosmetic manufacturers, bath oils are prepared by perfuming common mineral oil or mixtures of mineral oil and vegetable oils or fatty acid esters. The cost of the oils in a four ounce bottle might amount to a few cents and yet one of the highly advertised preparations of this nature retails for \$3 plus tax. If these preparations work, then the identical thing could be accomplished by pouring a thimbleful of mineral oil costing only a tiny fraction of a cent in the bath water.

This is not to say that skin preparations do not have some use or value. They clean and lubricate the skin. No reliable scientific evidence is known that they can remove wrinkles, feed the skin, or bring back that youthful complexion, as is so frequently claimed either directly or by subtle intimation in the TV blurbs or advertisement claims. America's toiletry bill for 1955 was \$1,192,000,000 exclusive of toilet soaps. America's advertising bill now has reached \$10,000,000,000 a year. The toiletries industry share of this latter figure is all out of proportion to their share of the nation's business as given by the first figure. It must pay, though, as the saying goes, because according to the June 1957 Fortune, of the top five richest corporations based on return on invested dollar, three were cosmetic corporations.

Eggs are to be eaten, not mixed with shampoo. No reliable evidence is available to show that egg albumin improves the hair other than to stick it down if any egg residue is left unrinsed in the hair. A 2% solution of a new plastic, polyvinylpyrrolidone, otherwise known as PVP, dissolved in Freon, the liquid in our household refrigerators, perfumed and modified with humectants (moisture attracting chemicals) is our familiar hair spray fixative. Sales of these began in 1950 and reached \$40,000,000 in 1955. This figure has been doubled by the end of 1958, according to the most reliable figures.

While most cosmetics are bought by the women in our families, men are not altogether free from succumbing to the wiles of the boys from Madison Avenue. How many men rub dilute alcohol containing perfume on their bald dome with the fond hope the fuzz will grow again? Reliable sales figures show that the shaving cream bill for men has doubled since the invention of aerosol shaving creams some few years ago. Part of this increase is due to increase in population of males, but only a part.

The decorative type of cosmetic, lipstick, rouge, powder, and eyebrow pencils, certainly have a more utilitarian use than hormone lotions and the like and yet they, too, contain common substances like petrolatum, beeswax, paraffin wax, mineral oil, talc, lampblack, and others. It is surprising how attractive water, containing a little glycerine and alcohol can be made by perfuming the mixture, coloring it, and placing it in an attractive container with a fancy label. This is the actual composition of a once popular skin freshener.

In conclusion, one can say that cosmetics contain substances which, to a chemist, are simple, common chemicals put up in attractive containers subtly perfumed. They have a real usefulness, particularly the decorative type, but the purported usefulness of many of the fancy creams, lotions, and similar preparations is so far from actual fact as to be in the realm of pure fancy.

# # #

#### MARQUETTE UNIVERSITY NEWS



PETER ABRAMOFF, Dept. of Zoology, received a three-year grant of \$34,000 recently from the U.S. Public Health Service of the National Institute of Health to continue his work on "Tumor Antigens and Acquired Tolerance." ... Marquette U. has been invited by the Argonne National Laboratory to use their 12 billion electron volt proton accelerator in its research projects. LAWRENCE W. FRIEDRICH represented Marquette at a discussion of this project last winter. ... JOHN G. SURAK presented a paper on the progress of the ACS in Milwaukee at the Boston meeting of the Am. Chemical Society. ... A \$225,000 research-training grant has been awarded the Physiology Dept. by the National Heart Institute of the U.S. Public Health Service. Also, a summer institute for high school counselors at Marquette (June 22-Aug.14) will be conducted with a \$30,000 grant from the U.S. Dept. of Health, Education and Welfare.

JOHN W. SAUNDERS, biology dept. chairman, announced the initiation of a new curriculum in biology. General botany and zoology will not be offered but will be replaced by a general biology course which will fulfill the science requirement for students not majoring in science and will be a prerequisite for biology majors. ... Marquette U's first annual admissions counseling institute was presented June 30-July 2 for high school and college admissions personnel. "The Great Transition: From High School to College" was the theme, with FRED O. PINKHAM, president, Ripon College, giving the keynote address. Institute coordinator was NICK J. TOPETZES of Marquette's education department. ... JOSEPH SCHWARTZ, Dept. of English, recently presented a TV show on Milwaukee's channel 10 (WMVS-TV) on "The Novel and Our Time."

## PARFREY'S GLEN—RELIC OF ANTIQUITY

By Louise Leighton\*  
Baraboo, Wisconsin

The student, the trained naturalist, or the nature hobbyist is happy when he finds a place where the earth remains primeval, unchanged by man except for an occasional path made by the feet of others who like him have come only to enjoy and explore. Such a place is Parfrey's Glen in Sauk County, Wisconsin, the first of 29 areas in the state set aside officially for preservation and scientific study.

Aldo Leopold was the man who persuaded the State Conservation Commission in 1945 to appoint a "Natural Areas Committee." Norman Fassett, then Professor of Botany at the University, was its first Chairman. In 1951, the Legislature created a "state board for the preservation of scientific areas." The chairman of this authoritative body is Albert M. Fuller, Curator of Botany at the Milwaukee Public Museum. Wisconsin leads the nation in this progressive field of conservation because these men realized that some wilderness must be preserved and left untouched for scholars to see in a pristine state.

It evokes an awesome feeling to hike through Parfrey's Glen, about a mile-long trek along a tiny stream which provides music as the visitor goes in the pleasant way of running brooks. Awe is engendered by the realization that these rock walls towering up on either side of the ravine represent geologic epochs when the sea covered central Wisconsin, not once, but twice, milleniums ago.

The vegetation too is fascinating because here are plants which grew in the pre-glacial era. This is the driftless area which the glacier did not reach. The blue aconite (*Aconitum uncinatum*) or monkshood grows out of the clefts and the ledges of rock, as does also the club moss. There are patches along the banks where horsetails grow by the thousands. The horsetail, about two feet high, once grew as tall as a forest tree and through the ages formed the vegetation which made coal beds.

The visitor will not have gone far through the canyon before he sees above him on the bank the memorial marker, placed there in May, 1958. It reads:

"Norman Carter Fassett, 1900 to 1954, student and teacher of our native flora. While chairman of the natural

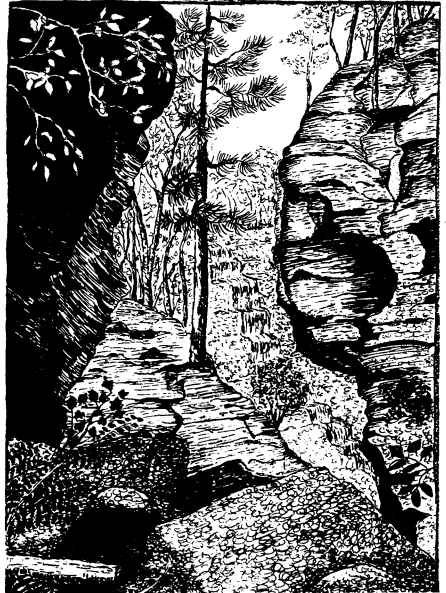
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\* - Mrs. Benj. Leighton proves that "scientific areas" have an appeal other than for study. She is an Academy member and Founder of the Wisconsin Fellowship of Poets. Sketch on page 53 is by the author.

areas committee from 1945 to 1950, he selected Parfrey's Glen as the first scientific area in Wisconsin."

Further, wild flowers of Wisconsin grow here in great profusion in the spring. In the summer the blues and lavenders of vervain, bergamot, and lobelia, and all the golden hues of late summer are gleaming on the banks or where the sun finds an opening. There are many varieties of fern. On a hot summer day the glen is always cool and the rich odors of the plants and trees add to the magic of the journey through the green shadows. The canyon walls seem to tower higher and higher as the explorer goes and the path leads upward. Finally one reaches a widening and a slight bend in the ravine and across the way like a gate are giant boulders standing in every sort of shape and position, some upright like pillars and others leaning crazily against each other. The visitor climbs past them almost under the jutting cliff to the top of the pathway and finds it descends to the other side. There before one's eyes the valley becomes a circular chamber with the blue sky for a ceiling and trees for draperies, and on the opposite side is a charming miniature waterfall skipping down a rocky stairway. This seems to be the climactic end of the walk, and one must go back the way he came.

The Glen belonged to the Parfrey family for 90 years before the state acquired it. Open to the public and easily accessible, there are picnic facilities near the entrance to the ravine. Twenty-eight other areas in 20 counties of the state have been selected by the Board. Some of these are in inaccessible sections of state parks. Some are open to the public, and a few may be used for hunting and fishing. But since the purpose is to protect unspoiled areas, many are unmarked. Nature study groups and naturalists are welcome to visit them. Woods areas are at least ten acres in extent with ten more around them as a "buffer zone." A prairie spot may be as small as one acre with another as buffer. Maximum size of tracts is 600 acres.



Besides Chairman Fuller of the State Board, members include John T. Curtis, University of Wisconsin botanist; Roman Koenings, Superintendent of Forests and Parks; Daniel Thompson, Ripon College biologist; and Henry Kolka, Eau Claire Wisconsin State College conservation teacher.

Old! Old! these rock walls cry,  
 Genesis itself am I.  
 Around my feet the water sings;  
 Along my ledges monkshood clings;  
 The trees lean peering from my crest,  
 Their roots safe-cradled on my breast.  
 The flowered footpath climbs and turns  
 Around a sculptured vase of ferns,  
 And lo! a palace room is there  
 With amber halls and crystal stair.  
 Old! Old! these great rocks say,  
 The sea has gone, but still I stay.  
 Let scholars read my wondrous tale,  
 And poets walk my timeless vale.

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### BELOIT COLLEGE NEWS



President MILLER UPTON has been appointed by Gov. GAYLORD A. NELSON to act as Chairman of his special committee on state tax policy and reform. ... Because of the rising importance of the Soviet Union in world affairs, Beloit College will institute next September a new Field of Concentration: Russian Studies. This will be an interdepartmental offering involving Modern Language, Government and History with supporting courses in Anthropology and Geography. It will be possible for students to major in this new field.... RONALD PALMER, Chm. Dept. of Physics, is on leave for 1½ years as Director of the "Project on Design of Physics Buildings," sponsored by Am. Assn. of Physics Teachers and Am. Institute of Physics, under a grant of \$75,850 from the Educational Facilities Laboratories of the Ford Foundation. \* \* \*

**M P M** ELMER R. NELSON, Chm. of Milwaukee Public Museum's Publicity Committee, reports that their bond resolution for financing a new building was passed by the Milwaukee Common Council recently. Slightly revised building plans have been unanimously approved by the Bd. of Trustees and Director STEPHAN BORHEGYI predicts that Milwaukee will have a first class museum building. # # #

## FORESTS AND WATER: A TALE OF TWO WATERSHEDS

By Richard S. Sartz  
U. S. Forest Service  
La Crosse, Wisconsin

"The reason we have so many floods these days is that they cut off all the timber."

"I have a spring on my property that always used to flow cool and clear, but ever since they logged the woods up above, it's been dry half the time."

Have you ever heard statements like these? I have. Lots of times. And I've read many more like them. Although some may be true, seldom are they backed by scientific evidence. The question of whether or by how much forests can control runoff and erosion is just about as old as the whole conservation idea itself. In fact an open controversy has been raging over this question for years. On the one side we have the ardent forest enthusiasts, some of whom have made somewhat extravagant claims for the forests, and on the other side we have the earth-movers and dam-builders who scoff at the whole idea. The truth, of course, lies somewhere between these extreme views.

That there is so much confusion is understandable, for it is, indeed, a complex subject. Take my two opening statements. In the first, cutting the timber caused more floods. This implies more water. In the second, cutting the timber dried up the spring. This implies less water. Completely contradictory, aren't they? Strangely enough, both could be true. Not everywhere and all the time, but under certain conditions--yes.

This apparent contradiction can be explained by other than black magic if one understands how forests interact with their environment. When one knows this he will better



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Mr. Sartz is Forester in Charge of the Lake States Forest Experiment Station's new forest research center at La Crosse. The center was established last year in cooperation with the Wisconsin Conservation Department to study the unique forest watershed management problems found in the Driftless Area of southwestern Wisconsin and adjacent Minnesota. This article represents a part of Mr. Sartz's talk before a Farm and Home Week audience in February, 1959.

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understand how forests can influence both floods and water supply.

To begin with we have what is known as a hydrologic cycle--in plain old American, a water cycle. You all know what it is: from clouds we get rain; the rain falls to earth, runs over or soaks into the ground to appear later as springs, streams and lakes; these in turn lose water to the atmosphere and to the ocean where it is evaporated, later to form more clouds, and so on. This is the water cycle in a nutshell. But what interests us here is what happens to the water along the way.



Let's imagine two watersheds, side by side. They are alike except that one is bare, the other forested. It starts to rain. Just a drizzle at first, but then harder--a real storm. As the first drops fall on the bare watershed they are easily taken up by the dry soil. But now the drops are falling faster and harder. As each drop strikes the

ground it splatters--just like a bursting bomb; and as it splatters it carries with it soil particles from the tiny crater it has gouged in the land. As the particles settle back to the ground they tend to move downhill. This is sheet erosion. You've probably heard the term before. Now, as the soil particles fall back to the ground the smaller ones roll or are washed into the small holes or pores in the soil. As the pores fill up with soil particles, the soil can absorb less and less water. Soon the rain is falling faster than the soil can take it in, so it runs over the ground surface, picking up more speed, more water, and more soil the farther it goes. Little rills join to form bigger ones, and so on down the valley. If there is anything in its path to be damaged or destroyed we call it a flood.

Now what is happening on the other watershed all this time? When the rain first starts, it doesn't fall to the ground at all. The first drops are caught on the leaves, the twigs, and the branches of the trees. Some find their way through the canopy only to be caught by the smaller trees, shrubs, and ferns underneath. But as the rain con-

tinues, the holding capacity of the trees and other plants is exhausted, and the leaves begin to drip. At the same time water begins to trickle down the twigs and branches to the tree trunks. Some of this is taken up by the bark; the rest flows down to the ground around the bases of the trees. The water that finally falls through to the ground doesn't come with the same explosive force as it did on the bare watershed because the drops have been slowed down as they passed through the forest canopy. In effect, they are falling from the branches of the trees instead of from the sky. But it wouldn't make much difference either way, because the drops don't fall on soil in the forest.

They fall instead on the dead leaves and twigs and other litter that are found on the floor of a forest.

The rain continues. It is falling fast now. But it has not reached the soil yet. It is still being absorbed by the decayed leaves and organic debris. Finally it makes

its way down to the soil. At this point water is beginning to gather in little rills on the bare watershed. But under the forest the water is taken up easily by the loose, porous soil. The soil here has never been grazed or plowed. In addition to its naturally porous structure, it has innumerable holes and tunnels of various kinds, the work of burrowing animals, of insects and earthworms, and decaying roots. This is nature's sponge.

But even a sponge can take just so much water. It is raining so hard now that the water can no longer be taken up as fast as it comes down, so it begins to gather on the surface. It starts to flow downhill, making its way over the leaves and around the twigs. It is a slow journey. Here and there it is halted temporarily by a dam of leaves, by a root or fallen log. At places it is detained in small basins made by uprooted trees. But this is a real rain--a once-in-fifty-years storm. So eventually, despite all of nature's roadblocks, we do get surface runoff from the forest. But it is a subdued runoff, late in coming; and the water runs clear.

This, I believe, illustrates my point about forests





and floods. Floods can come from forested watersheds, but other things being equal they would be much less frequent and less severe than floods from nonforested watersheds.

But what about the man and his spring? Well, on the bare watershed, most of the rainfall left the watershed as surface runoff. Hardly any percolated through the soil to become groundwater, and later, springflow. But on the forested watershed, little water was lost to surface runoff. Most of it went into the ground, and springflow was assured for weeks to come.

This is hardly the complete story on forests and water. I have left out many chapters. But it does show how forests can and do minimize surface runoff and erosion, and how they can safeguard water supplies. It shows also that there are inherent limitations to what they can do. In addition, any practice or misuse that disrupts the water-controlling functions of the forest will, of course, tend to lessen its effectiveness in this respect.

# # #

#### PROFESSOR HELEN WHITE HONORED

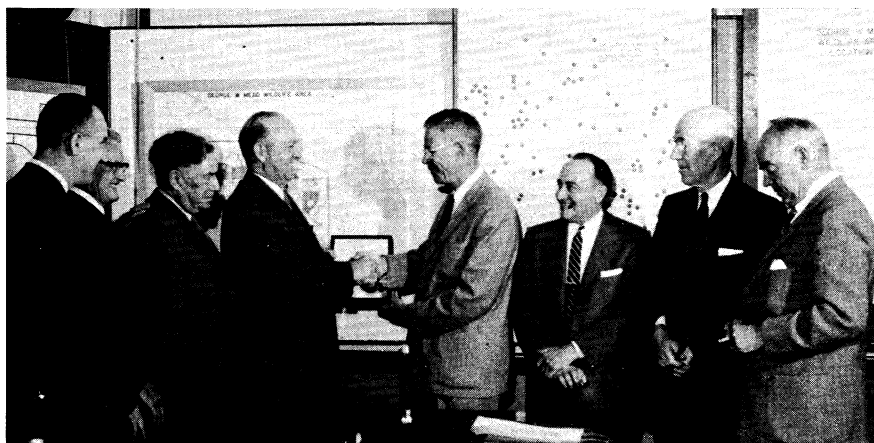


Professor Helen White, a member of the Wisconsin Academy since 1932, recently was made an officer of the Order of the British Empire. The honor was conferred by Queen Elizabeth II "for services in the cause of Anglo-American friendship and understanding." The title of "Honorary Officer Of The Most Excellent Order of the British Empire" (O.B.E.) is one of the highest the British sovereign can give to a citizen of another country.

The American Academy of Arts and Sciences also recently announced the election of Professor White to membership in this honorary organization. Professor White is a member of the University of Wisconsin English Department.

# # #

## CONSERVATION COMMISSION ACCEPTS MEAD WILDLIFE AREA



As Conservation Commission accepts George W. Mead Wildlife Area on April 10, 1959: Conservation Director L. P. VOIGT, Asst. Dir. GEORGE E. SPRECHER, Commissioner CHARLES SMITH, Chairman ARTHUR R. MacARTHUR, STANTON W. MEAD, Commissioners LEONARD SEYBERTH, A. W. SCHORGER, and GUIDO RAHR.

\* \* \* \* \*

Consolidated Water Power & Paper Company, Wisconsin Rapids, has presented to the State of Wisconsin 20,000 acres of its holdings in the Little Eau Pleine valley in Wood, Marathon and Portage counties. STANTON W. MEAD, president of Consolidated, commented that they would continue to have a high interest in management of the area in which they had been purchasing lands for almost 25 years with the ultimate purpose of creating a huge reservoir. Various handicaps caused postponement of that project and the land was offered as a gift to the people of the state. The area has a great potential for development for prairie grouse, deer, geese, and furbearers. Ditch banks already constructed in earlier drainage efforts and detailed engineering surveys completed by the company will greatly facilitate development by the department.

In acknowledging the gift, Chairman MacARTHUR stated: "The public's enjoyment of the sport of hunting, as well as other outdoor recreational opportunities, will be enhanced greatly by the dedication of this land--and its extensive water and wetland areas--for wildlife management purposes. ... Wildlife is an attraction not only to hunters and fishermen, but also to those who enjoy hiking in a 'wilderness' environment and viewing or photographing scenery of which wildlife is an important part. Because of these multiple values, to be preserved for the people of Wisconsin and their guests for all time, this gift from one of the state's largest producers of forest products is a form of leadership in the field of natural resources cooperation. In more than one way it is a landmark in the heart of Wisconsin which forever will stand out as an example of good public relations."

# # #

## DUTCH ELM DISEASE IN WISCONSIN: PROGRESS REPORT\*

By George Hafstad  
Wisconsin Dept. of Agriculture

The Wisconsin Department of Agriculture is delegated, by statutes, with certain regulatory powers concerning the control of insect pests and plant diseases. After Dutch elm disease was found in Wisconsin ... a meeting was held with representatives from the University, State Highway Department, Conservation Department, League of Wisconsin Municipalities, Milwaukee County, Wisconsin Nurserymen's Association, and others. ... Excellent cooperation has been obtained from all these agencies. ...

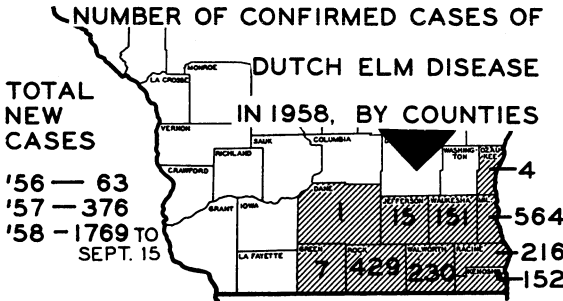
Dutch elm disease control, as with all problems of public concern, is one of education. Publicity, therefore, is important in the attempt to inform the public of the nature of the disease and means of control. Bulletins, news releases, radio, and TV have all been used in this attempt. The Department of Agriculture has printed a special bulletin on Dutch elm disease and its control, and the Extension Division of the University printed a Dutch elm disease leaflet. Both have been widely distributed

In 1956, 63 cases of Dutch elm disease were found in 14 different communities in six counties. In 1957, 376 cases were found in 46 communities in seven counties. By 1958 there were 1,832 cases in 106 communities in 10 counties Wisconsin has, therefore, experienced a rapid increase in the total number of cases. It is believed that the large number of cases found indicates in part the general interest of the public, and the fact that many people checked elms in many places.

During the first two years it was possible to keep an accurate location of all confirmed cases. It was interesting to note that frequently the first cases of Dutch elm disease found in an area might be associated with traffic from infected areas. For instance, two elm trees were found to be infected at a popular resort in southern Wisconsin; another case was noted at a resort-hotel parking lot; two cases were diagnosed at a filling station along a main highway, and an infected elm was found next to a milk plant shipping daily to Chicago. Such evidence is all circumstantial and cannot be proved, and little can be done to prevent long distance spread if such be the case; but it does indicate the need for constant vigilance.

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\* - Excerpts from paper presented at 89th Annual Meeting of the Academy at Wisconsin State College, Platteville, on May 2, 1959.



It is realized that three years is too short a time in which to evaluate control efforts, yet the results of the Control Program in many communities give encouragement. There are communities that have had Dutch elm disease

for three years, and have held their losses to less than one tree per 1,000. In one city where 18 cases were found in 1958, only two occurred as street trees that had been sprayed. Sixteen were private trees and non-sprayed. Two cases of Dutch elm disease were found in a cemetery in 1956. These were promptly removed and the rest of the elms pruned and sprayed. No further cases were found in either 1957 or 1958. Thus it appears that a determined effort by either individuals or communities can keep losses of elms to reasonable numbers. Control recommendations include (1) Sanitation - the removal and destruction of all beetle breeding material, and (2) Spraying of healthy elms with a dormant application of either DDT or methoxychlor to prevent beetle feeding.

During the past three years, the State Department of Agriculture made observations as to behavior of beetles and the disease in our area. Logs infested with beetle larvae were placed in cages and emergence of beetles studied. It was discovered that a peak emergence of the smaller European elm bark beetle occurred in mid-June, with a smaller peak in mid-August. To determine whether they could overwinter in Wisconsin, cages with logs infested with beetle larvae from a non-infested area were placed in ten different localities in northern and central Wisconsin in the winter of 1957-58. Set out in December and returned to Madison in March for observation, it was found that larvae exposed to temperatures as low as 33° below zero had approximately 40% survival. Control logs held at Madison had about 60% beetle survival. Thus it is believed that the elm bark beetle will be able to establish itself anywhere in the state that the elm grows.

The Department of Plant Pathology and the Department of Entomology initiated research work, both on the fungus and the insect vectors. The Department of Forestry and Wildlife Management also had begun studies on the effect of sprays to birds and wildlife. Research work of necessity is slow, but in a few years it is believed we will have considerably more information than at present. In Plant Pathology such knowledge is being sought as the actual factors of resistance and susceptibility, the means and

conditions of infection, and the effect of some of the anti-biotics. An elm nursery has been established at the University farms and elm seeds and clones have been obtained from Australia, Holland, Scotland, Denmark, Japan and Korea. These trees will be tested for resistance, both to the fungus and the beetle. In the Entomology Department considerable work has been done with systemic insecticides. Excellent control has been obtained on an experimental basis, and further work is being conducted with different compounds.

# # #

### A NOTE ON THE COVER PAINTING

The artist was born in Grand Forks, N.Dak. He completed the B.A. degree at the University of North Dakota in Science and did not start his formal work in Art until he reached the University of Minnesota where he completed the B.S. degree and the M.E. degree in Art Education. He has continued his study beyond the Master's degree in the Graduate School at the University of Minnesota.

The cover artist for this quarter's number is Prof. THOMAS C. HENDRICKSON of the Wisconsin State College at Platteville. His subject in this crayon drawing is a characteristic structure of the lead mining industry of the early days of the state. There are relatively few of these mine buildings still to be observed in the area but wherever they occur, they are picturesque even in their ruined state.

During the war years 1942-46, he was in service with the U. S. Marine Corps completing his duty as a First Lieutenant in the Artillery. He has been teaching at the Platteville college since 1949. His work in painting has been exhibited in regional shows and in particular, in Minneapolis. He has a special interest in teaching the arts by way of studio practices, lectures and discussion to college students who are often having the first real introduction to the arts in college classroom. Fortunately as an artist who is living in Grant county, his major hobby is fishing.

From time to time, Professor Hendrickson has been tempted by others, not by his own inclinations, to join college faculties outside of the State of Wisconsin. Fortunately for Platteville and for Art Education in Wisconsin, the attractions he finds in his professional life and in his hobby there have proven too strong for him to give serious consideration to leaving.

---Frederick M. Logan

## HIGH SCHOOL MATHEMATICS CONTEST

By R. D. Wagner  
UW Extension Division, Madison

For the past four years the Wisconsin Section of the Mathematical Association of America has conducted annual contests for mathematics students in Wisconsin high schools. The purposes of these contests as summarized by Prof. R. CREIGHTON BUCK in the March, 1959 issue of the American Mathematical Monthly are:

- (a) To give official recognition by awards, presented in the name of the Mathematical Association of America, to some of the better students now taking mathematics in high schools
- (b) To discover and encourage talented students who might otherwise escape attention
- (c) To lend additional motivation for some students to take more mathematics in high school
- (d) To encourage some students, especially those who are highly gifted and whose talents extend in many directions, to consider mathematics as a career
- (e) To give a certain amount of tactful guidance to the high school curriculum by indicating the level of competence and maturity of viewpoint that can be expected from the better students.

During these years the participation has increased from 400 students to over 12,600 students representing 283 public and private secondary schools. The contest is now conducted in two stages. Late in February a preliminary contest examination consisting of multiple-choice questions is given in each high school which elects to participate. The questions are designed so they can be worked by methods available to students who have completed a year course in beginning algebra and at least one semester of plane geometry. This gives the outstanding sophomore a chance to compete on fairly even terms with students who have taken more than three years of high school mathematics courses. The preliminary examinations are scored locally by the high school teachers and are used to help select the top 10% of the students who are eligible to compete in the final contest. The top contestant in each school is awarded a certificate.

The final contest examination is conducted in April in 27 cities located in various parts of the state. It consists of four or more challenging, original, essay-type problems in which students have an opportunity to demonstrate originality, ingenuity, and insight. This exam-

ination has been characterized as "consisting of algebra, geometry, and ingenuity." Written examinations are scored by a special committee and the top 250 students receive recognition in the form of cash prizes, certificates, and pins. A list of winners is sent to each participating school as well as to each Wisconsin college.

Some of the interesting and challenging problems from the two contest examinations follow:

Preliminary

1. The sum of the squares of the roots of the equation  $x^2 + x + 2 = 0$  is  
a) 1,      b) 5,      c) -3,      d) -4,      e) 4.
2. Which of the following sets of 3 numbers cannot be the lengths of sides of a triangle?  
a) 3,5,7    b) 4,5,7    c) 4,5,8    d) 2,5,8    e) 3,6,8

Final

1. The pages of an encyclopedia are numbered consecutively from 1 through 4000. In all, how many times does the digit 2 appear?
2. You are  $\frac{3}{8}$  of the way across a railroad trestle. Suddenly you hear a train approaching from behind you at 60 miles per hour. You can just escape by running ahead (and leaving the track at the end of the trestle) or you can just escape by turning and running toward the train. According to the data in this problem, how fast can you run?

# # #

CARROLL COLLEGE NEWS



VIOLA WENDT will be on sabbatical leave next year from the Dept. of English. She expects to study in England and to travel in that country. ... RALPH S. NANZ, Dept. of Biology, retired at the close of the academic year following 34 years of service. ... TED C. MICHAUD, zoologist from the Univ. of Texas, has been appointed asst. professor in the Dept. of Biology. ... MILTON WEBER, director of Waukesha Symphony Orchestra and a member of Carroll's music faculty, has decided to remain in Waukesha and has declined an offer to serve elsewhere as director of music for a symphony orchestra. ... The college has received a loan for the erection of a new women's dormitory. Architects' drawings are ready and initial site planning is underway. ... ROY J. CHRISTOPH has been elected president of the Carroll chapter of the American Assn. of University Professors. ... The Dept. of Biology is included in a Milwaukee Zoo Research committee of interested biologists from UW-M, Marquette and Carroll, to cooperate with zoo director GEORGE SPEIDEL and the Milwaukee Co. Park Commission.      # # #

## ICE AGE PARK &amp; TRAIL FOUNDATION, INC.

By Raymond T. Zillmer  
Milwaukee, Wisconsin



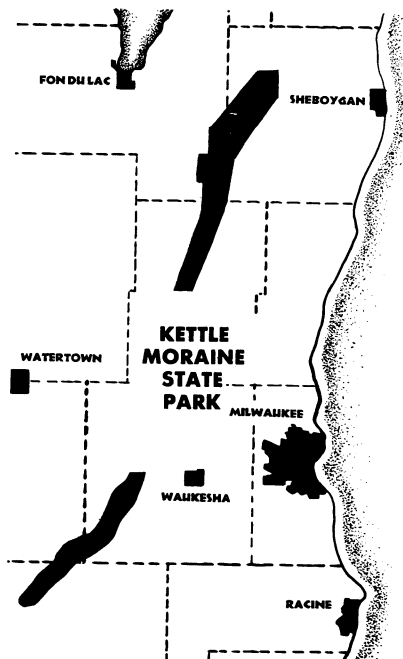
The Ice Age Park and Trail Foundation of Wisconsin, Inc. was organized in December, 1958. Its purpose is to assist in establishing a forest park in the area of the interlobate and terminal moraines in Wisconsin, stated as follows:

1. The Foundation will assist the federal, state and local governments in establishing and preserving a public park for future generations in the glacial formations of Wisconsin.
2. It will assist in establishing in this park a parkway drive following a curved line and the natural contours wherever possible, together with picnic spot waysides on the parkway for public use.
3. It will assist in establishing a trail for hikers and skiers with shelters in the nature of the Appalachian and John Muir Trails.
4. It will foster the education of the people, especially the young people, in the beauties and wonders of nature and its spiritual and healthgiving values so that they will make greater use of such areas, as well as other outdoor areas, with a view to developing men and women who are strong and healthy, physically, mentally and spiritually.

The United States Park Service is about to make a thorough reconnaissance of Wisconsin to determine whether the moraine area is suitable for a national park, and if suitable, what part of the moraines will be devoted to a national park.

The state of Wisconsin in 1936 issued a report of its Planning Board, joined by all departments of the government, including the governor and the Conservation Director, recommending that a recreational state forest be established in the 120 mile strip from Chilton to White-water, by following the interlobate moraines between the Lake Michigan and Green Bay lobes of the glacier. The state after 23 years has purchased about 55% of the northern one-third of this area, 25% of the southern one-third, but nothing in the middle one-third. Altogether the area acquired and now known as the Kettle Moraine Forest is less than 30% of the area recommended in the 1936 survey.

The Foundation will help the Federal and state governments as well as the counties involved





to establish park areas in Wisconsin. These may be narrow at first, a half mile or so, and could be developed in segments. Areas of unusual interest may be widened later. What portion of the park will be federal and what state is for the future to determine. Milwaukee County has in this same manner developed a long narrow parkway following the rivers of the county and what was first called the dream of Mr. Whitnall is now a reality.

It is generally agreed that a population explosion will follow the opening of the St. Lawrence Waterways and that if the land is not purchased in the near future, it will not be available for public use excepting at a greatly increased cost. Land now purchased for the Kettle Moraine Forest costs over three times what it cost the first ten years.



The Foundation has made its basic membership only \$1.00 so that every citizen may participate in the movement. It also has a \$5.00 annual membership, a \$100.00 life membership, and a memorial or recognition tribute for \$1,000.00 or more. If any individual is interested in developing a particular segment of the park, limited for example, to one county, the funds will be used only in such areas, and put in trust for that purpose if desired.

A pamphlet is available describing the park and its glacial background at ten cents covering cost and postage at:

Ice Age Park and Trail Foundation of Wisconsin, Inc.  
c/o Raymond T. Zillmer  
1412 First Wisconsin National Bank Bldg.  
Milwaukee 2, Wisconsin

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Academy member Raymond T. Zillmer of Milwaukee has had a deep interest in the Kettle Moraine State Forest acquisition and development since its beginning. He has done much to sponsor this program and it is significant that he now is promoting an extension of it through this new organization. Recently the State Legislature memorialized Congress by unanimous vote "to take necessary steps to acquire, establish and develop a Kettle Moraine National Park in Wisconsin to properly commemorate the Glacial Age." In announcing the resolution, Governor Gaylord A. Nelson said: "The exact location and extent of the Ice Age National Park is a matter still to be determined. Numerous suggestions have been put forward by the many proponents of the idea. ... It will be up to the National Park Service to give us its preliminary concept of the Ice Age National Park. The State of Wisconsin will cooperate in every possible way, both in the preliminary phases and in subsequent steps necessary to making the Ice Age National Park a reality."

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NATURAE SPECIES RATIOQUE

## EDITORIAL POLICIES FOR THE ACADEMY'S TRANSACTIONS

By Publications Committee

The TRANSACTIONS of the Wisconsin Academy of Sciences, Arts and Letters is the medium through which Academy members may publish original contributions to their areas of academic interest. The 1870 Wisconsin State Legislature incorporated the Academy (Public Law 376) and charged it with responsibility for "the diffusion of knowledge by the publication of original contributions to science, literature and the arts." The TRANSACTIONS has been the principal means by which this important function has been effected.

Traditionally, the TRANSACTIONS has enjoyed a fine reputation for maintaining a high quality of scholarship. In the present day, well qualified workers in the sciences, arts, and letters have many other scientific journals and scholarly publications available to them as outlets for their contributions. This situation does not diminish the functions of the TRANSACTIONS or the Academy, but it increases the importance of maintaining a careful vigil to insure that the articles appearing in the TRANSACTIONS continue to be of the highest quality.

Publication in the TRANSACTIONS is open to all members of the Academy, and it is hoped that an increasing proportion of the membership will take advantage of the opportunity to utilize this medium of publication. Papers submitted for publication must be authored or co-authored by Academy members, and they must represent original research. Reprints of previously published work, summaries, and compilations are not acceptable. Reviews of existing knowledge are acceptable, providing that they are analytical in nature, rather than merely compendious. A journalistic style of presentation should be avoided, as it generally lacks the precision and clarity required. Popularized write-ups are more properly submitted for publication in the Wisconsin Academy Review.

Papers bearing on Wisconsin problems and interests in natural science, history, sociology, technology, arts, and literature are particularly suitable for the TRANSACTIONS. In the five most recent volumes of the TRANSACTIONS (vols. 43 to 47), half of the total number of papers and 70% of the scientific papers have dealt with Wisconsin subjects.

Papers submitted for publication will be reviewed by the editor and one or more authorities competent in the subject areas concerned. The papers may then be accepted, returned for revision, or rejected. In the case of controversy, the final decision as to whether a paper is to be accepted or rejected rests with the Publications Committee. In case that there are more papers submitted than can be published in a given volume of the TRANSACTIONS, priority is given to those papers which have been presented at an annual Academy meeting. However, presentation at the Academy meetings does not necessarily make a paper worthy of publication in the TRANSACTIONS.

Manuscripts intended for publication should be typed in double spacing throughout. Footnotes, references, quotations, and all parts of the text should be double spaced. Footnotes



should be numbered consecutively from the beginning of the paper and placed at the end of the manuscript. Graphs and line drawings must be clear, uncluttered, and ready for reproduction. Either the originals or glossy prints should be submitted with the manuscript. In laying out graphs and charts, the 4½ x 7 inch page size of the TRANSACTIONS should be kept in mind. Photographic illustrations must be sharp, clear, and show good contrast. A mediocre photograph makes a very poor printed illustration.

Manuscripts should be mailed flat and addressed to: Stanley D. Beck, 105 King Hall, University of Wisconsin, Madison 6. Those received prior to July 31 will be considered for publication in the current volume.

It is hoped that this short statement of editorial policy will help to clarify questions that members of the Academy may have concerning the TRANSACTIONS. It is also hoped that it will serve as a reminder to those who have been intending to submit a paper. As the Academy continues to increase in numbers of active members, the TRANSACTIONS should also grow in size and influence.

--The PUBLICATIONS COMMITTEE: Stanley D. Beck, Robert J. Dicke  
Roger E. Schwenn

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### INTRODUCING

LESLIE H. FISHEL

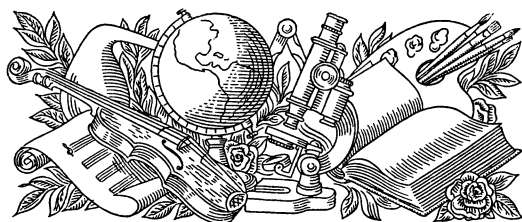


The new Director of the State Historical Society is LESLIE H. FISHEL, Jr., who comes from Oberlin College where he served as executive secretary of the Alumni Assn. for four years. He also taught two advanced courses in the history department on "The Negro in American History" and "American Political Leaders."

Following graduation from Oberlin in 1943, Mr. Fishel served as an officer in the U.S. Naval Reserve. Later he studied at Harvard Univ., where he received the A.M. degree in 1947 and the Ph.D. degree in 1954. He was awarded an Emerton traveling fellowship at Harvard in 1948. He has contributed articles and book reviews to professional journals in the field of history and is a member of the Assn. for the Study of Negro Life and History, the Miss. Valley Historical Assn. and the American Historical Assn.

The Board of Curators of the Society found that he has a "happy combination of an interest in the scholarly side, such as publications, library and manuscript collecting, and the ability and interest to advance the popular side of the society, such as its school and other programs."

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## STATE AND ACADEMY NEWS

### REPORT ON 89<sup>th</sup> ANNUAL MEETING

The 89<sup>th</sup> Annual Meeting of the Wisconsin Academy on May 2 and 3, 1959 at Wisconsin State College, Platteville, was a distinct success. Approximately 200 people participated in the meeting with a banquet attendance of about 150, luncheon group of about 175 and three separate Sunday field trips with a total of from 80 to 100 participants. (See the center spread of this issue for official program and photo highlights).

President Robert J. Dicke opened the meeting with a call to order on Saturday morning. Shortly thereafter the Senior Academy divided into three separate sections and the Junior Academy began its full program of scientific papers. Everyone in attendance was at the Junior Academy Luncheon. The college's Little Theater had a good audience for the symposium on the driftless area which developed considerable interest.

#### Business Meeting

Secretary-Treasurer Roger E. Schwenn submitted a Treasurer's report which was accepted along with the report of the Audit Committee consisting of Aaron J. Ihde and William E. Sieker. His report to April 1, 1959 showed total receipts of \$4,842.08, disbursements of \$2,611.41 and balance on hand of \$2,230.67. There is an Endowment Fund of \$7,172.24 and in addition \$400.00 of current assets are invested in U. S. Bonds. A gift of \$22.40 to the Senior Academy was shown from Otto L. Kowalke and gifts totaling \$435.00 for the Junior Academy of Science had been received from Marathon Division of Am. Can Co., Edward Drott, Jr., H. S. Day of Wis. Telephone Co., Wausau Paper Mills Foundation, Inc., Murco Foundation, O. L. Kowalke, Allis Chalmers Mfg. Co., Bradford H.S. (Kenosha), Nicolet H.S. (Milwaukee), A.O. Smith Corporation and C. M. Goethe. See also special resolution to Brandenburg Foundation and Walter A. Frautschi of Democrat Printing Co.

Treasurer Schwenn indicated that the balance on hand was large at this time because some bills would soon be due. He said between \$2,000 and \$3,000 can be expected from annual dues and cited the figure of 1,335 members (includes libraries). It was pointed out that the Wisconsin Academy's request for ample budget funds from the Legislature had been held to the low figure of \$3,000 granted by the previous Legislature for the biennium. Unless this can



President-elect Hughes

be increased in the second year (and all possible efforts will be made to do this), the Academy will have to find new sources of revenue. However, it was expected that funds to carry on Academy business would be adequate for this coming year.

Six resolutions were adopted (1) in appreciation to Wisconsin State College (Platteville); (2) for the Program Committee's efforts and especially general chairman Henry Meyer and local chairman Harold Goder; (3) thanking the donors to the Junior Academy (listed above); (4) honoring the fourteen members who died the past year as follows:

F. S. BRANDENBURG  
 ELLSWORTH S. COE  
 CHARLES L. FLUKE  
 HOWARD T. GREENE  
 MICHAEL F. GUYER  
 SAMUEL A. IVES  
 HAROLD N. KINGSBURY

RALPH M. KINGSBURY  
 PAUL A. LAWRENCE  
 ADA L. SYLVESTER  
 HALVOR O. TEISBERG  
 SAMUEL C. WADMOND  
 HARLEY F. WILSON  
 FRANK LLOYD WRIGHT

(5) thanking the Brandenburg Foundation and the Walter A. Frautschi family for its contribution to the Academy (helping to finance Vol. 47 of the TRANSACTIONS) as a memorial to the late F. S. Brandenburg; and (6) to Sister M. Laurretta "for her work in inspiring and training high school students in the field of science and for their success in the National Science Talent Search."

The report of the nominating committee chaired by Prof. Francis D. Hole was accepted unanimously as follows:

President-elect: MERRITT Y. HUGHES, Dept. of English, UW-Madison  
 V-P of Sciences: AARON J. IHDE, Dept. of Chemistry, UW-Madison

V-P of Arts: DOUGLAS KNIGHT, President Lawrence Coll., Appleton

V-P of Letters: BERENICE COOPER, Dept. of English, Wisconsin State College, Superior

Librarian: WALTER E. SCOTT, Wis. Conservation Dept., Madison

Secretary: ROGER E. SCHWENN, Extension Div., UW-Madison

Treasurer: DAVID J. BEHLING, Northwestern Mutual Life Insurance Company, Milwaukee

Editor, TRANSACTIONS: STANLEY E. BECK, Dept. Entomology, UW-Madison

Editor, Review: WALTER E. SCOTT, Wis. Conservation Dept., Madison

Membership Committee: Chairman - ROBERT F. ROEMING, Dean, Letters and Science, UW-Milwaukee; HARRY G. GUILFORD, Extension Center, UW-Green Bay, C. W. THREINEN, Wis. Conservation Dept., Madison

Representative on the Council, AAAS: ROBERT J. DICKE, Dept. of Entomology, UW-Madison; STEPHEN S. DARLING, Dept. Chemistry, Lawrence College, Appleton

Chairman, Junior Academy of Sciences: JOHN W. THOMSON, Dept. of Botany, UW-Madison

The membership voted to change the constitution (a matter left over from last year) so that both the Editor of the TRANSACTIONS and of the Academy Review would have a vote on the Council in the future. Professor Robert F. Roeming (Milwaukee) inquired as to the possibility of forming a Junior Academy of Letters. President Dicke replied that a committee was in the process of being appointed to study this problem. A Junior Academy leader referred to the "growing pains" of that organization. He said this year's meeting had 21 papers--four more than last year. He suggested two divisions, one on life sciences and one on natural sciences and that in the future contestants be chosen pro rata according to the number of contestants. He also urged the Senior Academy to secure more secretarial help for John W. Thomson, who heads Junior Academy.



Thomson

The business meeting closed with the transfer of the "gavel of authority" to the new president, Professor Henry A. Meyer, Biology Dept., Wis. State College (Whitewater) and the introduction of all new officers present. At the evening banquet, Pres. Bjarne R. Ullsvik welcomed the group and told about the rapid growth of this institution. Winners of the Wisconsin Science Talent Search (now completing its 11<sup>th</sup> year) were announced (see list in Junior Academy Section) and Sister M. Lauretta was honored with a Life Membership in the Wisconsin Academy. She was cited as one of the founders of the Junior Academy and for producing one of the 40 highest in the Nation in the Science Talent Search each of the last five years. In his presidential address entitled "Naturalists, Biologists and People," Professor Robert J. Dicke explained his philosophy of the use of toxic insecticides and pesticides as related to those who criticize the economic biologist using these chemicals. He invited (and received) discussion from the audience after his presentation on this controversial subject. The modern dance program after the banquet was an interesting presentation of local talent.



In spite of some rain, the three field trips were declared by all to be an outstanding success. The botany group found rare flowers--and some in seeming profusion! The geology group enjoyed both underground and surface rock pile searching. The historical group found fine hospitality at the Pendarvis House in Mineral Point and elsewhere in their travels. All enjoyed the fellowship of a box lunch in the Shullsburg City Park--and many made plans to return again soon to study the many interesting things they saw "in passing." --- W.E.S.

#### STATE COORDINATING COMMITTEE FOR HIGHER EDUCATION



The Coordinating Committee for Higher Education has devoted considerable time in its last three meetings to the consideration of a long-range plan for higher education in Wisconsin. At its March 1959 meeting the Committee took the following actions toward this end:

(1) Gave approval to the establishment of a state-wide committee to engage in cooperative planning for education beyond the high school. The committee is to be composed of four members each from the University, state colleges and private colleges and two members from the schools of vocational and adult education; and one representative each from the county teachers colleges, the Association of Wisconsin High School Principals, the Wisconsin Education Association and Wisconsin Association of School Boards. The committee will be asked to evaluate current programs, suggest means of cooperation whereby existing programs will be more effective and develop criteria for the establishment of additional collegiate-type institutions. It is expected that special attention will be given to the problems of northern and northeastern Wisconsin.

(2) Requested the two Boards of Regents to authorize the creation of a Council of Presidents and Deans of the University and State Colleges to improve the teamwork between the two systems. It is hoped that this group will constantly consider how well the state degree-granting institutions are serving all the citizens of Wisconsin. Working under the Council will be a faculty sub-committee with the chief responsibility of studying problems related to the character and functions of the various units of the State Colleges and the University in relation to the needs of the state. (Continued on page 82; see also page 96)

Program  
of the  
Joint Meeting

Saturday, May 2, 1959  
ACADEMY SECTIONS

Call to Order - Little Theater  
Dean Milton Longhorn  
President of the Academy

SECTION MEETINGS OF THE ACADEMY

Section A - Little Theater  
Dr. HASKELL M. BLOCK, presiding

Joan Larsen, University of Wisconsin (Madison),  
S. T. Coleridge: *His Theory of Knowledge*.  
(20 min.)

Walter F. Peterson, Milwaukee-Downer College,  
*American Protestantism and the Middle Class*:  
1870-1910. (20 min.)

Robert F. Roaming, University of Wisconsin (Milwaukee),  
*The Concept of the Judge-Fenians of Albert Camus*. (20 min.)

Warren L. Wittry, State Historical Society of Wisconsin,  
*Archology of Rockshelters in the Driftless Area*. (15 min.)

George Becker, Wisconsin State College, Stevens Point,  
*Primary Investigation of the Distribution of Wisconsin Fishes, Central Wisconsin, 1958*. (15 min.)

Husain F. Haddawy, University of Wisconsin (Madison),  
*Doctrine and Method in Johnson's Criticism*. (20 min.)

Oleyn Garvey, Soil Conservation Service, United States Department of Agriculture,  
*History of Soil of Crawford County, Wisconsin*. (15 min.)

Russel O. Wagner, Wisconsin State College, Platteville,  
and J. T. Medler, University of Wisconsin (Madison),  
*Formica Cneta Mayr, at Ipswich, Wisconsin*. (15 min.)

Section B - Room 170

Dr. CYRIL O'BRIEN, presiding

Charles M. Huffer and Edith Flather, University of Wisconsin (Madison),  
*The Washburn Observatory, 1878-1959*. (20 min.)

Thomas R. Dale, Milwaukee-Downer College,  
*Thomas Hardy, Poet of the Unconscious*. (20 min.)

Cyril C. O'Brien, Marquette University,  
*The Identification of the Musically Gifted*. (20 min.)

Tim Hulick, Aquinas High School, La Crosse,  
*The First Vacuum Tube & Transistor Single-Sidedband Suppressed-Carrier Hand-Talkie for 75 meters*. (20 min.)

Robert C. Gault and John B. Gerberich, Wisconsin State College, Eau Claire,  
*Survival of the Species of the Genus Echerichia through the Mesomorphosis of the Housefly, Musca domestica Linn.* (15 min.)

LaVerne L. Curry, Central Michigan College,  
*Moon Phases, Uptake of Radioactive Phosphorus by Xenochromonema Festiva (Say and Tardipes Decora (Johannsen) Larvae under Laboratory Conditions. A Preliminary Report*. (15 min.)

George E. Hafstad, Wisconsin Department of Agriculture,  
*Dutch Elm Disease in Wisconsin: Progress Report 1956-1958*. (15 min.)

Section C - Music Room

Past President Stephen F. Darling, presiding

Thomas G. Hartley, Wisconsin State College,  
*Whitewater, Notes on Rare Plants of Wisconsin*. (10 min.)

Lester W. J. Seifert, University of Wisconsin (Madison),  
*Teaching Machines*. (15 min.)

James H. Zimmerman, University of Wisconsin (Madison),  
*College-Level Nature Training: Need and Opportunity*. (15 min.)

Albert Ball, University of Wisconsin (Madison),  
*Swift and the Animal Myth*. (20 min.)

Robert West, University of Wisconsin (Madison),  
*J. Explorations in the Interior Ranges of British Columbia. II. The Attempt on Mt. Cooper*. (20 min.)

Ronald Eugene Gates, Columbus High School, Marshfield,  
*Biochemistry of Vinegar*. (15 min.)

M. L. Jackson, N. S. Kaddou, and Francis D. Hole,  
University of Wisconsin (Madison),  
*Clay Mineralogy of Dubuque, Silt Loam and Underlying Dolomitic Limestone*. (20 min.)

F. B. Trenk, University of Wisconsin (Madison),  
and Harold Scholz, Forest Service, United States Department of Agriculture,  
*Composition of Regeneration, Wood Increment, and Timber Yields in a Managed Hardwood Forest on Mesorial Soil*. (15 min.)

Thomas G. Hartley, Wisconsin State College,  
*Whitewater, Plant Communities of the La Crosse Area in Wisconsin*. (20 min.)

JUNIOR ACADEMY LUNCHEON (for all)

WELCOME  
Dean Milton Longhorn

ANNUAL BUSINESS MEETING  
3:30 to 4:15 p. m. Room 170

RECEPTION FOR MEMBERS AND GUESTS  
4:15 to 5:15 p. m. Student Center: "M" Room

TOURS OF THE CAMPUS  
4:15 to 5:15 p. m.

Saturday, May 2, 1959  
and  
Sunday, May 3, 1959

Headquarters  
Edgar G. Doudna Laboratory School  
Wisconsin State College  
Platteville, Wisconsin

The Eighty-Ninth Annual Meeting

Wisconsin Academy  
of Sciences,  
Arts and Letters  
and the  
Junior Academy  
of Science

PROGRAM COMMITTEE  
Henry Meyer, Chm. Haskell M. Block  
Roy L. Christoph Harold Goder  
Cyril C. O'Brien Ella M. Martin  
Roger K. Schwinn

LOCAL ARRANGEMENTS  
Harold A. Goder, Chm. William Broughton  
Richard Ganhle Leo Bobel  
Ruth Guber Harris Palmer  
Glen Gandy Russell Wagner  
Herbert Cash Luther Zellmer

ACADEMY RECEPTION  
Mrs. Harold Goder Mrs. Russell Wagner  
Mrs. Leo Bobel Mrs. Ella Mae Martin

ANNUAL ACADEMY BANQUET

Toastmaster  
PROFESSOR ROY J. CHRISTOPH

A WORD OF WELCOME  
PRESIDENT RJARNE R. ULRIK  
Wisconsin State College, Platteville  
Announcement of the Winners of the  
Wisconsin Science Talent Search

PRESENTATION TO SISTER M. LAURETTA

Presidential Address  
NATURALISTS, BIOLOGISTS, AND PEOPLE  
PRESIDENT ROBERT J. DICKE

MODERN DANCE PROGRAM  
Presented by students of Wisconsin State College, Platteville, and directed by Ann Nasiff, Instructor in Music.

SYMPOSIUM ON THE DRIFTLESS AREA

Walter E. Scott, presiding

I. Geology of the Driftless Area.

Physiography.  
Luther A. Zellmer, Professor of Geography,  
Wisconsin State College, Platteville.

Glacial Aspects

Harris Palmer, Professor of Geology, Wisconsin Institute of Technology, Platteville.  
History of Mining and the Relationship of Mining to the Area.

William A. Broughton, Professor of Geology, Wisconsin Institute of Technology, Platteville.

II. Floral Geography of the Driftless Area.  
Hugh Iles, Assistant Professor of Botany and Curator of the Herbarium, University of Wisconsin (Madison).

III. Forest Watershed Research in the Driftless Area - Accomplishments of the Past and Plans for the Future.

Richard S. Sartz, Forester in Charge, Lake States Forest Experiment Station, La Crosse.

IV. Regional Stories and History of Cornish People in Southwestern Wisconsin.

Mrs. A. H. Ableizer, Platteville.

Sunday May 3, 1959

FIELD TRIPS TO PARTS OF THE  
DRIFTLESS AREA

1. Botany Field Trip: Through selected parts of the Driftless Area including areas near Platteville, New Diggins, and Apple River Canyon State Park in Illinois.

Leaders: Dr. Hugh Iles, University of Wisconsin; Mr. Tom Hartley, Wisconsin State College, Whitewater.

2. Geology Field Trip: Geology field trip with emphasis on mining including underground inspections. People wishing to join this trip must provide themselves with headgear—preferably a hard hat, water-proof boots, and flashlight.

Leaders: Mr. W. A. Broughton, Wisconsin Institute of Technology; Mr. H. Palmer, Wisconsin Institute of Technology.

3. Historical Field Trip: Areas to include - Lancaster, Mineral Point, and Nelson Dewey State Park.  
Leader: Dr. Richard Gamble, Wisconsin State College, Platteville.

JUNIOR ACADEMY SECTION

Presiding: Margaret Hicks, Nicollet High School, Milwaukee and Tim Hulick, Aquinas High School, LaCrosse.

John Carmody, Wauwatosa High School, The synthesis of Vitamin K<sub>1</sub>.

William J. Hubrick, Richland Center High School, The Design and Construction of a Simple Computer.

Michael Wheeler, Platteville High School, Blood Typing.

Dennis Thomson, Mt. Horeb High School, The "Fmcb Effect" and Atomic Power.

Paul Wollage, Appleton High School, High Speed Flash Photography.

John Scribner, Appleton High School, Separation of Light Hydrocarbons by Gas Chromatography.

George Trueman, De Pere High School, Effects of Glutamic Acid on Plant Growth.

John Schlegelbach, Neere-Dunn-McDonnell High School, Chippewa Falls, The Amylase Activity of Saliva.

Katherine Bonacci, De Puda High School, Ashland, Cytoplasmic Continuity in *Paramecia*.

Gary Gurske, De Puda High School, Ashland, The Effect of Metals on Bacteria.

Carol Barker, Adams-Friendship High School, Grand Marsh, Insect Moulting.

John Lee, Columbus High School, Marshfield, Lie Detector.

Thomas Gregory, Nicollet High School, High Temperature Measurement through the use of Semi-conductors.

Horst H. Fruehwirth, Rufus King High School, Visualization of Sections of borders of Revolution.

Robert Heller, St. Joseph High School, Kenosha, Baseball Curve.

Stephen Albert, St. Catherine's High School, Racine Weather Statistics.

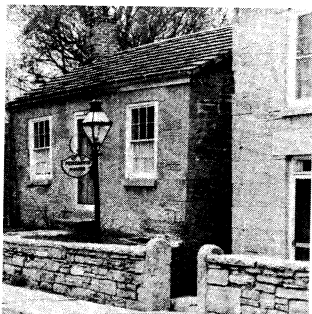
Gary Dix, Salem Central High School, Salem, Mathematical Computer.

Randall Cowley, Central High School, LaCrosse, A periodic Chart of Chlorine Compounds.

Gary Petrowski, Aquinas High School, LaCrosse, The Infrared Image Tube and its Application.

Donna Miller and Gale Sarazin, Aquinas High School, LaCrosse, Vitamins C in Food.

Anthony Haki, Columbus High School, Marshfield, Butterflies.



(1) Pendarvis House (Historical Tour)



(2) Inside zinc mine near Platteville  
Pres. Meyer (center)  
Past-Pres. Dicke  
(right with flashlight)



(5) Local Chm. Goder  
THE MAN WHO  
"RAN" THE MEETING



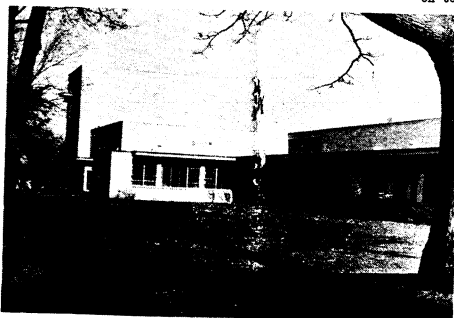
(4) "Prospecting for zinc and lead on mine dump pile near Platteville (view from top - Geology Field Tour)



(6) More "prospecting" for zinc and lead - Photographer Sorenson on top. (view from bottom - Geology Field Tour)



(7) Vice-Pres. in Sciences Christoph (left)  
Vice-Pres. in Arts O'Brien (right)



(8) Edward C. Doudna Laboratory School

PHOTO CREDITS: All photos by Stephen F. Darling (Appleton) except No. 6 by Ray Barth (Monroe) and Nos. 2 and 4 by D. D. Sorenson (Racine).



(9) Geologist Katherine Nelson, Past-Pres. of Academy, ready for the Geology Field Tour



(Milwaukee Journal photo)

ELLA M. HANAWALT

Retirement Profile



ELLA M. HANAWALT, professor of psychology and education at Milwaukee-Downer College, will retire on June 7 after 30 years as a member of the faculty. She will fill an interim appointment next year as professor of Psychology at Northern Illinois University, De Kalb, replacing a professor on leave. Many of her students honored her at an April 11 luncheon with expressions of appreciation and affection.

Miss Hanawalt likewise exerted a strong influence on a more distant group when she taught at Ginling College in Nanking, China, from 1921 to 1926. There she established a training school for high school teachers, many of whom later followed her to the United States for higher education.

Her zeal for lifting the standards of teaching has found expression in the Commission on Teacher Education and Professional Standards, of which she held the state chairmanship from 1956-58.

Miss Hanawalt was born of Swedish-American background in Knox County, Ill. She attended elementary and high school in Galva, was a student at Knox College for three years, and then transferred to the University of Michigan, where she obtained her B.A., M.A., and Ph.D. degrees. She had additional graduate work at the Universities of Illinois, Wisconsin, Minnesota, and the University of Nanking Language School. She is also a graduate of the Scarritt Bible School.

Besides teaching at college level, Miss Hanawalt taught in rural elementary schools, high school and Kentucky State Teachers College for a total of 10 years. She holds membership in Alpha Kappa Delta, Sigma Xi, and Delta Kappa Gamma. The last named organization honored her as outstanding member of the year in 1950. Since 1948 she has been its state executive secretary and also has served as chapter and state chairman.

Besides articles for the Wisconsin Journal of Education, the Journal of Experimental Psychology, and the Journal of Comparative Psychology, Miss Hanawalt has published a monograph on "Whole and part methods in Trial and Error Learning - Human Maze Learning." She also collaborated in the preparation of the "Handbook for Wisconsin Teachers" published in 1954.

Miss Hanawalt is a member of the Wis. and Nat'l Education Assns., the Nat'l Assn. for Student Teaching, the AAUW, and a life member of the Amer. Psychological Assn. Her membership in the Wisconsin Academy dates back to 1932. An ardent member of the Methodist Church, she has served on innumerable committees--so many, in fact, that her eyes crinkle as she predicts that her epitaph will be "Gone to another committee meeting." # # #





## THE BOOKSHELF

### FARMS OR FORESTS: EVOLUTION OF A STATE LAND POLICY FOR NORTHERN WIS., 1850-1932

By Vernon Carstensen

University of Wisconsin  
College of Agr., Bulletin  
Mailing Room, Madison 6, Wis.  
July 1958 Single copies free

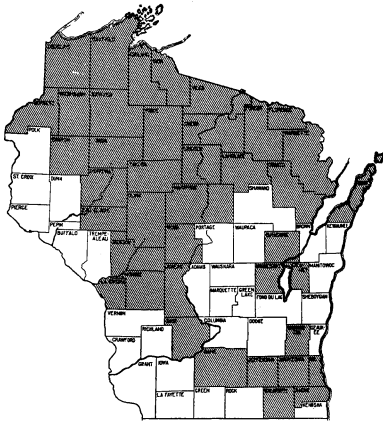
This publication lives up to its sub-title by its thorough coverage of the subject. Great credit is due the author for a painstaking review of old records to make available an account of a most significant movement in the history of land use in our state. Nor does it fail to identify both the leaders in support of forestry and its opponents, with their views and claims made clear by well-chosen quotations. The entire text is well supported with references from numerous sources. Because land use began in southern Wisconsin, the expansion of agricultural settlement after 1830 is briefly covered by contrasting conditions confronting settlers on woodland and prairie, so that the publication spans a full century.

Both the state Agriculture and Horticulture societies had shown early interest in forests and forest planting. The early extreme statements on the dangers of forest denudation are offset by refutations, perhaps leaving the reader with the belief that forests have little if any effect on stabilization of stream flow or erosion control. However, the text is properly centered on the north, and the economic vacuum left with the decline of the lumber industry.

The impact of the national conservation movement led by Theodore Roosevelt, and the parallel trend of the progressive movement in Wisconsin in furtherance of forestry are well developed. State legislation providing for creation of a forest reserve and appointment of a state forester came under LaFollette. The events of the decade 1905-1915: the leadership of the first state forester, E. M. Griffith, his support by Pres. Van Hise of the University and chairman of the State Board of Forestry, and generally by the legislature, are fully presented. And so are the efforts of the opposition, based on the concept that land was meant to be farmed, but with popular feelings agitated by land speculators who had cut-over lands to sell to settlers. Both the author and the College of Agriculture rate credit for a publication which recounts the misguided efforts of that institution to encourage agricultural development in the region during those years.

The later chapters deal with what Griffith had termed "storing up trouble for the state." Now the College became concerned over the tax delinquency threatening the solvency of the northern counties. A series of county land-use publications was issued, and the legislature enacted laws enabling the counties to cope with their problems. Perhaps more credit should have been given

CHART 7. COUNTIES WHICH HAVE ENACTED RURAL COUNTY ZONING ORDINANCES



to the Conservation Department at this point, for its work with county boards to take tax deeds to chronically delinquent lands, and to use the larger blocks so acquired to establish county forests. For only these led to local acceptance of forestry as a proper form of land use. The zoning ordinances, under which the northern counties closed more than 5,000,000 acres to further agricultural development, had to assign these lands to an alternative use, to forestry and recreation districts. Only one minor error has crept into the text. On page 125 it is stated that a non-conforming use terminates with sale of the land whereas it runs with the land and is extinguished with discontinuance of the use.

This publication should be read by all who are interested in this period of the history of Wisconsin, or in the development of the north. For serious students of land utilization it is required reading, not only for its detailed factual reporting of conflicting concepts, but also because it supports the principle that natural resources tend to flow toward their highest use. And from the final chapters those interested in self government can learn how local government can solve major problems when provided with constructive state enabling legislation. -- F. G. Wilson

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### WISCONSIN LABOR LAWS

By Gordon M. Haferbecker

University of Wisconsin Press  
430 Sterling Ct., Madison 6  
1958 \$4.00

This book is a study of the labor legislation of a state which was a principal laboratory for social experiment at a time when the Supreme Court's narrow views of the Commerce Clause severely curtailed the power of Congress. Today, the mention of labor legislation brings to mind acts of Congress chiefly regulating union-management relations. Little public attention is focused on state legislation, most of which is concerned with the employment relation and its incidents, rather than collective bargaining and union-employer relations. But state labor legislation probably touches more people directly and immediately than do federal laws; and it exceeds federal in volume and in the variety of interests affected.

Mr. Haferbecker performs a public service in directing attention to this large body of state labor law, much of which is remote from what happens in Congress or at the bargaining table. Industrial safety and workmen's compensation, apprenticeships, racial and religious discrimination in employment and union membership, private employment agencies and public employment services, wages and hours and women's and childrens' work, union-management relations and concerted activities outside federal control, unemployment compensation, mechanics' liens, and wage collections are all covered in his book.

Wisconsin Labor Laws is a comprehensive history of the growth, development, operation and administration of Wisconsin's labor

legislation, from its origins to the present. The author's method is to consider each statute separately and trace its development chronologically. He describes in detail the persons, organizations, and political forces sponsoring, opposing, and influencing each law and its successive changes. The work of John R. Commons and his associates at the University of Wisconsin stands out in this account. Theirs was a remarkable combination of talent, energy and imagination working in the public interest.

Mr. Haferbecker's work is an impressive piece of scholarly research for which students of the subject will be indebted to him. But one wishes his analysis and evaluation of the role of the states in the field of labor legislation in a time of greatly expanded national power and interest were more thorough and incisive. The author extols state labor legislation as "better adapted to needs in the various states." He maintains that the states can do a better job in the field of labor legislation than the federal government, and that the states should act in order to curtail "the further growth of federal labor agencies." But his arguments in this regard seem largely unproved assumptions. True, they are beliefs which are widely held. But, it is submitted, they are what John Kenneth Galbraith calls "the conventional wisdom" opposed by "the march of events."

For problems which have become national will necessarily diverse, sporadic, and parochial attempts at solutions be effective? State workmen's compensation laws took 40 years to blanket the nation. Unemployment compensation, under incentives provided by Congress, became law in every state almost overnight. What do these experiences and the current difficulties in improving inadequate state unemployment benefits have to teach us about the allocation of responsibility between the states and the Congress? An exploration of these and other questions inherent in the subject of his book would have added much to Mr. Haferbecker's evaluations. --- Abner Brodie, Univ. of Wisconsin

DULCE ET DECORUM

By John Nist

Beloit Poetry Journal  
Box 2, Beloit, Wisconsin  
Fall & Winter 1958 \$1.00

In an unprecedented double issue, The Beloit Poetry Journal recognizes the achievement of poet John Nist in his completed "Invocation," "Prologue," and "Book One" of a projected Five-Book epic of the American Civil War Dulce Et Decorum. The work immediately invites favorable--and inevitable--comparison with Benet's John Brown's Body. As in the tight-packed stichic passages of that poem the rhythms here are impetuous, the mechanics often brutal (Nist's lyrics seem the least facile and indeed at times slip-shod--perhaps revisable?), the effect stupendously mortal. Notably close researches and a profound human fidelity in character portraiture--uncompromising realism, even as regards the sacrosanct Lee and Jackson--make the poem significant for the historian as well of course as for the patriot in any section of our country.

John Nist is a member of the faculty at Eastern Michigan State College. He is now at Sao Paulo, Brazil, on a Fulbright grant. His great poem is reported to be nearing completion. Passages of battle inspirations like the following, taken almost at sheer option, make bid for enduring preservation:

"This was life in an instant, so sharp with ecstasy  
That it cut him free from the past and the future  
To achieve sublime identity of forever Now..."

This work is destined, itself, for the encomium dulce et decorum.  
---Ralph A. McCanse

THE SIMPLICITY OF SCIENCE

By Stanley D. Beck

Doubleday and Co., Inc.  
Garden City, N. Y.  
1959 \$3.75

Stanley D. Beck, author of this beautifully written explanation of science and its role in human life, is associate professor of entomology at the University of Wisconsin. In this book he has tackled a subject many authors have wanted to, but have failed. He has explained to the person with little or no scientific knowledge the "simplicity of science," how one approaches a problem, how logical experimentation is done to arrive at a scientific truth and how man's insatiable curiosity breaks down old dogmas.

Then, in the final chapter (probably his best), he shows clearly that the boundaries of science, unlike those of philosophy and religion, must be limited to the material world and yet there is no conflict between science and religion. Science, he shows, is based on the same ingredient that religion is--faith. . . .

Throughout it all, Dr. Beck keeps the reader reminded that all science (and religion) is predicated on the assumption that nature is guided by one set of rules and one over-all plan. Good reading for anyone, this book would be particularly helpful for those who can't see the scientific woods for the trees.

--Wallace Wikoff in Wisconsin State Journal, Madison, by permission

THE MAKING OF AN AMERICAN COMMUNITY

By Merle Curti

Stanford University Press  
Palo Alto, California  
1958 \$8.50

Prof. Merle Curti's new book is a case study of democracy in a frontier county--specifically, Wisconsin's Trempealeau. It is not a book into which the general reader will voluntarily look, but it is a mine of information for anyone of sociological interests, quite apart from Prof. Curti's basic reason for doing this study--to test objectively the Turner thesis that the most important effect of the frontier was the promotion of American democracy. Trempealeau County is studied for the period 1840-1880, and this near 500-page volume, with its maps, graphs, and charts is certainly an impressive achievement in scholarship.

Prof. Curti examines economic, social, and cultural equality of opportunity; the structure and functioning of town and county government; the problem of leadership, etc. He explores school attendance, voluntary organization participation, agricultural methods, and so on. He studies, in short, every aspect of the community in which a scholar might be interested. The result is a book filled with fascinating information and some not surprising conclusions--particularly in support of the Turner Thesis.

--August Derleth in The Capital Times, Madison, by permission.

BIRDS

By Clara Hussong

Golden Press, Inc.  
Rockefeller Center  
New York 20, New York  
1959 \$1.50

If reviewers elsewhere are as charmed with the briskly literate writing in "Birds" as this column is, Clara Hussong is certain to be considered a rare find in the field of book publishing on the subject of the natural sciences. Bird books and books on natural science which are geared for the young reader are all too often burdened with what the trade calls "nature faking," which

means over-glamorizing and ostentatious writing for effect rather than for fact. Mrs. Hussong's "Birds" bears no such stigma. It is factual and forthright, a credit to her integrity as a naturalist.

In this Golden Picture Book on birds, Mrs. Hussong has been fortunate in the publishers' choice of an illustrator, Miss Marjorie Hartwell of Connecticut. The sketches and the coloring are nearly unique in their accuracy and beauty. Every bird represented--some 90-odd--has been identified in precisely the correct habitat with precisely the proper feed represented in background illustration. The coloration is exceptional in accuracy and in beauty.

Clara Hussong (Green Bay) has written a book on her favorite subject--a "fun to learn" book on birds--which the publishers laud in these words: "Everyone here thinks that this is the best book we have ever done in our 'Fun to Learn' Series." -- From "On the House" column by Charles House in Green Bay Press-Gazette, with permission

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**OUR GROWING WATER PROBLEMS**

By R. G. Lynch

Educational Servicing  
National Wildlife Federation  
232 Carroll st., N.W.  
Washington 12, D. C.  
1959 Single copies free

(In quantities up to 25, 25¢ each; 20% discount on larger numbers)

Academy Member R. G. Lynch is a staff writer on natural resource conservation for the Milwaukee Journal. In obtaining materials for this 60-page publication, he interviewed informed sources in all regions and states. The complex problems of managing public water resources for diverse and conflicting needs of a rapidly expanding human population are treated, on a national scale. Lynch observes that "these are water problems of far greater importance to the nation than the interests of men who want to use water to make a dollar or abuse it to save one."

Lynch discusses confusion, water trouble and use and supply. This is followed by chapters on remedies and water laws, including a discussion of a "model act." The booklet then outlines waste disposal, status of the water supply situation in five regions of the U. S. and concludes with his comments and observations. --from "Conservation News" of National Wildlife Federation.

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**ESSENTIALS OF FORESTRY PRACTICE**

By Charles H. Stoddard

Ronald Press Company  
New York, New York  
1959 vii + 258 p. \$5.50

In the era when the great body of professional text books on American forestry was a-building, the practicing woods manager seeking specialized information on essential but localized phases of his operations had a choice largely of college-level treatment of the subject, or of single-topic pamphlets and bulletins issued by the Federal Government or the several states. Over the years, through this latter choice, he would have been enabled to develop an extensive reference library, but hardly a handy one. Detached segments of information have a way of being out of place at the time when most needed.

In recent years, practicing foresters have made notable contributions, in textbook form, which have closed this gap in our

forestry literature. The latest is "Essentials of Forestry Practice," by Charles H. Stoddard.

Bracketed between two opening chapters which present objective and historical aspects of the forestry movement, and an appendix covering a broad scope of subjects (forest terminology, commercial species, specimen management plans, sales agreements, public forest agencies), the body of the text presents, without assumption of previous training and experience, a woodsman's approach to the why and what of woods operations. A review of the vagaries of trees in their responses to environment, and to tamperings with by man, properly precedes the discussion on the practice of silviculture. How to measure the whole forest, and how to measure units of the cut products it yields present a basis for more fully appreciating the mechanical and the financial responsibilities of the forest manager. The triple hazards to forests - fire, insects and diseases - are explained as are the latest methods for coping with them. The woods operator is alerted to what is expected of him in cutting products for markets through the author's treatment of milling processes, from the small portable sawmill, representing a low plant investment, to modern band sawmills and pulp and paper making establishments. Finally, the forest practitioner whose objective is other than direct income from cut products - the forests managed for watersheds and for recreational purposes - is given practical guideposts. -- F. B. Trenk, Univ. of Wis.

**ARTS IN SOCIETY**

H. D. White, Editor

UW Extension Bookstore  
Madison 6, Wisconsin  
Winter, 1959 \$1.50

(Editor's Note: Professor H. D. White, Chairman of the UW Extension Division Dept. of Art Education, contributes the following informative critical notice of a new publishing enterprise.)

Arts in Society is one of the newest literary ventures by the University of Wisconsin. It is a journal dedicated to the advancement of education in the arts, particularly in the field of adult education. The first issue was published last winter and issue two, Winter 1959, recently came off the press.

Arts in Society is sponsored and produced by the Extension Division of the University, which provides the editorial and production staffs. The Center for the Study of Liberal Education for Adults, of Chicago, underwrites the printing costs. Prof. H. D. White is editor of the new journal. The associate editors are Eugene Kaelin, Assistant Prof. of Philosophy at the University, and Miss Marilyn Vaughan of the Center for the Study of Liberal Education for Adults.

Inspiration for Arts in Society came in 1956 when the Extension Division's committee on the arts saw a need to establish a broad front of education, in publication form, focused on all the arts. Although the committee envisioned the publication as "essentially Wisconsin-oriented," Arts in Society is sufficiently broad in scope that it has attracted readers across the country and abroad.

Arts in Society discusses, interprets, and illustrates the various roles of the arts in contemporary society. In general, four areas are dealt with: the teaching and learning of the arts; aesthetics and philosophy; social analysis; and significant examples of creative expression in media which may be served by the printing process.

Highlighting the Winter, 1959 issue is a view of outstanding American authors, Sinclair Lewis, Sherwood Anderson and Edgar Lee

Masters by August Derleth, Wisconsin writer whose career has brought him in contact with these men. Contributing authors also include Peter Yates, editorial associate and music critic of Arts and Architecture, and Weller Embler, chairman of the department of humanities at Cooper Union, New York.

Edmund Burke Feldman, associate professor of art at Carnegie Institute of Technology, and Eugene Kaelin, associate editor of the magazine, have also contributed to the issue. Four poems appear; two by Ralph McCanse, Professor of English at the University, and two by Louis Turco of the University of Connecticut. Robert Hodgell, art director for Extension's editorial and communications services, designed the issue cover and submitted the woodcuts which are included in the publication's art work. Also included is a spread of excellent photographs by Jackson Tiffany, film producer with UW Extension Div. Bureau of Audio-Visual Instruction. Though only three issues are planned for this calendar year, it is hoped that Arts in Society eventually will reach quarterly status.

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MISCELLANEOUS BOOKS  
AND BOOKLETS

These recent publications of interest are free from sources listed unless otherwise indicated. \* indicates author is Acad. member

From Conservation Department (State Office Bldg., Madison 1): "Forest Resources of Thirteen Counties in Southeastern Wisconsin" (For. Inv. Rpt. No. 35); "Annual Report Forest Pest Conditions in Wisconsin, 1958;" "The Deer Season - 1958;" "Annual 1958 Forest Fire Report;" "Relationship of Ruffed Grouse to Forest Cover Types in Wisconsin" (Tech. Bull. No. 18) by ROBERT S. DORNEY; "Research in Wisconsin" (Tech. Digest of Res. Results in Fish, Forest and Game Mgt. 1957-58) by RUTH L. HINE\*; "The Walleye" by WALLACE NIEMUTH, WARREN CHURCHILL\* and THOMAS WIRTH; "The Yellow Perch" by ELMER HERMAN, WARREN WISBY\*, LAWRENCE WIEGERT and MILTON BURDICK; "Statement of Watershed Development Cooperation" (A six-agency agreement); and "The Conservationist," a monthly publication edited by RUTH L. HINE\* containing eight printed pages of detail on Wisconsin conservation activities. Also LAURENCE R. JAHN\* (Horicon, Wis.) of W.C.D. was a member of Mississippi Flyway Council committees which prepared "Waterfowl Distribution and Migration in the Mississippi Flyway" and "Part II, Projects and Programs" of the new Mississippi Flyway Management Plan.

From other state agencies: Soils Dept., UW Coll. of Agr., Madison 6 - "Farming Southwestern Wisconsin Soils Wisely" by MARVIN T. BEATTY\* and JOHN T. MURDOCK including inserts on Major Insect Problems by E. H. FISHER\* and Weed Control Problems by DONALD R. PETERSON. From Division of Industrial and Port Development (State Capitol), "Wisconsin Ports - Gateways to the Upper Midwest" and "Growth Profiles of Ten Wisconsin Industries" (Reprinted from Torch, the publication of Milwaukee Advertising Club, and an outstanding series). Committee on Water Pollution (c/o Bd. Health, State Office Bldg., Madison) - "Cooperative State-Industry Studies of the Flambeau and Fox Rivers in 1957" (turbine reaeration and stream loading) and similar report for 1958 on Turbine Reaeration on the Flambeau and Fox Rivers by BERNARD F. LUECK and RALPH H. SCOTT with AVERILL J. WILEY\* and THEODORE F. WISNIEWSKI\*.

From other sources: From Lake States Forest Expt. Station (St. Paul, 1, Minn.) - "The Forest Insect and Disease Situation - Lake States, 1958" by GERALD W. ANDERSON and DONALD C. SCHMIEGE\*; "Growth of Swamp Conifers Following an Improvement Cut" (in NE

Wis.) by D. D. SKILLING; "Forest Area in Wisconsin Counties" statistical table by ROBERT N. STONE and HARRY W. THORNE; "Annual Report - 1958" edited by L. P. OLSEN. Trees For Tomorrow, Inc. (Merrill, Wis.) - "15th Annual Report" prepared by M. N. TAYLOR\*. Great Lakes Fisheries Commission (Ann Arbor, Mich.) - "Program and Progress, 1958" on fishery research and lamprey control. U.S. Dept. Agriculture (Wash.D.C.) - "Progress in Application of Soil-Conserving Practices--Southwestern Wisconsin" (ARS 43-44, April 1957) by H. O. ANDERSON, P. E. McNALL and BUIS T. INMAN. U.S. Forest Products Laboratory (Madison 5) - "List of Publications on Pulp and Paper." Oscar Mayer & Co. (Madison 1) - "A Tradition and a Company" - 75th Anniversary brochure. U. S. Dept. of Commerce, Bureau of Public Roads (Wash.D.C.) - "Report on a Recommended Route for the Great River Road (Mississippi River Parkway) Through the State of Wisconsin" - approximately 242 miles.

Available for a price: "The Iowa County Courthouse Centennial Story (1859-1959)" by ROBERT M. NEAL\* (County Clerk, Dodgeville, 50¢). "The Economic Significance of the St. Lawrence Seaway to Wisconsin" by Wisconsin Business Research Council (School of Commerce, UW, Madison 6; \$1.15). "Humorous Events of A Century Ago in the Dells Area" compiled by DON M. LEICHT (available from him for 50¢ at 2711 Van Hise ave., Madison 5). "Famous American Indians," a booklet by ROBERT E. RITZENTHALER\* and ARTHUR NIEHOFF of Milwaukee Public Museum. "The Comparative Biology of the Meadowlarks (*Sturnella*) in Wisconsin" by WESLEY E. LANYON (from Nuttall Ornithological Club, Cambridge, Mass., \$1.75). "The 1959 Wisconsin Campers Guide" by Wis. Campers Assn. (Hartford, Wis. by FRED A. PAEGELOW\* to members). "Michigan-Wisconsin Forester" newsletter to members (No. 2 - May 1959). "Memo to a College Trustee" by BEARDSLEY RUMML and DONALD H. MORRISON (\$1.00 from Fund for the Advancement of Education or McGraw-Hill Book Co., New York).

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STATE & ACADEMY NEWS - continued (See also page 96)

(3) Authorized a joint standing committee on adult education with five members each from the State College system, University of Wisconsin, and Schools of Vocational and Adult Education. Particular attention will be given to the needs of areas not now adequately served as well as areas in which undesirable duplication exists.

(4) Recommended that the amount of resident and out-of-state tuition fees charged at state-supported institutions be no more than that necessary to maintain the present ratio between fees and state support.

(5) Recommended that the Supt. of Public Instruction be provided with a staff to enable his department to offer consultative service to county teachers colleges. The Coordinating Committee felt that such service would aid the schools in determining what role each should play in the light of local needs and state-wide plans for higher education.

(6) Recommended that pending further investigation and determination any additional needs for publicly-supported educational opportunities of the community college type be met in the field of technical education by schools of vocational and adult education, and in the field of collegiate education by extension center programs to be developed either by state colleges or the University.

For schools of vocational and adult education it also recommended increased state aids, change in name of certain schools to "Institutes of Technical Education," and study of their future responsibility for education of the compulsory-aged student. -- By Donald W. Hill of the Joint Staff (now Chicago Asst.Supt.Schools).





# JUNIOR ACADEMY NEWS

By John W. Thomson, Chairman  
Junior Academy Committee

## JUNIOR ACADEMY REPORT

Co-chairmen elected at the annual meeting at Platteville are KATHERINE BONACCI of DePadua HS, Ashland, and WILLIAM STENZEL of Mary D. Bradford HS, Kenosha. These young people will preside at the Junior Academy annual meeting sessions in Madison next year.

A prize of \$10 donated by one of the Senior Academy Council members for the most original work presented at the annual meeting was awarded to HORST H. FRUEWIRTH of Rufus King HS, Milwaukee, for his presentation of "Visualization of Sections of Bodies of Revolution." JOHN CARMODY of Wauwatosa HS and CAROL BARKER of Adams-Friendship HS were elected members of the AAAS. These three young scientists were given top ratings for their work at the meeting along with THOMAS GREGORY of Nicolet HS, Milwaukee, PAUL WOLLWAGE and JOHN SCRIBNER of Appleton HS and DENNIS THOMSON of Mt. Horeb High School.

Second place ratings were awarded to DONNA MILLER, GALE SARAZIN, and GARY PETROWSKI of Aquinas HS, La Crosse, JOHN LEU and ANTHONY HAKL of Columbus HS, Marshfield, GARY DIX of Salem Central HS, RANDALL COWLEY of Central HS, La Crosse, and MICHAEL WHEELER of Platteville HS. Honorable mentions were accorded for their science project work to WILLIAM HUBRICK, Richland Center HS, GEORGE TRUETTNER of DePere HS, JOHN SCHLEPPENBACH of Notre Dame-McDonnell HS, Chippewa Falls, KATHERINE BONACCI and GARY GURSKÉ of DePadua HS, Ashland and STEPHEN ALBERT of St. Catherine's HS, Racine.

At the NE District meeting at which he was selected to go to the state meeting, JOHN SCRIBNER was awarded a \$25 cash award by the NE Chapter of the American Chemical Society for his project on "The Separation of Light Hydrocarbons by Gas Chromatography."

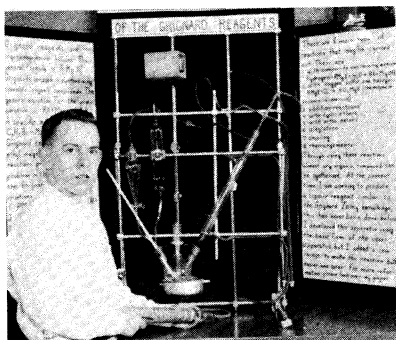
The Junior Academy members and Committee rejoice in recognition given SISTER M. LAURETTA of Columbus HS, Marshfield for her outstanding work in encouraging young scientists in Wisconsin. The Senior Academy honored her by electing her to Life Membership. Rev. JOHN M. SCOTT, S.J. of Campion HS, Prairie du Chien, was cited by the Wisconsin Society of Professional Engineers as one of three outstanding teachers of the state named at a recognition luncheon of the Society in Milwaukee during April. Father Scott is very active in the Junior Academy, has served as chairman of the Western District, and is author of three books and many articles on a richly varied number of subjects.

New District chairmen for next year are: NW Dist., GLENN PARISH, East HS, Superior; Milwaukee Dist., ROBERT GROGAN, Riverside HS., NE DIST., ROBERT SHOWERS, East HS., Green Bay. Other districts retain their current chairmen.

## PREPARATION AND REACTIONS OF THE GRIGNARD REAGENTS

By Edward Carberry  
Nicolet High School, Milwaukee

The Grignard reagents and reactions are known as the most useful single reaction for laboratory syntheses. A Grignard reagent is defined as an organomagnesium halide. This reagent is actually a stepping stone in producing complex organic compounds which otherwise could not be easily synthesized.



The first part of the Grignard synthesis is the preparation of the reagent. This can be shown by the equation  $RX + Mg \xrightarrow{\text{ether}} RMgX$ . Note that this reaction takes place in an ether solution. The actual preparation of the reagent, however, is not accomplished as easily as it may appear, for there are many competing reactions or side reactions which tend to take place at the same time. There are four main side reactions. These involve the Grignard plus water, carbon dioxide, oxygen, and excess halide.

Avoiding these side reactions is one of the main problems.

The apparatus in the picture is the apparatus I used in my work. Though it is basically the same as those commonly used in other science laboratories, it has a few changes in design which I believe help to make the reaction easier, purer, and safer. After trying to locate a suitable guide to follow for the preparation by looking in numerous organic lab manuals, I soon discovered that I could find no complete and concise guide. Therefore, I developed my own step by step guide to follow in preparing the Grignard reagents with my apparatus. The guide proved itself quite useful and effective. As a result of experience, I found it easy to be misled into thinking that a reaction has taken place when only the ether starts to boil, for ether boils at the low temperature of  $34.6^{\circ} \text{C}$ . I therefore also compiled a list of signs to look for which would guide me in recognizing a reaction.

The second phase of my project was concerned with the reactions of the Grignard reagents. After the preparation, the reagent was left in the reaction flask, and all the reactions were carried out in this same flask. This prevented contamination. There are eight main types of reactions which may be carried out. With these eight, almost any organic compound could be synthesized. I tried several of the almost infinite number of reactions possible. I worked most of the time with the reactions of the Grignard with hydrogen, oxygen, sulfur, and the halogens. In all cases where the Grignard reacts with free hydrogen, a hydrocarbon is produced. This type of reaction is much like a neutralization reaction, and it is the simplest of the Grignard reactions. When the Grignard reacts with oxygen, chemiluminescence can be observed. Some Grignards form a very intense glow. Sulfur reacts similarly giving rise to mercaptans and thiophenols. Halogens react to form halides.

After this preliminary work with the Grignards, I worked further to try to produce a new type of reagent. To my knowledge, this type of reagent has never been prepared before. The

reagent is basically the same as the Grignard in that it is an organometallic halide, but I used copper in place of magnesium. I could find no reason why copper would not work in this way, except that the reactions may be slower and harder to start. This would be due to the low activity of copper. However, I do not think it is too low, for mercury, below copper on the activity chart, was successfully tried before. From several library sources, I found that many other metals have been tried, but there was no mention of copper being used. As a trial run, I tried to prepare such a copper compound using the same apparatus. A reaction did take place, and I believe that I met with a certain degree of success.

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## MATHEMATICS AND MUSIC

By Carol Lowe  
Chetek High School

Music has always been of interest to scientists. The experiments of Helmholtz showed the relationship of scales and simple physical relations. Helmholtz described a melody as a "variation of pitch in time." Some years ago, the late Joseph Schillinger, who was a mathematics teacher as well as a musician, examined music in scientific terms. He evolved a mathematical system for composing music.

Music is sometimes regarded as a form of communication. An important element in this theory is the idea of "entropy." Entropy is a numerical index of disorder. In a situation where everything is mixed up, the entropy is high. Where there is a great deal of symmetry the entropy is low. If the entropy is high, more information can be conveyed than if it is low. A map showing roads running helter-skelter contains much more information than a piece of wallpaper with a monotonously repeated pattern.



Entropy has a great deal to do with music. A melody should have some sequences which sound familiar to the ear, and it always has some regularity and symmetry. This is called "redundancy". Thus the composer has to make the entropy low enough to give it an apparent pattern, but high enough so that the music is interesting to the listener.

The purpose of my experiment was to show the relationship between mathematics and music. In this experiment, I took a group of 22 Bach chorales and made an analysis of them. I wrote all of these chorales with letter symbols only, using an "o" for a rest. I then counted the frequency with which the various notes appeared. As most of the notes were quarter notes and each of my symbols stood for an eighth note, there were a lot of "o's." My results showed that "a" was 10.1% of the total notes, "b" - 11.5%, "c" - 6.3%, "d" - 7.1%, "e" - 2.6%, "f#" - 1.3%, "g" - 8.9%, "c#" - .5%, and "o" - 50.6%.

Because all of the chorales were written in the key of "g", the notes most used were in harmony with "g." For example, "b" accounts for 11.5% of all the notes, and "b" is in the major chord.

After I had analyzed the chorales for the note frequency, I listed the note sequences by percentages. This has a great deal to do with the way the melody will sound. For example, what note usually follows "a" -- is it "b" or "d." I set up these sequences as percentages on cards. "o" follows "a" 82% of the time, so with 20 cards "o" would be on 16 of them. When I had all of these set up, I tried making my first melody. I ran into difficulties though, because the chorales were written in 4/4 time, and the cards were casting the notes out as eighth notes. To get around this block, I set up the sequences as quarter notes, or in groups of three notes instead of two. To illustrate -- what two notes usually follow "b" -- are they "oa" or "oc". I put these notes on cards as before, according to their probability for occurring, and recast some melodies. Some of them now sounded similar to the original Bach chorales.

Each type of music should have a different entropy. The situation of maximum entropy would be where all notes have an equal probability for occurring. There is a formula by which the entropy per note can be calculated when the probabilities are known. This is derived from the Boltzmann "H" theorem of thermodynamics. Through this formula, the maximum possible entropy for nine notes would be  $\log_{10} 9$ , or .954. According to their actual probability in the Bach chorales, the entropy of notes was .911. This means that 95% of the possible combinations were used by Bach in his chorales.

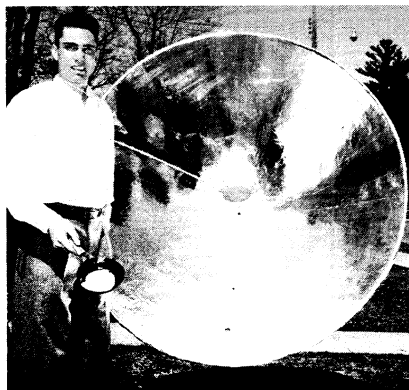
I now computed the entropy for the chorales which I had made. The maximum entropy remained the same, but the actual entropy for eight of my chorales was only .644. This was only 67.6% of the possible entropy. This is one of the places where this experiment could be improved upon. If the entropy of the computed chorales could be brought closer to that of the original chorales, I believe that they would sound more authentic. Another improvement could be made by using more cards in the percentages. If 50, or even more, could be used instead of 20, I believe that the chorales would sound more accurate.

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### CONSTRUCTION OF A SOLAR FURNACE

By Jerome Kurz

John Edwards High School, Port Edwards



The principal objective in the construction of my solar furnace was to prove that solar energy can be converted to rotary motion. Secondary objectives were to experiment with fiber glass, polyester resin, and solar cooking. With these objectives in mind I began the construction of a solar furnace, steam turbine, and the apparatus for solar cooking, in an attempt to harness solar energy.

Geometrically, my reflector is a paraboloid of revolution, which is the surface traced by a parabolic curve rotating on its vertical axis. This type of curve has the property of focusing

parallel electromagnetic radiation. This property makes it particularly suitable for the construction of an efficient solar reflector.

The method of building the furnace was similar to that of making molded fiber glass boats. First, I built an inverted paraboloid of plaster, and then applied wedges of fiber glass mat and polyester resin. After releasing the fiber glass shell from the mold, I glued wedges of aluminum foil to the concave surface.

The completed reflector is five feet in diameter and eighteen inches deep. Its focal length is eleven inches. Experimentally, I found the focal "point" to be approximately two and one-half inches in diameter.

On April 8, at 12:30 p.m., using a pyrometer, I found the temperature attained by the furnace to be 718° Centigrade. A few minutes later I took a calorimeter test and found that the amount of heat gathered was 11.45 kilogram calories per minute. This is equal to 1.07 heat equivalent horse power.

To convert the energy produced into work, I built a steam turbine assembly. It consists of a small horizontal turbine, a boiler which is mounted at the focal point, a steam gauge, and a safety valve. I generally run this turbine, which is rather inefficient, at a steam pressure of 125 pounds per square inch. Presently, I am building a much more efficient turbine, with the hope of generating electricity.

In addition to the solar engine, I have made apparatus for solar cooking. Although I have not tried much cooking, the results I have obtained have been most encouraging.

During the construction of my project I have developed many new and better ideas and techniques on how to build a more perfect solar furnace. This project has familiarized me with many sciences as the utilization of solar energy embraces physics, chemistry, mathematics, geometry, thermodynamics, optics, and even others. It is my hope that I may contribute in some way to the utilization of man's greatest source of energy - the sun.

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### COMBINATION ELECTROCARDIOGRAPH AND ELECTROENCEPHALOGRAPH

By Tim Hulick  
Aquinas High School, La Crosse

My science project is a Combination Electrocardiograph and Electroencephalograph. It is used to determine the electrical output of the conductive bundle of His, which is located between the two auricles of the heart, and which activates the ventricles. My project also determines the electrical potential of the cerebral waves. It is an original circuit and construction using three chassis, in which 44 tubes, including rectifiers and voltage dividers, are used.



I used "direct coupling" in my project, a type of circuit that not many amateurs, or even professionals, have heard of. "Direct coupling" is a unique circuit that enables one to obtain a high enough sensitivity resulting from an amplification factor of several million. The slight variation of plate voltage on the first tube is also the same voltage on the grid circuit of the following tube. The grid needs only a minute voltage to trigger it, and as the plate voltage of the first tube is great, there is a tremendous amount of variation on the output of the second tube. I used eight tubes or stages of "direct coupling": the plate of the first tube is tied directly to the grid of the next, and so on.

When the electrocardiograph or electroencephalograph are being used, two amplifiers are being used in a form of push-pull circuit or Class B amplifier. One amplifier handles the positive half of the cycle; the other handles the negative half. If only one amplifier were used, only half of the proper wave form would appear: either the positive half or the negative half. The grid of one amplifier is connected to the left arm; the grid of the second amplifier is connected to the right arm. These contacts are made with small 2" x 2" square metal plates. The right leg is common and connects to chassis ground. There is no grid-leak resistor on the grid of each of the first tubes of each amplifier. (There is usually a resistor of several million ohms from grid to chassis ground.) The body is connected to exactly the same terminals as this resistor would be connected. The electrical resistance of the body is many millions of ohms and will serve the purpose. The grid current, little as it is, is conducted from ground through the body, through the conductive bundle of His to the grid. Any slight electrical change in this circuit will upset the entire amplifier. The slight voltage variation in the conductive bundle causes the circuit to behave normally. The electrical potential output of the cardio-nerve is approximately .06 volt. Because it is so minute, it must be amplified many times to be registerable.

The operations for the electroencephalograph are done in much the same manner as the electrocardiograph, except that short sterile needles are injected under the top few layers of the skin on the scalp. This is not painful, however. (It cannot be painful, because it would cause neurotic interruptions on the encephalowaves.)

A necessity in the use of both these devices is "Cardio-paste." I obtained mine at one of the local hospitals. "Cardio-paste" is a type of clear jelly in appearance, and comes in tubes approximately nine inches in length. It is spread in a thin layer on the electrodes, and on the skin to be contacted. This paste acts as an excellent conductor to the body; it enables the metal plates or needles to make proper contact.

Cardiograms, which are the curves or tracings made by the Cardiograph, are divided into the P, Q, R, S, T waves, and the lesser important F wave. When using my project in checking for ordinary abnormalities, the evenness and unity of each wave respectively is what is considered. If one cycle is different from the other, an abnormality is present. This simple check eliminates surgery, and this is its chief advantage. Other important advantages are its rapid and accurate interpretations, and its inexpensiveness.

I found no technical information on this subject at all; both designs and construction are original. Because I am very interested in both electronics and biology, I thoroughly enjoyed working on this project.

## THEORY AND CONSTRUCTION OF SIMPLE BINARY COMPUTERS

By Dick Thomas  
Lincoln High School, Wisconsin Rapids

Many of the computers in operation today use an entirely different system of mathematics than our familiar decimal system. This is the Binary system, based on the power of two. Every digit moved to the left increases the number being represented by the power of two. In the decimal system, every digit moved to the left increases the number by the power of ten.

For example, take the symbol 100. In the decimal system this represents 100 units. Binarily as we progress from left to right we have indicated no digits "0" in the ones or twos column, but one "1" in the fours column, hence we have represented the number four.

In the normal computation this system would have no real advantage. It would complicate our computation by making it necessary to use many more digits to express the same number, but for the electronic computer there is a great advantage. Any number, infinitely large or infinitely small can be represented by the use of two symbols. Therefore we can represent any number by the flow or interruption of electrons. For example, a relay energized could represent the symbol 1, de-energized the symbol 0.

A large computer capable of solving practical problems has six basic circuits--addition, subtraction, multiplication, division, input and storage. Because of complexity and cost it was impossible for me to construct a machine of such scope. Therefore I limited myself to the understanding, developing, and building of an addition circuit. This circuit employs 25 relays and has a selenium rectifier to supply the 12 volts necessary to energize them. The addition is accomplished by arranging the relay circuitry in such a way that they will carry a number into the next digit if the sum of the digits surpasses the power of two of that digit.

My computer will add any two five-digit binary numbers whose sum is not in excess of 30. The ability to add larger numbers could be increased to infinity by just duplicating the carrying circuits. The subtraction circuit is a modification of this addition circuit; in fact, all of the other six circuits that I mentioned are basically related to this simple addition circuit.

In conclusion, let us consider briefly some of the major observations. In selecting the method and the components of an electronic computer we observe that the relay is perhaps the most simple and works well as a demonstrator, but it has many disadvantages in practical design--namely, excessive power consumption when compared with transistors, or electron tubes. Similarly the bulk of a complete computer using relays would be enormous in size. The comparatively slow reaction time would also be objectionable. Therefore it becomes obvious that the practical design of the future computer will make extensive use of the transistor.



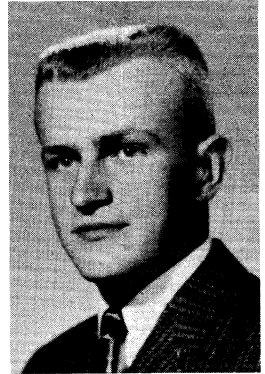
## CONTROLLING AND USING SOLAR ENERGY

By Allen Isensee  
Sparta High School

My project is primarily concerned with the control and use of solar energy. Most of the work that I have done was building a solar furnace and then adapting it to various useful purposes. A solar furnace is an apparatus, usually consisting of mirrors or some other reflecting device, that will concentrate many solar rays into one point for the purpose of attaining a high temperature.

I obtained information from many sources before actually starting work on my furnace. Eight or nine books on solar energy were secured from the state library, and also I wrote to the Association for Applied Solar Energy in Phoenix, the California Institute of Technology, the Univ. of California, the Massachusetts Institute of Technology, and the University of Wisconsin.

The furnace consists of the following: the Base, which allows the upper parts to revolve upon it in a complete 360° circle. The Carriage holds the mirror arrangement and allows it to turn another 120°. On the carriage there is a winch that moves the mirror arrangement a fraction of an inch at a time and holds it firmly in place. The mirror arrangement consists of a hexagon 40 inches in diameter from whose center radiate 30 small strips of wood. On each piece of wood there are three mirrors, making a total of 90 mirrors.



The temperature of the furnace is determined by first focusing one mirror on a thermometer and recording the temperature. Then add mirrors and record the increased temperature; ten mirrors are about enough for a fairly accurate reading. You now take the sum of increase of the ten mirrors and divide by ten. The quotient you get can then be multiplied by the number of mirrors used. Another method which is not as accurate is to melt different substances whose melting points are known. Each of the mirrors that I used added 11° for a temperature of roughly 1,000° F.

The furnace can be used with slight modification for the following purposes: as a grill for cooking or an oven for baking; to boil water in which to cook food; water can be turned to steam for making electricity, running machinery, and possibly one of the best uses would be for taking salt out of sea water to obtain salt, drinking water, and some minerals like gold. It can be used as a heating unit for homes or other buildings.

My work on solar energy is very important conservation-wise because if the sun could be efficiently put to work producing energy, the world would never again have to worry about an energy resource such as coal, oil, costly uranium, and wood. Sunlight is of course an inexhaustible resource. The furnace is practical because after building the apparatus and getting it in working order, there would be no further cost.

I have also built a flat plate collector for useful utilization of solar energy. It consists of a box that is insulated on the bottom, a black absorbing material for which I used tin covered with carbon, and a glass covering which emits the sunlight and stops much of the reflection that comes off the absorbing plate. It could be easily installed as an entire roof and used for heating your home, drying grain, lumber or hay. # # #



## In Memoriam

### Frank Lloyd Wright

1869-1959

The Wisconsin Academy's distinguished honorary member, FRANK LLOYD WRIGHT, died April 9, 1959 at Phoenix, Arizona. He was born June 8, 1869 at Richland Center, Wisconsin. Commenting editorially at the time of his death, The Milwaukee Journal said:

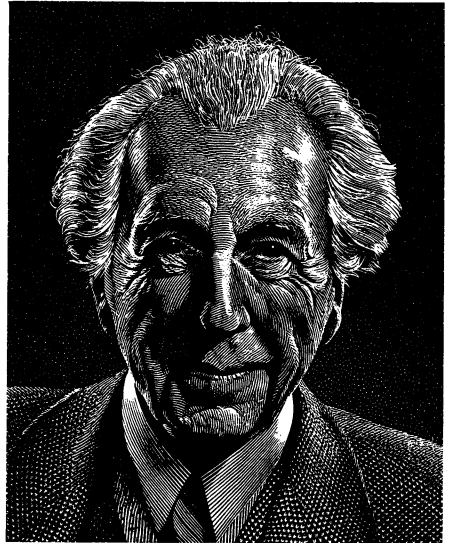
"Wisconsin claimed him through the location of his ancestral acres, but eyed him ever with astonishment and awe rather than affection. He was a cosmopolite, and it is the nation and the world that had one of nature's most fascinating and maddening men in Frank Lloyd Wright.

"His authentic architectural genius, literally world renowned, was more admirable than the man. His buildings scorned conventional concepts but never failed to be exciting and challenging. Even more than by his own work, the mark of Wright on building design, materials, motivation and philosophy, hence deeply on society, will be felt for generations both through his own worshipful disciples and through others who will breathe the influence even if denying it. ...

"In his scoffings at the uncreativity of American culture, he intended to shock because it takes shock to break through apathy. And any society needs to be needled, provoked, even insulted into self-examination. ... Wright lived life, if not always best, at least with a wonderful zest, ebullency and joy that is all too rare not to be envied. And surely it was a triumph of the spirit that this he did right down through all but two months of his 90th year; only then did death write an end.

"We will not see his like again, and that, with all the reckoning in, makes us poorer by far." (Reprinted with permission)

The Manchester (England) Guardian called him an "American Original" and stated: "Frank Lloyd Wright could not have been anything but an American and done what he did. Most architects, even those whom we think of as bold innovators, begin with a preconception of whatever kind of building they are called upon to build. ... Wright built a good deal of the time as if he was the first man to arrive in the middle of a virgin prairie and had to think out from the start what kind of dwelling people would need. ... He neither followed tradition nor particularly kicked against it. ... The question is whether there is much more room in our complicated, crowded life for free-lance architects of genius. It was difficult enough being a Vanbrugh or - even in America - a Frank Lloyd Wright. It will probably become more difficult still."



(Portrait sketch by Irwin Smith, courtesy The Reader's Digest, from a Portrait by Karsh of Ottawa --copyrighted)



## Frederick Sarles Brandenburg 1889-1959

FREDERICK SARLES (Heggie) BRANDENBURG, 70, former president of the Democrat Printing Company, the long time printer of the Academy's *TRANSACTIONS*, died in Madison on January 4, 1959. Mr. Brandenburg was a Life Member of the Academy and was continually interested in its activities and progress. In 1955 he organized the Brandenburg Foundation to underwrite the many charitable and educational interests which were his almost daily concern. Among the educational enterprises which he suggested his Trustees might consider for occasional grants was the Wisconsin Academy of Sciences, Arts and Letters.

Mr. Brandenburg was born in Minneapolis but early came to Madison where his father was the editor and part owner of the Morning Democrat. As a boy he became very interested in birds and actually was appointed to report bird migrations for the U.S. Biological Survey. Years later he conducted regular Sunday morning bird walks and was considered to be one of the best informed ornithologists in the city.

"Heggie," as he was affectionately called by his many friends, graduated from the University of Wisconsin in 1909 and was actively planning for his Fiftieth Reunion this June. He had been especially active in the affairs of Rotary International and in addition to having been president of the Madison Club and Governor of his district, he also served on important committees of the international organization. Generally these pertained to international student exchanges which were his particular interest. To the many students who came to the University of Wisconsin either as International Scholars or District Scholars he became an intimate friend and counselor. Without exception they called him "Uncle Heggie" and he reciprocated with a warmth and understanding that made the avuncular title appropriate and meaningful in its finest sense.

The Madison community, his many personal friends and the business world all appreciated the vigor of his personality and the joviality for which he was famous. The Wisconsin Academy along with his family and his host of friends will miss his genial humor, wise counsel and consistent generosity.

--Walter A. Frautschi



### Charles L. Fluke - 1891-1959

Emeritus Professor CHARLES L. FLUKE died at Madison on February 11, 1959. He had been with the Entomology Department at the University of Wisconsin for 42 years, retiring in July 1958. A retirement profile in the Summer 1958 issue of the Wisconsin Academy Review carried details on his career.

Probably his most absorbing interest was research on the biology and systematics of the Syrphidae. In accordance with his wishes, Professor Fluke left his literature and the bulk of his Syrphid collection to the Entomology Department of the University of Wisconsin. The department is establishing a C. L. Fluke Entomological Library with the Fluke literature as a start. Separates or entomological books to be added to this library in his name as a memorial to him would be welcomed.

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### Michael F. Guyer - 1874-1959

MICHAEL F. GUYER was born in Plattsburg, Mo. in November 1874 and died at New Braunfels, Texas on April 1, 1959. He attended schools at Plattsburg, and the University of Missouri, before transferring to the University of Chicago, where he was one of the first graduates in 1894. For a time he did research at the University of Nebraska, then obtained his Ph.D. at Chicago. Before coming to Wisconsin in 1911, he taught in Nebraska, the University of Chicago and the University of Cincinnati.



He retired from active teaching in 1945, having been with the Zoology Department at the University of Wisconsin for 34 years and serving as chairman a number of years. He was a well-known researcher and concentrated on genetics of birds and animals. A prolific author, he was adept at presenting technical material in layman's language, his two most popular books being "Speaking of Man" and "Being Well Born."

In 1924 he was awarded an honorary degree from the University of Missouri and was a member of Phi Kappa Phi and Phi Beta Pi. He was former chairman of the Wisconsin Basic Sciences Board, which examines all persons who wish to treat the sick. A member of many professional societies, he affiliated with the Academy in 1912 and was granted Life Membership in 1951.

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### Halvor O. Teisberg - 1883-1959

HALVOR O. TEISBERG was born in 1883 on the homestead his Norwegian grandparents pioneered near Cottage Grove, Wisconsin. He died on February 8, 1959 at Madison.

He attended Deerfield High School and was graduated from the University of Wisconsin. Continuing his education, he did graduate work in history and languages at Wisconsin and the Uni-



versity of Chicago, where from 1912 to 1920 he was supervisor of stacks in the school's library. In 1926 he returned to Wisconsin to become librarian in charge of duplicates and exchanges at the University, a position similar to one he had held in the Chicago library for the previous six years. He retired from that position in 1953 with emeritus status. Over the years he accumulated a voluminous amount of material through exchanging the *TRANSACTIONS* of the Academy for the works of other academies throughout the world. The well-developed exchange system was his particular project and he left a real monument to his work.

As a sideline to his official library work, he collected American book auction catalogs. After the auctions, he entered prices obtained, thereby greatly enhancing value of the nearly 10,000 catalogs in his collection--"one of the most notable in the U. S.," according to Gilbert Doane, Director of the UW libraries at the time of Teisberg's retirement. Another hobby was the 120-acres of farmland adjacent to the old homestead.

Professor Teisberg joined the Academy in 1937 and was elected its librarian in 1944, serving in that capacity for nine years.

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### Samuel C. Wadmond - 1871-1959

SAMUEL C. WADMOND was born in 1871 in Racine, Wisconsin and died at Minneapolis, Minn. on March 1, 1959. He attended schools at Racine and went on to Valparaiso University. For 14 years he was connected with the Racine Wagon & Carriage Co. In 1905 he and his family moved to Delavan, where he was connected with the firm of Jackson & Jackson until he went overseas during World War I to serve as a YMCA secretary. Returning to Delavan, he became associated with the Bradley Knitting Mills until 1940.

He was active in civic affairs, but his lifelong hobby of botany continued even when failing health curtailed his activities in later years. His herbarium of over 10,000 plants was donated to the University of Minnesota where he worked for some time on a research fellowship in the Department of Botany. The 1950 edition of Gray's Manual of Botany cited him for his contributions to the knowledge of the native flora of Wisconsin and Minnesota, and Norman C. Fassett's Spring Flora of Wisconsin lists his name with others in acknowledgments for advice and friendly criticism. He became affiliated with the Wisconsin Academy in 1903 and was elected to Life Membership in 1947. He also served as vice-president in science for some years. His "Flora of Racine and Kenosha Counties" appeared in Vol. 16 of the *TRANSACTIONS*. He also wrote the biographical sketch on Dr. John Jefferson Davis, the student of fungi, which appeared in the Spring 1956 Academy Review.

His family plans a small monetary memorial to the Wisconsin Academy - "a much-loved endeavor."

## Harley Frost Wilson

1883-1959

HARLEY FROST WILSON, Professor of Entomology 1915-48 at the University of Wisconsin, died at his home in La Canada, Calif. on February 8, 1959. Professor Wilson was born at Del Norte, Colo. on April 14, 1883, received his B.S. at Colorado State College in 1907, where he majored in Entomology and Horticulture. He did graduate work at the University of Illinois and at Oregon State College, where he received the M.S. degree in 1913, when he was appointed Professor of Entomology and Entomologist of the Experiment Station in Oregon. He had also served as special agent in the U.S. Bureau of Entomology at Washington, D. C.



Professor Wilson joined the faculty of the University of Wisconsin in 1915 to head the Department of Economic Entomology in the College of Agriculture where he served with distinction as its Chairman until 1942. He retired from the University in 1948, at which time he moved to La Canada to serve as Research Director for Pickett & Eckel, Inc., manufacturers of metal slide rules. Twenty students had earned their doctorates under his direction.

In research he had many interests contributing to the taxonomy of Aphidae and the biology and economic control of major insect pests of Wisconsin. As his staff increased, he concentrated principally on pea aphids, household insects, and beekeeping. The Dr. C. C. Miller Memorial Beekeeping Library accepted by the University in 1922 will be a permanent monument to the vision and energies of Professor Wilson. He played a guiding part in the foundation of the American Honey Institute that has functioned successfully for more than 30 years. He initiated and edited Wisconsin Beekeeping 1924-31, when it was absorbed by the Wisconsin Horticulture magazine. He held many offices as an advisor to the Alpha Gamma Rho fraternity. Joining the Wisconsin Academy in 1916, he continued an active member until 1950, when he became a corresponding member.

Harley Wilson was a scientist, teacher and a man with great energy who found time to counsel others and to take a deep personal interest in his students. --MEMORIAL COMMITTEE - O. B. Combs, C. L. Farrar, Lowell Noland, T. C. Allen, Chairman.

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ACKNOWLEDGMENTS: Photos pp. 55, 56 and 57 from U. S. Forest Service; 58, 69, 93 (Fluke) and 94, U. W. Photo Lab.; 93, Wis. Cons. Dept.; 68, Oberlin College News Bureau; 92, William Wollin Studios (Madison); 93 (Guyer), The Badger, 1926; p. 65, photo and sketch, Milw. Pub. Museum, LORE, Vol. 8, No. 2; p. 61 sketch, Bien. Rpt. '57-'58, Wis.St.Dept.Agr.; and p. 66, W.C.D. Pub. "Canoe Trails."

STATE AND ACADEMY NEWS - continued

Academy member CARL E. STEIGER of Oshkosh recently was elected chairman of the U. W. Board of Regents.... FARRINGTON DANIELS, UW chemistry dept. chairman, has been appointed to the National Aeronautics and Space Administration's research advisory committee on chemical energy processes. He also was honored by a "Personality Portrait" in the April, 1959 Saturday Review. ... Prof. RAFAEL LAPESA of the Univ. of Madrid and Prof. MERRITT Y. HUGHES of the UW English dept. have been appointed to the faculty of the University's new Institute for Research in the Humanities, scheduled for activation Sept. 1, 1959. ... C. A. ELVEHJEM has been appointed to a committee of educators, named to guide the expanded program of education for the health professions of The National Foundation, formerly known as the National Foundation for Infantile Paralysis. ... Dr. ALFRED S. EVANS, associate professor of preventive medicine and medical microbiology, has been appointed director of the State Laboratory of Hygiene, effective Sept. 1, succeeding Dr. WILLIAM D. STOVALL. ... JOHN E. WILLARD of the UW Graduate School has received the \$1,000 Award for Nuclear Applications in Chemistry at the recent American Chemical Society national meeting in Boston. ACS 50-year membership certificates went to Prof. FARRINGTON DANIELS, chairman chemistry dept., and to Emeritus Profs. J. H. MATHEWS, chemistry, A. W. SCHORGER, forestry and wild-life management, and HARRY STEENBOCK, biochemistry. ... JAMES W. APPLE, entomology, has been elected a vice-president of the Entomological Society of America. ... S. A. WILDE, soils, has been elected an honorary member of the Society of Forestry in Finland for his scientific work in forestry. ... Emer. Pres. E. B. FRED has been appointed to the International Development Advisory Board by President Eisenhower. ... A. D. HASLER, zoology, was elected vice-president of the American Society of Naturalists. ... DAVID BAERREIS, chairman anthropology dept., has been elected to the executive board of the American Folklore Society. ... HENRY POCHMANN, English dept., was elected editor of American Literature, official quarterly of the Modern Language Association's American Literature group.

About thirty Wisconsin sociologists founded the Wisconsin Sociological Association last May. The meeting was held at the UW-Milwaukee, and was attended by representatives from denominational and non-denominational private colleges, various institutions in the Wisconsin State College system, the UW-Milwaukee and UW-Madison, and by sociologists in non-academic positions. Plans for future activities of the association were formulated, including a society publication and a meeting in early fall of 1959. Prof. ALBERT BLUMENTHAL, Wis. State College-Eau Claire, was designated as chairman of the interim executive committee, and HUGO O. ENGELMANN, UW-Milwaukee, as acting secretary-treasurer and editor of the new organization.

Academy member DON ANDERSON was elected first Vice-President of the Wisconsin Alumni Assn., and member WALTER FRAUTSCHI was elected Treasurer. ... Atty. ARTHUR DE BARDELEBEN of Park Falls was appointed by the Governor to succeed Mrs. HELEN C. LAIRD on the Board of Regents. ... Indian students at the U. W. honored Pres. CONRAD ELVEHJEM recently with presentation of a garland hand made in India. ... Dr. GERNOT B. RATH from the Univ. of Bonn, Germany, was appointed Chairman of history of medicine in the Wis. Medical School.

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## NEW MEMBERS

### Active:

<p>H. J. ANTHOLZ, Spooner  DONALD J. BRATRUDE, Madison  WILBUR R. BYAM, Delafield  FRANCIS P. CHISHOIM, River Falls  Miss KUO-PING CHOU, Madison  JOHN D. CURNOW, Richland Center  JOHNATHAN W. CURVIN, Madison  W. HOWARD DAWE, Milwaukee  GLENN K. DETRO, Milwaukee  GARETH W. DUNLEAVY, Milwaukee  ALVIN A. ERDMAN, Lancaster  GLENN L. GIBSON, Milwaukee  GLEN V. GUNDY, Platteville  GLENN JERGENS, Onalaska  CARL D. JOHNSON, Whitewater  Miss KATHLEEN M. JOYCE, Appleton  ELISABETH M. KERR, Milwaukee  Mrs. HANS KIRCHBERGER, Madison  FRANKLIN C. LANE, Ashland  JOAN E. LARSEN, Madison  HOWARD D. LEE, Milwaukee</p>	<p>JAMES J. LORENCE, Racine  W. R. LOY, Platteville  Mrs. HARRIET G. MASON, Ithaca, N.Y.  J. F. MARSHALL, Milwaukee  VINCENT R. MATHEWS, Waukesha  MICHAEL F. MOLONEY, Milwaukee  MICHAEL E. MYSZEWSKI, Whitewater  REGINALD G. NASH, Whitewater  ROBERT M. NEAL, Mineral Point  JOSEPH ROSSI, Madison  LAVERNE M. SATHER, Ridgeland  DAVID B. SAUNDERS, Whitewater  ROY A. SHAVER, Platteville  JACK W. SHIELDS, Racine  CHRISTOPHER SPALATIN, Milwaukee  REYNOLD A. SWANSON, Wauwatosa  RUSSEL O. WAGNER, Platteville  Mrs. FLORENCE L. WALZL, Milw.  RAY J. WHITE, Madison  CLARENCE R. WILKINSON, Milwaukee</p>
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### Family:

Dr. GEORGE R. and RUTH E. GRIFFIN, Milwaukee  
THOMAS J. and LOUISE L. HIGGINS, Madison  
ELTON S. and BLANCHE KARMANN, Platteville  
PAUL M. and LELA M. LOCFORO, New London  
Mrs. LEWIS C. FRENCH, Milwaukee (he is a member)  
Mrs. EMIL RAUCHENSTEIN, Madison  
Mrs. ROBERT C. WEST, Madison

### Sustaining:

MILO C. RICHTER, Wauwatosa  
Mrs. H. O. TEISBERG, Madison

### Library:

SUPERIOR PUBLIC LIBRARY, Superior

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## OFFICERS OF THE WISCONSIN ACADEMY OF SCIENCES, ARTS AND LETTERS

**PRESIDENT:** Henry A. Meyer, Wisconsin State College, Whitewater  
**PRESIDENT-ELECT:** Merritt Y. Hughes, Bascom Hall, U.W., Madison  
**VICE-PRESIDENTS:** Sciences: Aaron J. Inde, Univ. of Wis., Madison

Arts: Douglas Knight, Lawrence College, Appleton

Letters: Berenice Cooper, Wisconsin State College, Superior

**LIBRARIAN:** Walter E. Scott, Madison

**SECRETARY:** Roger E. Schwenn, Univ. of Wis., Madison

**TREASURER:** David J. Behling, NW Mutual Life Ins. Co., Milwaukee

**THE COUNCIL:** The above-listed officers and the Past-Presidents:  
Paul W. Boutwell, A. W. Schorger, H. A. Schuette, L. E. Noland,  
Otto L. Kowalke, W. C. McKern, E. L. Bolender, Katherine G.  
Nelson, Ralph N. Buckstaff, Joseph G. Baier, Jr., Stephen F.  
Darling, Rev. Raymond H. Reis, S.J., and Robert J. Dicke

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

**REPRESENTATIVES ON COUNCIL OF A.A.A.S.:**

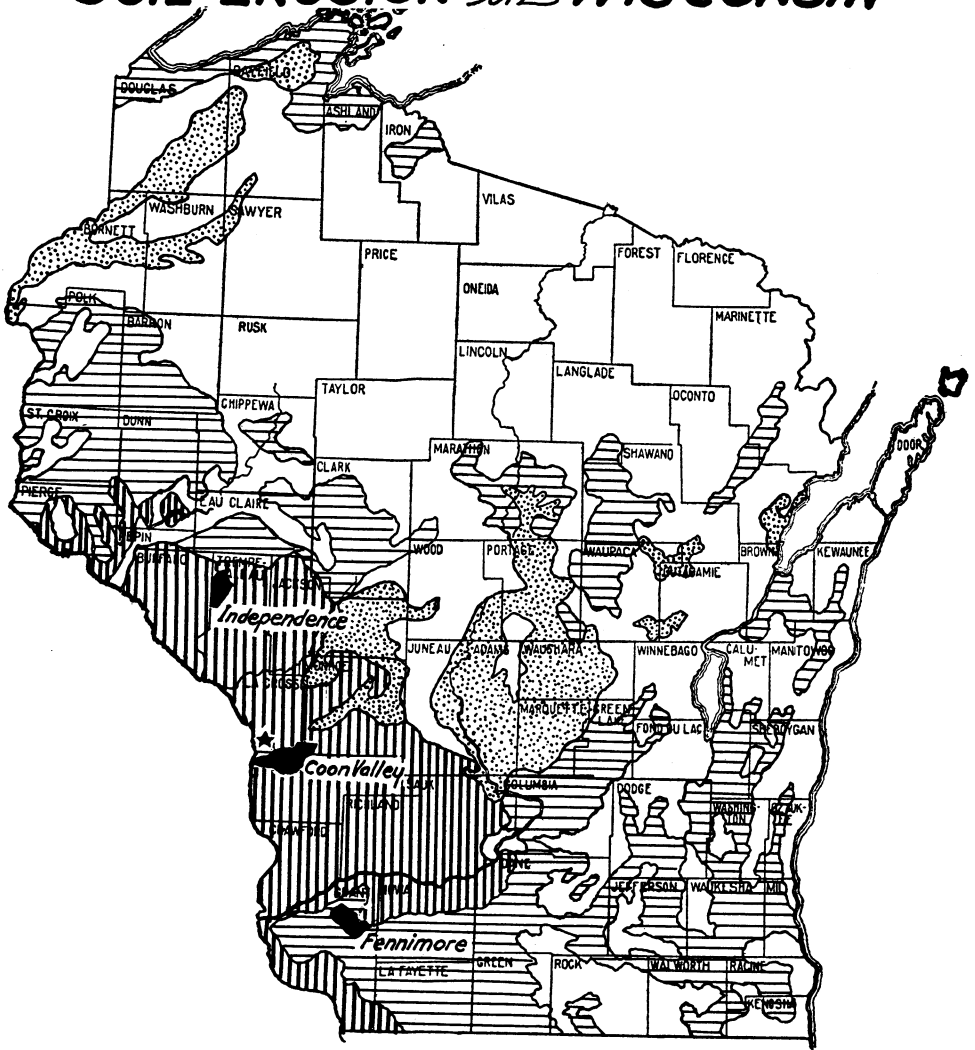
Robert J. Dicke, Madison      Stephen F. Darling, Appleton

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

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

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

# Generalized Map showing SOIL EROSION in WISCONSIN



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|---|--|
| <ul style="list-style-type: none"> <li> Little or no erosion</li> <li> Slight to moderate sheet erosion - occasional gullies</li> <li> Moderate to severe sheet erosion frequent gullies</li> </ul> | <ul style="list-style-type: none"> <li> Wind erosion</li> <li> Soil Conservation Service Demonstration Areas</li> <li> Erosion Experiment Station</li> </ul> |
|---|--|

(From "Soil Conservation - A Teacher's Guide" published by State Soil Conservation Committee, June 1949)