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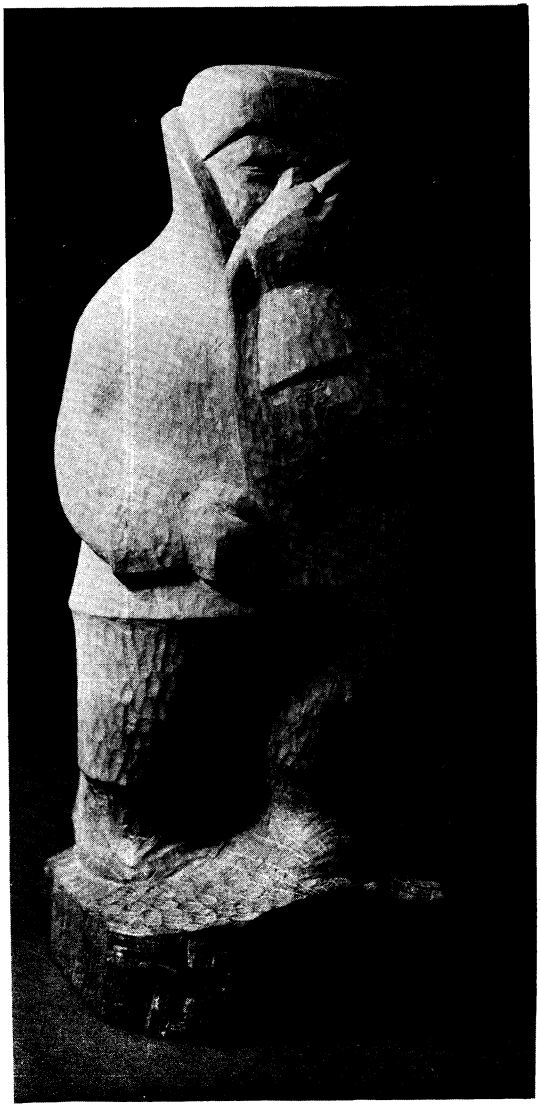
WISCONSIN ACADEMY REVIEW

WINTER 1957



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WISCONSIN ACADEMY REVIEW

Vol. 4 Winter, 1957 No. 1

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THE UNIVERSITY OF WISCONSIN — MILWAUKEE AND ITS FUTURE

By J. Martin Klotsche, Provost

On September 1, 1956 the merger of Wisconsin State College and the University Extension Division into the University of Wisconsin - Milwaukee was finally consummated. This event marked the culmination of months of planning and preparation. It is hard to believe that what has now come into being could have been accomplished in the short span of twelve months.

The first enrollment of the new institution is now a matter of record. Approximately 4400 full-time day students are now enrolled. Classes are distributed on the two campuses of the University with approximately 65% on the Kenwood Campus (formerly Wisconsin State College) and 35% on the Downtown Campus (formerly University Extension Division). In addition there are approximately 5000 part-time evening enrollments in a wide variety of courses in Commerce, Education, Engineering, Letters and Science, Social Work, and General Education. There are over 325 full-time and 75 part-time faculty members at the UW-M this fall and an additional 150 full-time Civil Service personnel.

The full-time enrollments at the UW-M are running approximately 15% ahead of the combined enrollments of Wisconsin State College and the Extension Division last September (3900). Yet there is every indication that this is only the beginning. By the time the present freshman class graduates in 1960 we expect over 7500 and ten years from now over 10,000 full-time day students. An explanation for this unusual growth is in order. It is of course a part of the overall national picture. However, there is every indication that the Milwaukee institution will grow more rapidly than the national average would indicate. Actually there is a close correlation between college attendance and the location of an institution. For example, in 1945-46, 42.6% of the high school graduates in Dane County (the home of the University of Wisconsin) continued their education in degree granting institutions and ranked first among Wisconsin's 71 counties in this regard. At the

other extreme 8.2% of the high school graduates of Oconto County continued their education in that same year. Milwaukee County ranked 10th in the State with 26.1% of its high school graduates continuing their education in degree granting institutions. Certainly the opportunity which will be given the young people in the Milwaukee area to receive a University degree while staying at home will result in a growth considerably above that which can be expected on the national average. It goes without saying that a University opportunity in Milwaukee should result in more than one out of four high school graduates continuing in College as was the case in 1945-46.

What kind of educational opportunity can the University in Milwaukee be expected to provide? First, it is designed to provide an education that will equip people to become more competent professionally and vocationally. It is of course not the intention of the Milwaukee institution to provide educational opportunity in all areas of professional preparation. In some areas, such as commerce, social work and education it can and should provide a terminal education, but in other areas it should provide an undergraduate program of high quality with students then going elsewhere for their specialized professional training. Certainly it would be unwise especially in those areas where instructional costs are high and where expensive equipment and elaborate physical facilities are required to duplicate at this time professional programs already in existence in Madison. In fact, one of the purposes in bringing the Madison and Milwaukee institutions together under the same University administration and subject to the same governing board was to make it possible to utilize resources to the best advantage and to discourage unnecessary duplication and competition.

In the second place, the Milwaukee institution should recognize its responsibilities in providing a broad liberal education. I am not using the word "liberal" here in its political context, but rather as meaning "free." In short, a university should provide an education befitting and worthy of free men. Technical and professional schools are becomming more and more aware of the need for this kind of education. Their requirements for admission reflect a greater understanding of the need for a broad, general education. The creation in 1950 at the Massachusetts Institute of Technology of a school of Humanities and Social Studies is a specific example of this trend.

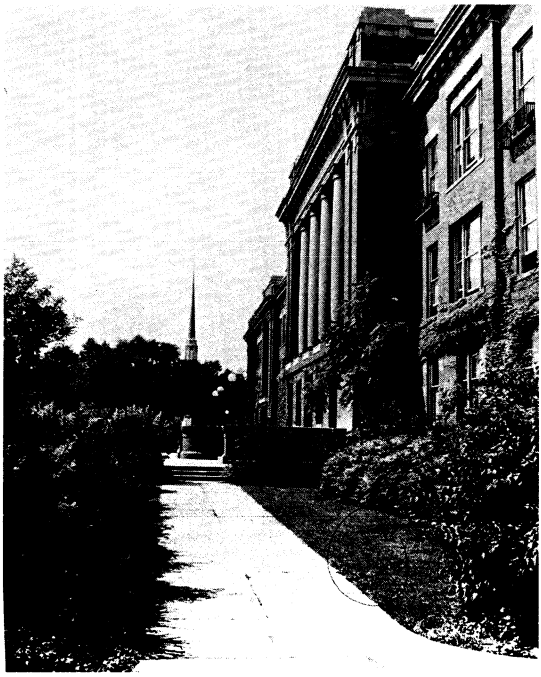
The purpose of a liberal education is to awaken in a person his intellectual, aesthetic and spiritual values so that before he enters his chosen profession he can bring to it assets of intelligence, understanding and character. J. S. Mill expressed this viewpoint admirably when he wrote that "men are men before they are lawyers, physicians and

manufacturers; and if you make them capable and sensible men they will make themselves capable and sensible lawyers and physicians." Thus it is our hope that the University in Milwaukee will not engage in a rear guard action to promote the liberal arts but will constantly be on the firing line to encourage and cultivate the arts and humanities.

Finally, the University in Milwaukee has a responsibility to the community and to those who chronologically speaking have passed what is generally considered the age for going to college. We know from research and experience that people do learn after the age of 22. In fact, some of the best learning situations come after that time. Certainly there is strong motivation for learning situations which comes from being gainfully employed and active in the life of the community.

It is the responsibility of the University to give to the adult population of the Milwaukee area broad educational opportunities so that they can continue to learn throughout their lives. In view of the changing pattern of American life this responsibility is all the more important. With predictions of a thirty-hour week, and with the life span constantly being lengthened, and with the age for retirement lessened it is all the more important that constructive use of man's leisure time be provided. The University of Wisconsin - Milwaukee is prepared to assume its responsibilities in this field for there are many who in spite of their college training are still under-educated and have not yet passed the literacy test of the 20th century.

In closing it should be pointed out that the Milwaukee institution must always be evaluated in the light of its relationship to the University as a whole. A great deal of thought was given in this last year as the Milwaukee



Main Building - Kenwood Campus

merger was being completed to the proper coordination of the Milwaukee and Madison institutions as well as the relationship of Milwaukee to the many extension activities of the University scattered throughout the State. Actually, the Milwaukee institution is only a part of a larger whole. Milwaukee's 500 faculty and Civil Service staff are only a portion of a total University staff of over 6000. Its budget of three and one-half million is only a part of an annual operating budget of forty-two and one-half million. Its $10,000,000 plant located downtown and on the near east side represents only a segment of a total of seventy million invested in physical plant.

In considering the needs of higher education in Wisconsin, then, in the years to come we must see Milwaukee's needs in the light of the total needs of the University as well as in the light of the needs of all institutions of higher learning in the State. Last year almost 50,000 students were enrolled in institutions of higher learning in Wisconsin, with 60% of those enrolled in public tax-supported institutions. We know from birth statistics that by 1970 our college age population in Wisconsin will be 65% greater than it is today. This means that by 1970 over 80,000 young men and women will be seeking admission to our institutions of higher education in Wisconsin. The University of Wisconsin-Milwaukee can play a unique role in this important development. It is located in a population center with one third of the state's population within commuting distance of the institution. It has the traditions of two fine institutions (Wisconsin State College and the Extension Division) to support it. And now the resources of a great University with an international reputation as a center of highest quality teaching, significant research and broad public service will be made available to it.

There is a great future for the University in Milwaukee. The need for it has been clearly established. The University is prepared to use its resources to meet that need. And the people of this area have on many occasions voiced their support of an educational program carrying with it a University degree.

# # #

J. MARTIN KLOTSCHE was chosen provost of UW-M by the Regents last May. He came to the UW as an assistant in the history department from the Univ. of Nebraska in 1928. Granted a Ph.D. by the UW in 1931, he was appointed a history professor at the then Milwaukee State Teachers College, also serving as dean of instruction. In 1946 he was selected as president of that college. Always active in community affairs, he serves on many "working committees" both locally and for regional and national associations.

GRAVEL RESOURCES OF WISCONSIN

By E. F. Bean
Former State Geologist

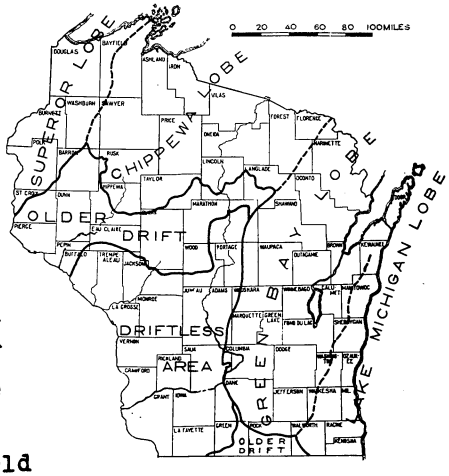
Gravel is one of the most valuable mineral resources of Wisconsin. In 1952, 24,895,947 tons of sand and gravel were produced, valued at $16,938,218, slightly more than the value of stone produced. For this resource we are indebted primarily to glaciation. During the glacial period several great ice sheets covered all of the State except the Driftless Area (see below). In their advance, each of the ice sheets picked up enormous quantities of silt, clay, sand, gravel and boulders, which were incorporated in the ice. Some idea of the total volume of transported material can be gained from the thickness of glacial drift left by the melting ice. It so completely mantles the underlying rock that outcrops occupy but a small part of the surface of the glaciated area.

Glacial gravel and sand were deposited by water from the melting ice as outwash, eskers and terminal and recessional moraines. Another source of gravel is in glacial lake beaches.

Outwash

These deposits are of two types: (a) broad outwash plains or (b) relatively narrow valley trains.

Outwash plains were built by streams flowing from the melting ice. Some of the largest outwash plains were built in front of the outermost moraine, but outwash was deposited at the border of the recessional moraines. Coarser material was deposited near the glacier, finer farther away. There are a number of these plains in Wisconsin. Such plains may be seen at intervals in front of the moraine north of Janesville, between Janesville and Evansville, near Verona, east of Highway 12 north of Baraboo, and in Adams, Wood and Portage counties. The level plain along Highway 30 in Waukesha is underlain by outwash sand and gravel. Throughout northern Wisconsin there are many such plains, large and small. The Barrens of Douglas, Washburn and Bayfield



counties are outwash plains built by glacial streams. Although these plains are relatively level, there are minor irregularities due to channels of streams that built them. There are also depressions (kettles) due to the burial and subsequent melting of ice masses. Many lakes occupy depressions of this origin. In areas of sandy outwash, dunes are not uncommon.

Valley Trains. As the name implies, these are long narrow outwash deposits formed when glacial waters flowed in valleys and deposited their loads of sand and gravel. Such a valley train extends in the Wisconsin River Valley from Sauk City to Prairie du Chien. A well record in the valley west of Lone Rock shows that the depth of the fill is 180 feet. Other valley trains are in the Mississippi Valley between Lake Pepin and Dubuque; in the valleys of the Rock, Black, Chippewa, St. Croix, Namekagon, Brule and Pine in Florence county and Menominee.

The outwash deposits of Wisconsin are of very great economic importance. As sources of aggregate for highways they are the primary reason why Wisconsin's secondary roads are so superior to those of our less fortunate neighbors. Many of the important commercial gravel and sand pits are in outwash. There are hundreds of local pits in both outwash plains and valley trains. Outwash deposits are of great value as sources of water because gravel stores large quantities of water and delivers it freely. The outwash in the Rock River valley is known to be at least 300 feet in thickness. The total volume of this aquifer is enormous. The valley train at La Crosse is the excellent source of the city's water supply. Here the depth is at least 170 feet.

Eskers

An esker is a deposit of sand, gravel, and even boulders deposited in a channel beneath the ice. When the ice melted the deposit was left as a narrow ridge. Eskers are relatively rare in Wisconsin, but are of considerable economic interest because they ordinarily occur in areas of ground moraine where other sources of gravel are lacking. For this reason, also, many of the eskers in Wisconsin have been completely exhausted. The esker along the Rubicon River near Neosho in Dodge County is quite striking. The esker near Francis Creek in Manitowoc County was a large one, from which much gravel has been produced. There are a number of eskers in Marinette County. A conspicuous one is on U.S. Highway 141 about a mile north of Pound.

Terminal Moraines

A terminal moraine is formed at the ice front and may consist of unassorted boulders, sand, gravel and clay, called till or boulder clay. Where conditions favored deposition by melt water the deposit is partly stratified

gravel and sand. Morainic gravel deposits are not ordinarily as uniform in character as outwash but numerous gravel pits are operated in the better morainic deposits throughout the state. The potential reserves are very large. The Kettle Moraine, which was formed between the Green Bay and Lake Michigan lobes, extends from Kewaunee County to Walworth County. "Its surface is marked by a knob-and-kettle topography which varies greatly in detail from place to place. At one place a series of gravel ridges not unlike railroad embankments may lie nearly parallel to each other and to the trend of the moraine. Traced for a short distance these ridges may become winding, enclosing deep irregular depressions with side slopes in places as steep as 30° - 35°, or they may break into more or less distinct conical knobs, irregularly distributed and intersect with equally abrupt round or irregular depressions. Differences in elevation of from 20 to 100 feet occur within the space of a few rods." (from Quaternary Geology of Southeastern Wisconsin, USGS Prof. Paper 106, p. 269.)

This moraine consists of hills and ridges with deep hollows or kettles which are due to the melting of ice blocks, or to irregular morainic ridges which enclose undrained depressions. many of which are occupied by lakes or marshes. Holy Hill, southeast of Hartford, is the most conspicuous hill in the Kettle Moraine. It is 1361 feet above sea level, 780 feet above Lake Michigan and 400 feet above the valley one-half mile east. The thickness of drift here is at least 514 feet. In this great glacial deposit there is probably the largest general source of gravel in the state.

Glacial Lake Beaches

U. S. GEOLOGICAL SURVEY PROFESSIONAL PAPER 106 PLATE XXIV

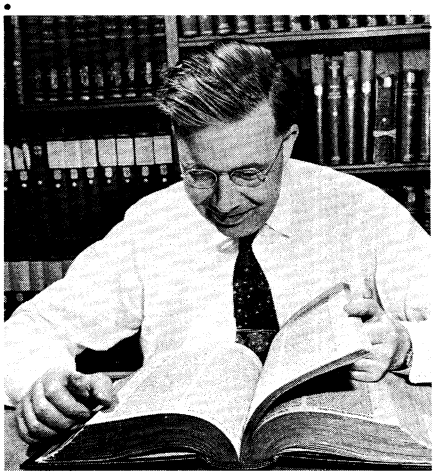
A. STRATIFIED SAND AND GRAVEL (OUTWASH DEPOSITS) FROM THE GREEN BAY GLACIER IN THE SOUTHEASTERN PART OF JANESVILLE, WIS.

Glacial lakes were ponded water between ice and higher land fronting it. Wave cut cliffs and beaches are features of these relatively temporary lakes. Beaches were developed at elevations from 300 to 700 feet above present Lake Superior; 55 feet or less above Lake Michigan. These gravel and sand beaches have been especially useful in the area near Lake Superior where other types are limited in quantity.

RARE BOOKS IN THE UNIVERSITY LIBRARY

By Samuel A. Ives, Curator
Rare Book Department
UW Memorial Library

For all persons who enjoy viewing color-plate books of botanical or ornithological content the University Library's Rare Book Department provides a rich storehouse of treasures. A beautifully preserved set of the original "elephant folio" edition of Audubon's Birds of America in four volumes is perhaps our most prized possession. Then there is a complete set of the ornithological works of John Gould contained in forty-eight volumes of atlas folio size, magnificently bound in full green morocco, gold stamped and tooled, once the property of the famous ornithologist, Gregory Matthews, whose thirteen volume Birds of Australia in a sumptuously produced limited edition is also included among our rare books.



These and many other treasures now held in the Rare Book Department once formed a portion of the library of Chester H. Thordarson, a Chicago collector who was by profession an electrical engineer and manufacturer. It was just ten years ago that the University Library acquired the extensive and carefully collected library of Mr. Thordarson whose wide range of interests is admirably reflected in his books. Of the twelve thousand or more volumes originally obtained from the Thordarson estate, over four thousand have found a place in the Rare Book Department and include the rarest and most valuable books in the University Library.

Botany and ornithology represent only two of Thordarson's many interests, however. Agriculture, forestry, medicine, pharmacy and physical science are all represented by rarities in kind. To the splendid collection of herbals and pharmacopoeias held elsewhere in the University Library the Thordarson collection contributes an early sixteenth

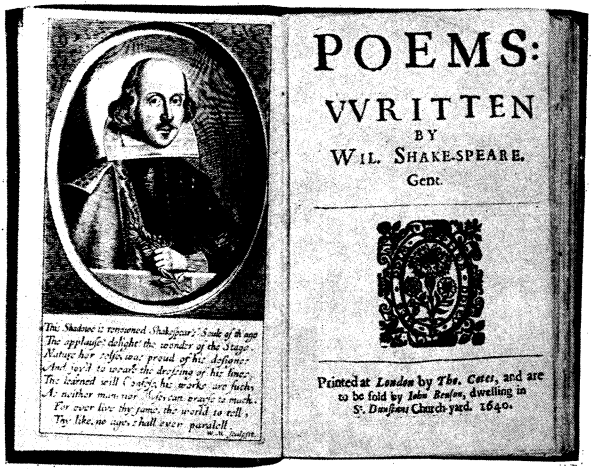
century edition of the old classic, Hortus Sanitatis (Strassburg, 1507) and the first English edition of The Great Herbal (London, 1526), both profusely illustrated with woodcuts. An old English farming manual, God spede the plow (London, 1601) is apparently unrecorded elsewhere, while a first issue of the first edition of Sir Isaac Newton's epoch-making Principia Mathematica (London, 1687) is one of our greatest rarities. Here we might add that the Library possesses ten books once owned by Newton, some of which bear his annotations.

Thordarson's interests were by no means restricted to science. At least one third of the collection is English literature, including many first and early editions of authors of the sixteenth through the nineteenth century. Here one may peruse the first collected edition of Shakespeare's shorter poems (London, 1640), the first collected edition of Chaucer (London, 1532) or the famed Coverdale Bible, the first to be completely printed in English (London, 1535).

An adequate exhibit room at the entrance of the department, where displays are changed every three months, provides proper space to show our treasures. The rare books themselves receive special housing and protection, being shelved in air-conditioned vaults where a constant temperature and humidity is maintained. More than twenty thousand volumes are so preserved, though there is in our vaults expansion space for about double that number.

We do not wish our readers and visitors to think we are maintaining a mere book museum. Far from it; the rare books have been gathered primarily for use, and anyone permitted to use the library may avail himself of the facilities of the Rare Book Department as of any other reading room. To this end, we are open for service from 8:00 A.M. to 5:00 P.M. daily and from 9:00 to 12:00 A.M. on Saturdays.

The very careful selection in our rare book collecting has naturally been made, as far as possible, to fit the particular needs of the University faculty and students. For this reason and to effect purposeful as against haphazard collecting, we have concentrated in certain definite areas of interest. One of the most important of these is the history of science which is a major department in the University. Hence, in addition to the scientific rarities held in the Thordarson collection, we have the famed Denis I. Duveen collection of some three thousand volumes relating almost exclusively to the subjects of alchemy and the history of chemistry. At the time we acquired this library, six years ago, it was already well known through a printed catalogue which has become a universal source of reference for its rather limited field.



Shakespeare's Shorter poems (1640) The Great Herbal (1525)

Besides the Thordarson and Duveen collections, there are in the rare book vaults several hundred volumes withdrawn from the open stacks by reason of age, scarcity or value for special preservation. Finally, there is a large group of books currently acquired, purchased mainly from antiquarian dealers here and abroad through catalogue offers.

In the rare book reading room is shelved a choice collection of reference books, including bibliographies of rare books, catalogues of private libraries and book auction price records, which latter are especially valuable for establishing current rare book values. Here it might be mentioned that one of the curator's daily tasks is the scanning of current antiquarian dealers' catalogues for appropriate purchases, wherein it is often possible to spot a desideratum long searched for by some faculty member or even by some other department in the library.

The remainder of the rare book holdings is made up of several small but quite important collections. Chief among these are two, both of which were gifts and both relating to Mark Twain. The George H. Brownell collection, acquired in 1950, and the Norman Bassett collection added this past year complement one another to form a small but quite comprehensive series of first editions and other books by and about Clemens. More specialized is a large collection of extremely rare Russian books and pamphlets printed prior to the Bolshevik revolution of 1917 and anti-Czarist in character.

Thus, wide in its appeal, the Rare Book Department has, in the ten years of its existence, proved to be one of the most active and growing portions of the library, and interest is continually increasing, both on and off campus. ##

CONRAD A. ELVEHJEM RECEIVES SPENCER AWARD

Dean Conrad A. Elvehjem of the University of Wisconsin Graduate School was the 1956 recipient of the Charles F. Spencer Award for meritorious contribution to the field of agricultural and food chemistry. Founded by Kenneth A. Spencer, president of Spencer Chemical Co., Kansas City, in honor of his father, first chairman of the board of the chemical company, the award includes a medallion and a $500 honorarium. It was presented last fall at the annual Fall Chemical Conference sponsored by the Kansas City section of the American Chemical Society, which also administers the award.

Dean Elvehjem was nominated for his important work in biochemistry. He pioneered in discovering the relationship between animal nutrition and trace elements in the soil. In addition, he and his co-workers showed that nicotinic acid was the specific anti-pellagra vitamin. This work has saved countless lives in this country and elsewhere where large populations have used corn as an important food source. Pellagra appears to be a nutritional disease common to corn-eating peoples. One further application of this finding has been to include nicotinic acid along with thiamine, riboflavin, and iron in the "enrichment" mixture for bread and flour to insure an optimum intake of these factors to help contribute to our national health. His studies on other B vitamins separating out the components of the then labeled "B_2 Vitamins" have served to point the way to better nutrition not only here but in the whole world.

A native of McFarland, Dean Elvehjem received a B.S. in 1923 and a Ph.D. degree in 1927 from the University of Wisconsin. He was also a student at Cambridge University in England in 1929-30. His career as an educator began in 1930 at the University of Wisconsin. He has subsequently served as assistant professor, professor, and chairman of the biochemistry department. In 1946 he was named dean of the Graduate School.

# # #

NEW SECTION HEADINGS - The new illustrations used as headings on pages 24, 32, and 45 are by artist BORIS ARTZYBASHEFF and used with permission of the Education Policies Commission, Washington, D. C. from their book, "The Purposes of Education in American Democracy," copyrighted in 1938 by the National Education Association of the United States. # # #

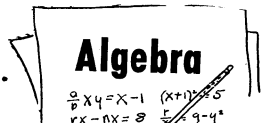
ADVENTURES IN STUDY BY MAIL*

By Frank P. Zeidler, Mayor
City of Milwaukee

From my own point of view I begin to suspect that this correspondence study and obtaining of credits may have only a doubtful political value. I just went through a most difficult and almost violent campaign for re-election, and so my campaign committee was looking for all possible virtues in the candidate. Someone suggested that there was campaign merit in the idea that I sought to improve my ability to serve the public by study with the university. This was quickly vetoed by the realists on the committee, one of whom said, "Nothing doing. Do you want the voters to think he is getting a college education at their expense?"

I have been taking courses from the University of Wisconsin extension division since 1930. The courses have been in English, German, Solid Geometry, Trigonometry, and Analytic Geometry, Surveying, engineering Drawing, Political Parties, Public Administration, American Government, Municipal Government, Modern Foreign Government, and Railway Curves. This sounds like a hodge-podge and probably it is, but each of these courses was related to some method of my making a living at the time it was taken. The courses in mathematics enabled me to get into topographical engineering and surveying, and incidentally after I had learned surveying from actual work at it and from private study, I took it up in correspondence. Surveying brought me a job with the Milwaukee Road during the war in the engineering department of what is known as "The Milwaukee Terminals." There a knowledge of mathematics enabled me to lay out track curves and turn-outs without having had a course in railway curves. After awhile I decided to take a course in railway curves just to make sure that what we were doing in actual practice wasn't theoretically wrong.

An incident occurred while I was taking this course which brought home the immediate value of correspondence study. One Sunday afternoon, I worked on one of the lessons of this course that dealt with the laying out of spiral curves for track. This is a moderately difficult part of railway curves; and if a person does not work at it every day, the method gets away from him. The following day my boss, J. G. Wetherell, a very competent engineer, asked the other boys in the office if they could lay out spiral curves. All of them university graduates, they had long ago forgotten spiral curves. The boss asked me and I expressed great confidence in being able to do the job--without letting him know that I learned it the day before. We went out into the field and ran in the job, with all the calculations, very nicely, and with some prestige accruing to my expertness in track layout.



While I was working for the railroad, I had as an associate a Chinese engineer.

* - Mayor Frank Zeidler of Milwaukee, Academy Member with broad prospectives both theoretical and practical, has had personal experience with University of Wisconsin correspondence courses in a great range. He has taken more than 60 credits of work, many of them while in the office of mayor. These excerpts are from an address presented before the National University Extension Association at Madison, May 14, 1956.

This man's father had learned English and then had taken up an International Correspondence School Course in Civil Engineering, on which foundation he went on to become the head of one of the railway divisions of the Chinese Railways operating out of Peiping, before the advent of the Mao government. This has always impressed me as a feat of considerable learning, since correspondence study is hard enough under any circumstances.

The experience I had with the University of Wisconsin's correspondence courses in other fields led me to think of using the university's resources after I became mayor of the city. This becoming mayor, incidentally, was the case of an avocation--an interest in political affairs--becoming a vocation. After I had been in the office of mayor and felt some confidence, I dared to take the university's course in municipal government. Fortunately, on the basis of experience in actual practice, I was able to pass the university's excellent and comprehensive course without crossing up the views of the instructor on how things should be run.

There are some points which might here be emphasized as to the value of extension work to individuals and to society alike. Great credit should go to those students who can organize their life so that they can go through a course of systematic training in residence at a university, complete it, and get a degree. Let no one discount the significance of this planning and accomplishment; for it is indicative both of intellectual strength and of purposefulness.

However, life is so varied and so complex and presents so many different challenges to survival to people that all possible patterns of life cannot be fitted into formal and prescribed courses of training. Not everyone can go to the schools of higher learning, either because of temperament or economic conditions, or because the matter of sheer survival at the given time calls for some other pattern of human conduct. The prescribed courses of the full-time schools are, at the best, approximations of patterns that educators think students will need as the latter go out into the world to earn their living.

There comes a time when the pattern of life and social conduct forces a change in the prescribed courses and in the emphasis and philosophy of formal education. The Ratio Studiorum of the early Jesuits is no longer a complete pattern for all the kinds of higher learning that are necessary to carry on the world's work; and neither is the pattern of learning taught at Harvard at its founding completely adequate for today.

Life changes; and if the purpose of education is to fit those who are to be educated for the situations with which they will be confronted, then education must change. Education systems must therefore be open and must allow for continuous adjustment. This ability to adjust the educational system to the actual experience of the people who are meeting the world's problems is one of the great attributes for university extension systems. The man who is actually trying to wrest his living from a recalcitrant nature or from society begins to have some comprehension of his deficiencies; and he may look about for those who can aid him. It is at this juncture that the university extension work can be helpful to him.

We can also conclude that the attempt to fit all educational ideas into a tight philosophical box could conceivably be fatal to society.

Imperfect men, though they may be brilliant, cannot hope to encompass all knowledge within the range of their own lives and, upon the basis of their own experience, to prescribe for all time to come the course or series of courses all students of a given subject must take. Extension work gives to a university this required flexibility which enables the residential courses, as well, to acquire additional realism and practical application to the actual experiences encountered in life.

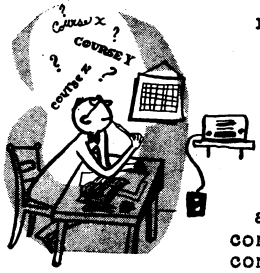
Another greater virtue of the extension system is to be found in the service it can render to those who can acquire greater knowledge but who cannot separate themselves from employment to concentrate solely on education, or who cannot leave their homes for education in residence at some institution. For many such people a full-scale program will never be feasible, and possibly only a few academic credits will be all they will ever be able to acquire; but the acquisition of such knowledge as they may get will undoubtedly enrich their lives and give them a satisfaction of educational accomplishment that is a reward in itself.

In this latter group are people who may need only a limited amount of knowledge, limited but nevertheless highly specialized toward a given objective--whether it be that of knowing how to farm better, how to design wood structures, or how to advance in modern theoretical physics. The extension university and extension work can assist in each of these demands.

In a sense then the educational offerings of extension universities and schools must be such that they will help those carrying on the actual business of life and actional economic processes to master their difficulties while they are on the job. No one, however humble his education is and however humble his job is, can confidently expect that he has reached the end of learning. The world is changing too fast; and whoever does not recognize that to keep up with the changes he has to keep on learning as long as he lives has lost some of the battle of life.

This need for constant re-education of people everywhere suggests still another great function of the extension university. It ought to reach out to people and to seek them where they are, rather than to expect that people will come to the university voluntarily. The person who does not know that he does not know, is going to be a troubled, handicapped, and baffled person. He does not know the answer to his problems because he does not know what they are. The university that through its extension department can seek out the people within its orbit and awaken in them aspirations for knowledge and improvement is a university fulfilling its most important function. Let me say if there is any deficiency in extension work it is to be found in the fact that most of extension universities might need more money to publicize their offerings and to get out among people with their wares.

One of the great reasons why I have been a champion of educational television in this state and in my city is that I have seen the necessity for going right into people's homes with educational offerings before they can be stimulated to advance their own cultural and economic interests and before they can comprehend what the public and their own welfare actually is. Extension work ought to use television and



radio much more than it does for regular courses.

Another thought which suggests itself at this time is the conception that extension work in a university must be a pioneering kind of work. It must pioneer in new kinds of courses and new kinds of services as the needs of the people require. At times no doubt such pioneering will be regarded as a waste of funds or as a violation of the ancient traditions of what constitutes education; but unless such pioneering constantly takes place, the main functions of the university in its residential courses will also dry up. Extension work in agriculture, in labor education, in citizenship, no doubt were among those types of offerings challenged in the past when they were first suggested, but they are largely accepted in these times.

Most of the extension work offered is comparable in purpose to university work in that it is directed toward a given end. Perhaps the university desires to turn out an economist, or a philosopher, or an engineer; the courses are all directed toward that end. There is a purposefulness and a direction to the educational system, and this is good. I would like to submit, however, that there is a place in education for the random spirit that doesn't want to be an economist or an engineer, or a master physicist; but instead wants to get along comfortably and enjoyably in life; and wants to take up education for the enjoyment that additional knowledge furnishes. People seem to have instinctive bents for activities and functions that may or may not be related to the way they are making their living. The extension university should offer some assistance to these people to express the inner compulsions of their creative instincts.

Some people love to know more about literature and art without ever making a penny out of it. Some people like mathematical concepts for the fascination of them without ever hoping to turn them to commercial advantage. Some are interested in world geography because they are interested in world geography. For these let there be a place in the extension university. The free and random play of human spirit as it seeks to express its innate talents in ever higher and more complicated manifestations is an inevitable tendency. Perhaps out of the allowing of such free inquiry and uncoerced action toward knowledge, greater good will come to human society than by any other means, for Nature has a habit of revealing her secrets oftentimes in a fashion not planned or hoped for by man. When the extension university allows people to gain knowledge for its own value at a pace at which they can assimilate it and in the amounts they can take, it may be rendering the greatest of all its services.

# # #

NEW GAME RESEARCH FILM AVAILABLE - A new 16 mm. color sound film showing activities of the Wisconsin Conservation Department's game research division was released last August. Entitled RED 14, the story follows an individual ruffed grouse through the various seasons of the year. Banded with a red band, No. 14 (hence the title), RED 14 reappears throughout the film coincident with various activities of members of the department's game research division. Filmed by DEAN TVEDT and STABER REESE of the Department, the film is 28½ minutes long and has been cleared for television use. Eight copies are available for free loan anywhere in Wisconsin except Milwaukee, where users may get a loan copy from the Milwaukee Public Museum.

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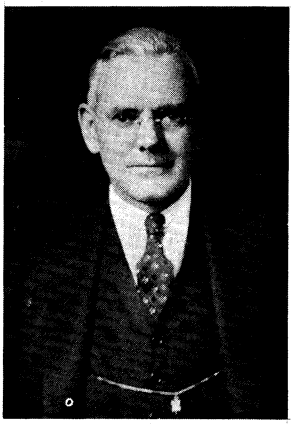
ALEXANDER WETMORE—ORNITHOLOGIST

(A Retirement Profile)

When Dr. Alexander Wetmore officially retired as Secretary of the Smithsonian Institution in Washington on December 31, 1952, he had had more than 40 years in the U.S. Government service. He had no thought, however, of retiring from his scientific labors, from the study of birds, to which he had devoted a lifetime. Now, at 70, with the honorary title of Smithsonian Research Associate, he continues his ornithological researches in active field expeditions and at his office in the Smithsonian's Natural History Building.



Born at North Freedom, Wisconsin, on June 18, 1886, the son of a country doctor, Wetmore developed an interest in the study of natural history at an early age, becoming particularly skilled in the scientific collecting of birds and also in observing their habits and characteristics in the field.

After finishing high school at Independence, Kansas, he entered the University of Kansas at Lawrence, where he soon became immersed in the study of zoology and fascinated by the university museum's collection of tropical birds. He interrupted his course by trips to California, Arizona, Alaska, and Puerto Rico in search of birds, but received his B.S. degree in 1912. In 1941 his alma mater cited him for distinguished services to science.

In the summer of 1910, even before he left the university, he had his first assignment with the Biological Survey, the U. S. Department of Agriculture bureau with which he was to be associated for the next 14 years. During these years he made studies of the food habits of birds; spent a year in South America studying migrant shorebirds; investigated the food habits of brown pelicans in Florida; led the Tanager exploring Expedition to the mid-Pacific sponsored by the Biological Survey and the Bishop Museum of Honolulu; studied lead poisoning in wild fowl on Utah's Bear River Marshes; published many scientific papers; and also continued his academic studies, receiving his M.S. degree from George Washington University in 1916 and his Ph.D. from the same institution in 1920.

In the fall of 1924 Dr. Wetmore was advanced to the directorship of the National Zoological Park under the Smithsonian Institution, but remained in that position less

than a year. The following March he was made Assistant Secretary of the Smithsonian Institution, in direct charge of the United States National Museum, the largest of the Smithsonian's branches. On the retirement of Dr. Charles G. Abbot in 1944, he was advanced to the top Smithsonian post, becoming the sixth Secretary of this famous century-old Institution.

Through all his years of endless administrative activities--including also such extra assignments as Secretary-General of the Eighth American Scientific Congress, president of the Tenth International Ornithological Congress, and a term as Home Secretary of the National Academy of Sciences--Dr. Wetmore has managed to keep up his scientific research. He is one of the world's top authorities on avian osteology and paleontology. His classic "Systematic Classification for the Birds of the World" has gone through several editions, and in 1956 the Smithsonian published a new edition of his "Check-list of the Fossil and Prehistoric Birds of North America and the West Indies."

He has also written a book, "Bird Migration," a two-volume "Book of Birds" published by the National Geographic Society, and well over 500 other scientific treatises and papers. Since his retirement he has devoted much time to compiling a new edition of the American Ornithologists' Union "Check-list of North American Birds" and to a study of the birds of Panama. For the past several seasons he has done extensive ornithological field work in Panama.

Dr. Wetmore holds honorary degrees from George Washington University, the University of Wisconsin, and Centre College (Ky.). He is a member of many scientific organizations including the National Academy of Sciences, the American Philosophical Society, and the Zoological Society of London; is a trustee of the National Geographic Society; and an honorary member of the Wisconsin Academy of Sciences, Arts, and Letters.

In 1912 Dr. Wetmore was married to Fay Holloway, of Kansas, who died in 1953. With the second Mrs. Wetmore (nee Beatrice Thielan), who accompanies him on his scientific expeditions, he now lives in a Maryland suburb of Washington.

Dr. Wetmore looks back upon his long career with a great deal of satisfaction and eagerly looks forward to several more seasons of field work with the birds of Panama. "But," he says, "I wouldn't trade my past life in out-of-the-way places for ten years of additional life and honors." As one of his friends wrote of him, "Circumstances made him an administrator, but those who know him best say that he long ago lost his heart to the wilderness." --Prepared by Paul H. Oehser and Leonard Carmichael, Sec'y, Smithsonian Inst.

THE FUTURE OF THE UPPER FOX RIVER

By Cyril Kabat, Chief of Wildlife Research
Wisconsin Conservation Department

Less than 100 miles northeast of the City of Milwaukee lies the center of the Upper Fox River Valley--an area which attracts thousands of state and out-of-state residents every year, seeking its many outdoor recreational opportunities. The Upper Fox River is an approximately 97-mile-long segment of the entire Fox River, which flows northeasterly for 165 miles from its source at Kingston in Columbia County into Lake Michigan at the City of Green Bay (see map). Together with its many tributaries, the Fox River extends into seven counties and is the main drainage system for this entire area of the state.

For over 100 years, the Fox River has been used as a canal and has been controlled by the federal government in the interest of navigation. Of primary concern now to conservationists is that part of the Upper Fox River Navigation project extending from Portage in Columbia County to Eureka in Winnebago County. This 79-mile stretch of river flows through and forms Lakes Puckaway and Buffalo. Water levels are controlled by a series of nine dams; these structures and their locks (built to facilitate navigation) are listed in Table 1 and their location is shown on the map.

The amount of water in the main channel of the Fox River, its lakes and adjacent marshes depends upon the working order of existing dam structures. Their operation has been in question for the past 20-30 years. The U. S. Army Engineering Corps, current "caretakers" of this area, have proposed that since the river is not being used for navigation, the control and upkeep be transferred to the State of Wisconsin.

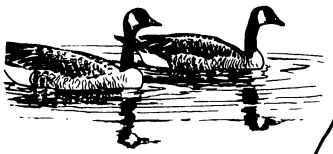
General Features

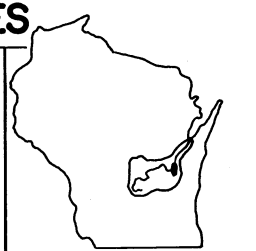
The river flows slowly through generally flat peat marsh, muck and fine silty and sandy loam areas with poor drainage. Even with the dam structures, the water is relatively shallow (Table 1). Without them, because of the flat terrain through which the river flows, the water in the main channel and the present lakes of Puckaway and Buffalo, which are estimated to include 5,700 acres of relatively shallow open water and 7,160 acres of bordering marsh, would almost cease to exist.

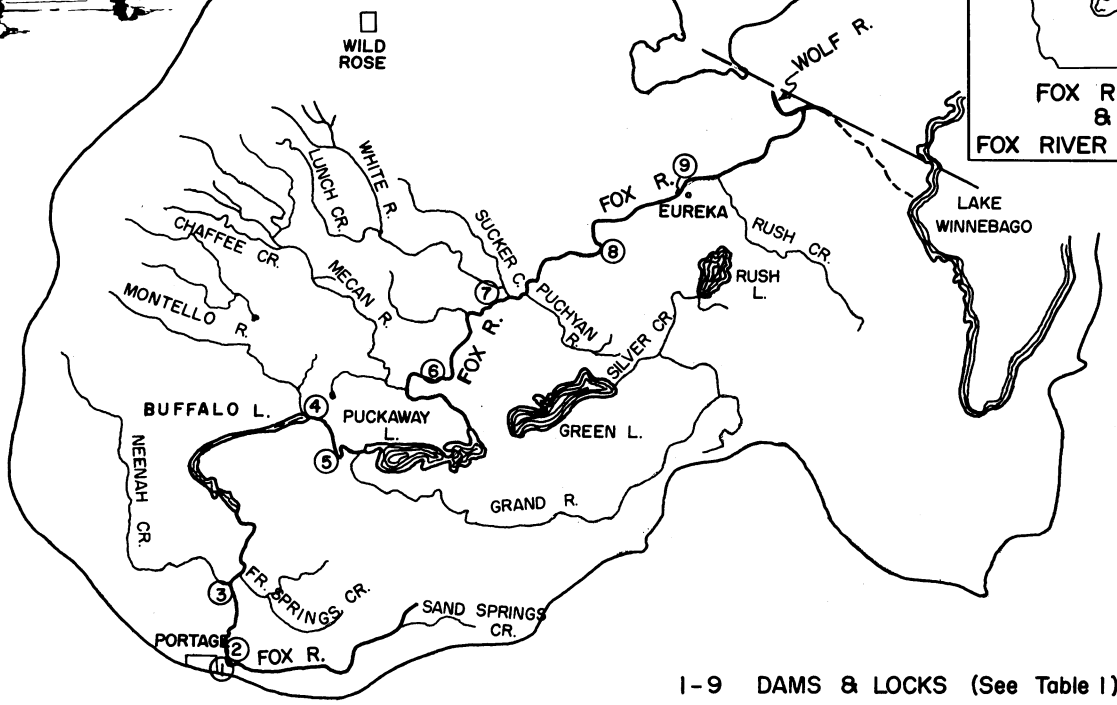
The flat terrain with a fall of about 30 feet from its origin near Portage to Lake Winnebago renders the area susceptible to water level changes primarily from precipitation. The amount of water in the channel and lakes is regulated at only a minimum level by the dams. Either very high or very low amounts of precipitation annually cause water levels to fluctuate greatly.

Although the Upper Fox River has an indirect effect on the depth and volume of water in its tributaries and the lakes drained by them, only the main channel, the lakes through which it flows and adjacent lands are considered here. This area consists of approximately 45,000 acres of open water, wet and moist soil marsh, timbered swamps, and ribbons of bottomland timber (Table 2). It is possible that the entire area affected by the Upper Fox River is

UPPER FOX RIVER & PRINCIPAL TRIBUTARIES







1-9 DAMS & LOCKS (See Table 1)

double or triple this acreage, but this cannot be determined without a detailed survey.

A value of $3,000,000 for the recreational interests in the area extending from Packwaukee to Princeton was estimated by a committee of the Wisconsin Chapter of the Izaak Walton League. The area directly affected by the main channel was estimated to provide annually 146,850 fisherman days, 17,300 hunter days, and its fur animals were trapped by an estimated 130 trappers. There are also such intangible values as resting and nesting sites for migrating wildfowl including sandhill cranes, reservoirs of aquatic fur animals in dry years for the surrounding shallow marshes and streams, and in past years food and cover for large flocks of prairie chickens (now greatly decreased in number).

History

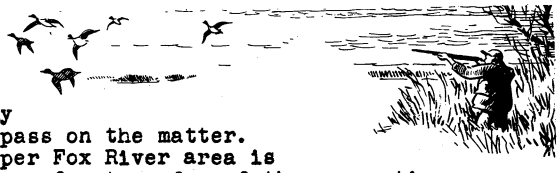
The Upper Fox River Navigation project essentially as it is today had its origin in about 1848 when the initial authority for improvement of the river was vested in the State Board of Public Works. In 1872 the U. S. Government took over the project and the Army Engineering Corps was responsible for the maintenance of the area for navigational and flood control purposes. However, the original objective, navigation, never became a reality; this function ceased even before it began. Furthermore, flood problems have been considered small. From about 1922, when the War Department recommended abandonment of the canal project, until the present time, the Federal Government has felt that the project should be transferred to some other agency or organization.

In 1951 the Government ceased the operation of all locks from Portage to Eureka, but continued to maintain all the dams. Since that time considerable thought and study have been given to the problem of the future maintenance of the project. What are the values of the area, what needs to be done to manage it, and who should be responsible for it?

Several investigations were carried on by the State Planning Division, the U. S. Fish and Wildlife Service, and most recently, at the request of the Governor, by the Wisconsin Conservation Department in cooperation with the Fish and Wildlife Service. The general consensus from all these sources was that the Upper Fox River was not suitable for state park development, but did possess outstanding recreational values, chiefly fishing and hunting. As a result of these studies, Governor Kohler informed the U. S. Army Engineering Corps that the State of Wisconsin would consider accepting a transfer of the Upper Fox River properties, provided that certain repairs and modifications, which would potentially enhance the recreational facilities, were first made by the Corps.

In 1956 Congressman Melvin Laird introduced a bill (H.R.10033) which provided for the transfer of the federal properties to the state and an appropriation of $300,000 to accomplish the mutually agreed upon repairs and modifications. It was incorporated along with other similar bills into the Rivers and Harbors Bill (H.R.12080) which was passed by Congress but vetoed by the President because some of the proposed projects were not properly reviewed by the appropriate federal agency. The President indicated that bills covering approved component sections of the Rivers and Harbors Bill, including the Upper Fox River Project, could be reintroduced early in the next session.

The 1955 Wisconsin Legislature also passed a bill concerning



the Upper Fox River which stipulated that prior to state acceptance of a transfer of the federal properties, this body would have to review and pass on the matter. Local sentiment in the Upper Fox River area is almost unanimously in favor of a transfer of the properties.

Conservation Assets and Management Opportunities

The resources of the Upper Fox River, which currently provide attractive fishing, hunting, trapping, boating and other recreational opportunities, have fluctuated violently from very low to moderate abundance, at least during the past three decades when detailed information has been available. Following the severe drouth periods of the mid-1930's, the water dropped to extremely low levels, and both submergent and emergent vegetation decreased proportionately in most of the main water areas. Lake Puckaway and its surrounding marshes were left with vast, barren mudflats. In the late 1930's, water levels again rose and vegetation began to develop. By 1941, much of this area was choked with wild rice and other aquatics. By 1946 it was extremely difficult to pole a skiff through the waters. Then in the winter of 1949-50 and the spring of 1950, adverse conditions (deep ice freezing, high velocity wind storms, periodic heavy rainfalls and high carp populations) resulted in a loss of almost all of the vegetation in the east end of Lake Puckaway and its bordering marsh. This condition remains today. Buffalo Lake also experienced a cycle of vegetation loss in the early 1940's. Fish and wildlife resources fluctuated with these changes, but even when vegetation disappeared, fish and hunting were important, though at times particularly unrewarding to sportsmen.

Following considerable study, fish and game technicians together with state and federal engineers agreed that all locks except those at Princeton and Montello would be filled in. Installation of water control structures in the form of gates at these latter two locks would create more optimum water levels. It was recognized, however, that even these structures would not provide continuously desirable control of water levels, for in periods of sustained heavy precipitation or drouth, water levels would still rise abnormally high or fall greatly. Water control gates at these points would appear to provide opportunities for passage of excess waters created by short-period, high precipitation. Also included in the plans are proposed structural changes which would permit fish to move through the Eureka Dam during their spring migration up-river. Minor repair work would also be necessary at all the dam sites.

The U. S. Army Engineering Corps is faced with several alternatives in handling the Upper Fox River project. First, they can abandon the structures, which would then rapidly deteriorate. The consequent general lowering of the water levels in the entire area would appear to be very detrimental to the production of fish and wildlife, particularly for those forms which require considerable aquatic habitat. Second, they can continue to maintain the dams in their present state. Habitat conditions would continue to fluctuate in quality from poor to moderately good but probably would never reach the full potential for producing fish and wildlife. Third, they can transfer their properties following recommended repairs and modifications to another interest, such as the State Conservation Commission, provided the state accepts them.

Table 1

Upper Fox River Lock and Dam Structures *

1.	Portage Lock and Canal	
2.	Fort Winnebago Lock (waste weir)	Head 6.4 feet
3.	Governor Bend Dam and Lock	" 4.3 feet
4.	Montello Dam and Lock	" 3.8 feet
5.	Grand River Dam and Lock	" 2.8 feet
6.	Princeton Dam and Lock	" 3.2 feet
7.	White River Dam and Lock	" 4.1 feet
8.	Berlin Dam and Lock	" 2.7 feet
9.	Eureka Dam and Lock	" 3.9 feet

* From U. S. Army Engineering Corps Report.

Table 2

Approximate Habitat Acreage in the Upper Fox River, Wisconsin *

Pool	Miles of Fox River	Marsh	Cultivation	Timber	Pasture	Brush	Water	Swamp	Total
1. (Eureka)	8	970	260	120	90		230		1,670
2 (Berlin)	10	9,010	420	1,295	130	120	368	20	11,363
3 (White R.)	10½	1,275	30	75	40	5	133		1,558
4 (Princeton)**	20½	15,900	15	740		160	3,044	105	19,964
5 (Grand R.)	3	1,020	20	40		28	109		1,217
6 (Montello)***	23	4,855		315	145	5	2,503	235	8,058
7 (Governor Bend)	4	1,255	30	34		54	55	25	1,453
Total	79	34,285	775	2,619	405	372	6,442	385	45,283
Rounded	79	34,000	800	2,600	400	400	6,400	400	45,000
Per Cent of Total Acres		75.6	1.8	5.8	.9	.9	14.2	.9	

* From a report submitted to Governor Walter Kohler in 1954 by the Wisconsin Conservation Commission. The data was prepared by the U. S. Fish and Wildlife Service and the Wisconsin Conservation Department.

** Includes Lake Puckaway which during years of average precipitation and runoff has about 2,550 acres of shallow open water supporting dense beds of submerged vegetation and 6,000 acres of bordering marsh containing dense tracts in certain years of wild rice and other typical marsh aquatics.

*** Includes Buffalo Lake with about 2,150 acres of open water supporting sparse and scattered submergent plants and 1,160 acres of marsh.

Since the Corps basically is responsible for navigation and flood control, both of which are considered unimportant in the Upper Fox River, they feel that it is not consistent with good government to maintain this responsibility here. Numerous surveys and studies would appear to indicate that the Corps' third alternative would be the most feasible.

It is important to recognize that during the past half century, public demands for more fish and wildlife have resulted in the purchase of several existing good areas and development of others, such as Horicon Marsh and Crex Meadows. The Upper Fox River project is an already existing area relatively rich in fish and wildlife and has the potential for much greater abundance of these resources following development. Much can be gained by accomplishing the proposed modifications of the existing structures by the Army Engineers and transferring them to the state for special management of fish and wildlife habitat. At present fish and wildlife production is strictly incidental to navigational and flood control management.

Furthermore, under state management it would be possible to develop, through the participation of all state land-use agencies, coordinated land-use plans which could include adequate soil surveys and farm planning as well as fish and wildlife management.

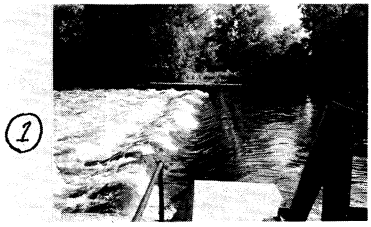
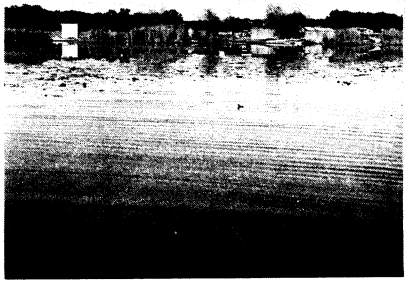


Fig. 1: Eureka dam, Aug. 12, 1953:
Fig. 2: Lake Puckaway, 1954--only a few years before this location was rich in vegetation;
Fig. 3: Wild rice along Upper Fox River main channel between Swan Lake and Portage.
(Photos by W.C.D. and sketches on pages 18, 19 (on map) and 21 by Bob Hines in USDA leaflet, "Horicon National Wildlife Refuge.")



DOMAIN OF LETTERS

Academy Member DOUGLAS M. KNIGHT, President of Lawrence College at Appleton, presented the UW Phi Beta Kappa address at Madison on May 17, 1956; excerpts appear below. Academy Member EDNA K. MEUDT of Dodgeville has found acceptance for her sensitive, thoughtful, sharply-drawn lyrics in somewhat widely originating publications of repute. Her poem, "Neighbor," appears here by permission of The Country Poet (Sanbornville, N.H.), pp. 26-27, Spring 1954.

THE EVENT OF EDUCATION*

By Douglas M. Knight, President
Lawrence College

What are the real words that one can, without too deep a blush, risk using about the event of education? I am tempted, if you will let me, to try out three old-fashioned ones: integrity, community, charity -- words that are old-fashioned because they have been part of the whole developing order of western society for 2000 years, words that apply to everything we do and everything we are, but words that have a particular reference and relevance to this place.

Now the great trouble with these three words is that we have used them so often that we think we know what they mean, when actually all that we know is what we have made them mean for our own convenience. What is really alive behind the highly polished exterior of Integrity, for instance, a word that we commonly use to suggest the honest payment of debts, income taxes, and regular dividends? The real root of integrity, the attitude that makes it possible to do all these other things, is above all a sense of coherence within oneself. The conviction that our talents, our hopes, our beliefs, our passions somehow belong together and form one consistent being, that they are not just a random bundle tied together but a person, this is the conviction that a word like integrity speaks to.

It's not an easy thing to come by, because it means so much more than just being what we are and letting the world wag on--that attitude is complacency instead, and sooner or later it leads to the very opposite of integrity, to the collapse of the human individual. Integrity is that we might call active individuality, not passive; and it results from the exploration and testing and development of ourselves--it is in this sense the result of a constant tension between what we might be and what we are, between ourselves and a vision of ourselves which we can still hold as possible and desirable. One of the unique things about us as human beings, after all, is that we can have a vision of ourselves, that we are not content to define ourselves by our desires but insist on reckoning with our hopes and dreams as well.

This sense of development toward something not yet achieved is the first great gift of a true education, then; but it cannot be

supported without an equal sense of community as an aspect of educated life. For the nature of integrity demands, not only a vision of oneself and one's possibilities but an equal sense that these possibilities exist only as they come alive in the world. They must involve some actuality; they cannot merely be buried in the ground as unused talents. Now don't mistake me; there are many kinds of community which an individual integrity, an individual talent, can be brought to serve; and we must remember that the good poet or scholar is just as truly serving a community as the good statesman or executive. A community is not defined by real estate agents or even city planners; it is defined by a conviction in the human heart that we are most truly ourselves as we can learn in certain ways to stand together. We are most truly ourselves through what we believe to exist beyond ourselves, the city of spirit, of conviction, of common concern that stands beyond each actual city of our lives. Without some such commoness we lose all sense of validity within ourselves as well as beyond ourselves. As William Butler Yeats put it,

> Things fall apart; the centre cannot hold;
> Mere anarchy is loosed upon the world,
> The blood-dimmed tide is loosed, and everywhere
> The ceremony of innocence is drowned;
> The best lack all conviction, while the worst
> Are full of passionate intensity.

As Yeats suggests here, one cannot hold the integrity of the individual and the integrity of a community together without some grave conflicts. Granting that one only finds himself individually as he finds himself in a community of significance and shared interest, how are we to resolve the tensions, the wars of conviction against conviction, the sense of separation from those who do not think as we and yet who carry on their lives in an equal desire to bring the outward world and an inward understanding of it together?

Often we have illusions and even delusions about our power to resolve these individual conflicts rationally, by means of argument leading to conviction, by means of that respect for abstract truth which is so properly dear to academic minds. In fact, however, a college can no more find its common spirit by these means than any other community can; for the only relationship which can truly bind us to one another has a very old-fashioned name indeed--so old-fashioned that we commonly forget its true meaning. Charity stands in our society as the cold and eminently proper recognition of the needs of others, but with the equally cold implication that those whom we support are not dear to our hearts. We have in a sense reversed the true meaning of charity, substituting the outward and visible sign for the inward and spiritual grace, and forgetting in the process that the needs which other people have are only an aspect of their full significance as people; we really should care about their need because we care about them. At one striking point in "War and Peace" the central figure is about to be condemned to death as a spy; at a crucial moment his life is saved, however, because his enemy cannot avoid recognizing him as an individual person. And this recognition is much closer to the root sense of charity, I suspect, than all our contribution lists.

If so, however, then we can see how and why it is the crucial force binding us to one another; it reflects, not obligation but desire. And this desire, this positive affection for one another, is the condition without which a college or a community of educated people cannot exist. For the great mark of our achievement here is precisely this willingness to live with difference which I call

true charity. I hope that you won't think me casual or unconcerned when I define the educated life this way; certainly I am not recommending to you that you take standards and convictions cavalierly or in a spirit of indifference. I do say this, however: in a revolutionary time like our own, and a time of silent revolutions as well as noisy ones, we may need to be reminded that the most powerful way of maintaining or advancing our own convictions is the way of profound self-respect -- not brash self-confidence, but that true sense of ourselves which, as I have just suggested, comes ultimately only from a loving awareness of others.

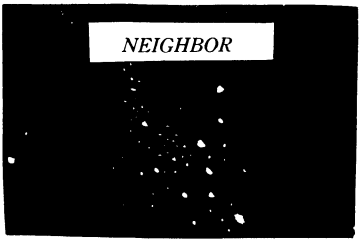
Here we are confronting, of course, one of the central paradoxes of Christian faith and tradition; to be truly aware of others is to find yourself. But equally in the world of ideas, to be truly aware of what someone else is saying or thinking is the only way to discover your own modes of thought, your own convictions. This may sound completely obvious, but it seems to me as a living fact to be the final and most difficult attainment of a truly good life -- either a good intellectual life, or a good spiritual life. For Charity, as I have defined it, is the creative fusion of integrity and community, the relation between the individual and his world which allows both to exist. Without it, each of us is the mere prisoner of temperament or digestion; and ideas are mere phantasms, like Scrooge's bit of undigested beef that turned into Marley's ghost. Charity is the force in us that summons us to reach beyond ourselves, and that does so through its power to lead toward a vision of final reality. As Whitehead has made clear for our generation, there is no use talking about a vision of reality unless we can include in it ourselves, the objects we perceive, and the dynamic relationships between the two. The challenge of the intellectual life lies in its insistence upon the evocation and description of these relationships; but it is the challenge and necessary definition of all human life that it actually live them out.

The life of the mind is a special aspect then, of the pattern which governs all life. It is neither the whole of existence, nor something odd and special to be kept safely in its own private corner. We celebrate and honor it today; but we honor it most by realizing that its value lies finally in the fact that it is rooted in the ground which creates all life. And so when I talk to you about the truly educated person in the traditional language of integrity, community, charity, I am paying you the greatest compliment I can think of. Your mandate is to use your minds all your lives long, and to use them so that you, and your communities, and the love that must exist among us all if we are to survive, may truly flourish.

# # #

CORRECTION, Please: Apologies to HARRY HAYDEN CLARK, who authored the article in Domain of Letters for Fall 1956, for erroneous printing of his name.

"We do feel, however, that the time has come for a special effort to strengthen the social sciences and humanities. This, too, will be in the interest of the State and Nation, and it will help us to make certain that Wisconsin in the future, as in the past, will have the broad distinction and the balance which a great University needs. ... No one person can be expected to solve the problems that confront us. But I am sure that in working together we can find a solution to these problems." -- Excerpt from Remarks by UW President E. B. FRED to the Faculty, October, 1956.



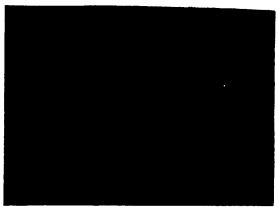
I had come out at dusk
to see swallows slash the misty eve
with long stiletto wings,
to watch whirlpools of stars
and droplet spray of fireflies
eddy in the earthy shoals.
I longed to sail the laden breeze,
diaphanous ocean of clover dew,
to hear aurora australis'
radium-lighted organ pipes
arise to pierce the heavens
round the Southern Cross
with fluent color-harmony,
and send their shimmering music to the stars.
In the marsh,
with mouths held under water,
choral frogs were singing in the reeds.

A streamlined bus,
the swift steel-dog
on trail where wheels whir and motors purr,
glides over the hill
It stops with air brakes baying
and discharges someone
into the stark beauty of an April evening,
then rolls away.

The old man sways across furrowed fields
where once earth tasted sweat
from his young face,
and felt hoofs of Percherons
as sunlight danced upon his moldboard,
and listened to his song:
"Turn you furrows,
lie close and low."
Roots remembering that ringing voice
and weary limbs at lunch hour rest,
embrace, embrace!
Sullen, insolent wind, give over, give over!
Whip not so smartly unsteady legs!

In the husk of his home
flesh-of-his-flesh, adult and adolescent, may note:
the soiled suit, odor of stale brew, a hollow laugh.
Will they recognize
affinity of a failing
and the warm, quick look of April's child
in his blue, bright eyes?
What strange mixture of pity and self-respect
amalgamates in me--
petrified at the orchard wall!
Dusk blurs my eyes,
and wind blends with bated breath
to swallow my assuasive call.
Peering, listening, fearing,
I wait lest an old friend fall
and lie alone with only starlight
to point him Home.

EDNA K. MEÜDT



WISCONSIN WATER USE LAWS AND RULES*

By Warren Oakey, Chief Engineer
State Public Service Commission

Section 31, Wisconsin Statutes, confers jurisdiction over the level and flow of all navigable waters in the state on the Public Service Commission. Navigable waters consist of all lakes (there are some 9,000) whether or not meandered, which are navigable in fact, as long as they lie partly or wholly within the borders of the state; also all navigable streams (of which there are many thousands of miles) as well as sloughs, bayous, and marsh outlets which are navigable in fact for any purpose whatsoever. The definition of navigability is a legalistic one and covers many streams which are so insignificant in size that it may be difficult to float a log or a small skiff on them. It is not necessary that the stream be navigable even in the above limited sense, as a stream which for a few weeks of the year during flood water times is capable of navigation is included within the navigable category.

The definition is important primarily because of its legal result. For instance, if a stream is navigable, it is a public highway and is available for any legal public use such as fishing, boating and swimming. In general, the ownership of the bed of the stream is in the adjoining riparian owner and there is no legal justification for trespassing on stream banks which are privately owned. Navigable streams may not be obstructed by dams, fences, bridges or any other installation which would be adverse to the public use except that the statutes provide for the issuance of permits for certain types of structures. In each case consideration must be given to the appropriate facts--for instance, the rights of the landowner should not be unnecessarily abridged and if he needs a fence to restrict the movement of his cattle or a bridge to get to his land on the opposite side of the stream and if the actual and usual navigation in the area is of little or no significance he is probably entitled to build such structures. He does so, however, at his peril and if a complaint is received alleging interference with navigation, the matter will be investigated. If the structures complained of do in fact constitute an obstruction he is requested to remove the material. In most cases such a request is effective, but if not, the Commission usually turns the matter over to the Governor, requesting that it be submitted to the Attorney General for appropriate legal action.

On streams which are so small as to be termed non-navigable the Commission has little jurisdiction and they fall into the class of private property and as such may not be used by the public for any purpose without the consent of the owner.

The above statement must be qualified to a certain extent, for while no permit for the construction of a dam in a non-navigable stream is required by law, the plans for any such dam must be submitted to and approved by the Commission. This requirement insures that the structure will be built in accordance with appropriate hydraulic standards to insure against its failure in times of flood so that bridges, roads and other structures downstream will not be endangered. Another qualification to the general right of a property owner to build a dam on a non-navigable stream results when

* - Presented to Hydrology Luncheon Group at University Club, Madison, Wisconsin on November 19, 1956.

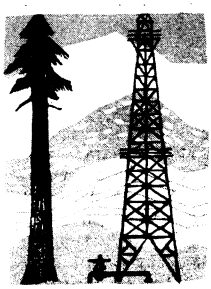
his dam affects the level of a navigable lake. Any change in the natural level of such a lake requires an appropriate action before the Commission.

In the state there are about 1,100 dams, some of which are for power development, some for lake level control, and some for the purpose of controlling ground water levels. At quite a few of such dams maximum and minimum levels have been established in the public interest. Formal hearings are held at which testimony is developed along the lines of prior water levels, of changes in the character of the developments surrounding the ponded water, of changes in the use being made of the water power and of the physical condition which will exist in the surrounding property if levels are changed.

Any substantial modification in water levels from those formerly maintained requires the consent of riparian property owners and any substantial restriction in the drawn down which may be made on the pond by the dam owner may require that he be compensated for the power lost.

Problems such as the above arise quite frequently in the dams constructed by reservoir companies in the northern part of the state. These reservoirs were originally constructed in wilderness areas for the purpose of storing water at times of excessive river discharge and of releasing the stored water at times of deficient streamflow for the purpose of generating additional and more steady power at downstream power sites. The result of this operation has been advantageous to downstream riparians as it decreases the flooding which they would otherwise experience and also tends to maintain the low water levels in the river at more advantageous levels than would exist in the state of nature. To accomplish their purpose, such reservoirs must be substantially empty in the early spring to catch the flood flow and then be lowered gradually throughout the summer. Such operation is necessary as it is the sole justification for the initial construction of the reservoir. As the number of residences on the shore of the reservoir increases, a continually increasing number of complaints requesting that the reservoir be maintained at more nearly constant levels is received. These requests are understandable as there is nothing more disturbing to a "lake dweller" than to have a smelly mud flat between his cottage and the water.

Applications are frequently received for the establishment of high and low water levels on landlocked or pothole lakes. Unless some disturbing influence affects or is likely to affect the levels of such lakes--for instance, irrigation or gravel washing operation--hearings are seldom held as the lake levels will obviously fluctuate with ground water levels and it is futile to set levels unless some control works are provided which may reasonably be considered to offer some prospect of satisfactory control.



The jurisdiction of the Commission in irrigation problems may be found in Section 31.14 Statutes, which says in part: "water other than surplus water may be diverted with the consent of riparian owners damaged thereby for the purpose of agriculture or irrigation but no water shall be so diverted to

the injury of public rights in the stream or to the injury of any riparian located on the stream unless such riparian shall consent thereto."

Wisconsin along with other eastern states has adopted the riparian rights doctrine as opposed to the prior use doctrine commonly followed in the western arid states. In essence this means that water may be used by riparian owners on riparian lands so long as such use is not unduly destructive of the rights of other riparian owners or of the rights of the general public.

Riparian lands are those lands, a portion of which abuts the water, whether such water comprises a lake or stream. In addition to the above lands which are clearly riparian, those lands which are attached thereto and which have come down to the present owner in an uninterrupted chain of title from the original government patent may also retain their riparian characteristics.

Complaints frequently are received that people are irrigating without permit. Investigations are promptly made and it sometimes develops that water not only is being used without a permit but that it is being used to irrigate lands which are not riparian and for which no permit for irrigation use could be granted even if a proper application had been made. There recently came to the attention of the Commission a complaint that a party had constructed a pumping installation on the bed of a lake (on a narrow right-of-way leased from a riparian owner) and was pumping large quantities of water to irrigate non-riparian lands. Two direct violations of the statutes were involved in this case, first placing a structure on the bed of the lake without permit and second an illegal diversion of water.

No permit for diverting water from lakes is apparently contemplated in the statutes, as Section 31.14 relates specifically to taking water from streams. While there is an Attorney General's ruling that the taking of water from the lake is equivalent to taking it from the outlet stream (which conclusion appears to be entirely reasonable) many lakes have no outlets and it is usually considered that under the common law, riparian landowners on lakes have the right to use reasonable quantities of water with the qualification that all other riparian owners have equivalent rights and that the total use must not be adverse to the public interest.

On complaint that the use of a lake for irrigation purposes is injurious to the public interest the Commission may under the provision of Section 31.02, Wisconsin Statutes, establish a minimum level below which the lake may not be artificially lowered for any purpose.

Upon receipt of an application for a permit to use water for irrigation the matter is set for hearing in the vicinity of the proposed diversion and the applicant is required, prior to the hearing, to publish notice of the proposed project in a paper of general circulation in the area, and to notify those downstream riparians who may be affected by the diversion. After the hearing, and if the facts warrant such action, a determination is made of the quantity of water which may be diverted during specific

periods and as to the riparian lands on which the water may be used.

Under usual conditions no more than from 10 to 20% of the low flow of the stream is permitted to be diverted in order that sufficient water may remain to support fish life, to meet the requirements of downstream riparians and to preserve the public interest in the stream. Under exceptional conditions such as may exist where the stream is heavily polluted by sewage drains or by the effluent from some industry a larger percentage of the flow may be diverted without additional injury to the public.

Permits are conditioned so that they may be changed or voided if it actually appears that the public interest is adversely affected. For instance, if additional irrigation in the immediate vicinity is proposed it may be necessary to revise the permits so that all will have an equitable share in the available water.

In conclusion it may be noted that in the above rather brief abstract, the term "public interest" has been used quite freely. The term has many meanings and may give rise to numerous conflicts because of the multiple factors involved. It is one of those terms which cannot have a static definition and the irrigation problem points out this fact. To date, irrigation, which in this area means supplemental irrigation, has not been extensively practiced, but the advantage to the private individual in increased crop yield attributable to such use is obvious and the use will undoubtedly continue to grow in the future. At this time the potential food and fibre output of this country is beyond our consumptive capacity, but with a continued growth of population it will at some time in the future be desperately necessary to utilize most of our land and a large part of our water to supply our food and fibre needs. At that time it is obvious that our present determination of public interest will be in need of drastic alteration.

# # #

A NOTE ON THE COVER

Rarely does the rural artist express himself with hammer and chisel. Brushes and color are more pliable; nor does their manipulation require so much muscle. ARTHUR LENSINK, however, of rural Oostberg, has turned away from his sensitive series of softly brushed oil landscapes to hack out this very rugged piece of white oak sculpture. He calls the simple and admirable work "Blizzard." The spectator feels the character of the hunched figure leaning into the wind and needs no flying snowflakes to complete the artist's intentions.

Mr. Lensink has drawn, painted and carved for a long time, but never professionally. In Japan during World War II he got his first big impetus for expressing himself aesthetically. On his return to Wisconsin he became one of the bright lights among the artists of the Rural Art Program. Always earning his living outside the field of art proper, his spare time art activity makes his life rich and satisfying.-- Aaron Bohrod

BE SURE TO MARK YOUR CALENDAR FOR ANNUAL ACADEMY MEETING

AT BELOIT COLLEGE April 26 and 27, 1957

JUNIOR ACADEMY NEWS

JUNIOR ACADEMY REPORT

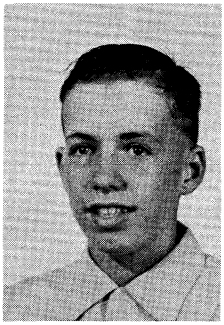
By John W. Thomson, Jr., Chairman
Junior Academy Committee

Several Junior Academy meetings are already programmed for the coming year. The Western district will hold its meeting at Wisconsin State College, Eau Claire, on April 13. Rev. JOHN SCOTT, Campion High School, Prairie du Chien, is in charge. The Junior High School Statewide meeting will be held at Appleton on May 11. NEIL PRECOURT of Wilson Junior High is chairman of the committee in charge. Other members are Miss IRMA ROEMER, Wilson Junior High, Appleton, WILLIAM DUFRESNE, McKinley Junior High, Appleton, DONALD BOWKER and MERWYN CLOUGH of Roosevelt Junior High, Appleton. The Statewide meeting is also already scheduled for Beloit College on Saturday, April 27. We hope that Senior Academy members will make every effort to encourage these young people by attending the meetings in their districts or one of the two statewide gatherings.

The American Association for the Advancement of Science has approved a plan of support of research by students in high schools, to be administered by the State Academies of Science. The amount of support made available depends on the number of members of the State Senior Academy who are also members of AAAS. This year the amount is $88.00, with the same sum available from last year.

The AAAS academy grants must not be used as prizes or awards for work already done. Emphasis is on encouragement or assistance of students with ideas which they wish to develop. The Wisconsin Academy Council has delegated selection of grantees to the Junior Academy. At its meeting this fall the Junior Academy Committee decided upon the following procedure: The total sum, $176.00, would be made available to each of the four districts equally so that each would have $44.00. The district committees are to make the selection of possible projects which they can support, helping as many as possible. Projects approved by the District Committees for support will be referred to the Junior Academy office and thence to the Treasurer of the Senior Academy for disbursement. The Junior Academy State Committee has decided that because seniors will already have finished their projects for this year by the time the grants can be awarded, the awards will be open this year only to juniors and younger high school students needing project help.

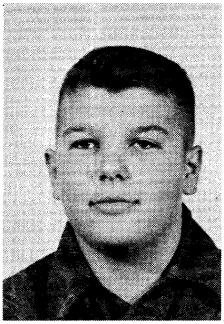
Two science fairs are already scheduled for Wisconsin this year. The Southeastern Wisconsin Science Fair sponsored by Marquette University and the Milwaukee Journal under the direction of Father L. W. FRIEDRICH, S.J., will be held at the student union, Marquette University, on April 4 to 7. The Kenosha County Science Fair sponsored by the Seminar Club of Bradford High School, Kenosha, under the direction of MARY A. DOHERTY, is scheduled for March 17 to 19. The latter fair includes exhibits from all grades. Both of these Fairs are well worth a visit by the members of the Senior Academy. Why not plan to go? ? ?



JIM

WORLD OF HAIR

By James Schleis and Larry Schumacher
Manitowoc High School



LARRY

We got started while looking at an old microscope manual. First we made two detailed drawings and collected specimens from live subjects and from stuffed subjects in the Biology Department. The second step, Jim made a slide box for our slides and a microscope light so that the slides could be seen better. The third step was making the slides; the method we used was to soak the hairs in xylene, wash them off, place a drop of balsam on the slide, and put the hair into it. We tried different methods but found this method the best. The fourth step is the analysis:

PRIMATES:
1. Peroxide Human: This is a Human Hair and is completely colorless; that is because of the effect of the peroxide on the hair.
2. Blond Human: You may notice the dark streak down the middle. It is much lighter than in some hair. The amount of dark pigment in the hair determines the color (like dishwater blond).

CARNIVORES:
3. Polar Bear: The outer two sections are completely colorless and the very narrow strip of pigment down the center. This is what makes the hair appear white.
4. Raccoon: What gives this animal its color is the large broad pigment strip down the middle of the hair.

UNGULATA:
5. Buffalo: The Buffalo hair is a very coarse hair. It is completely dark with an even darker line of pigment down the middle.
6. Moose: Moose hair is also a dark coarse hair and resembles the Buffalo hair except it lacks the extra dark line of pigment down the middle.

RODENTIA:
7. Jack Rabbit: Has dark pigment and is made up of many cells.
8. Snowshoe Rabbit: Has a white clear hair. Its sides are very jagged and appear to be ridges around the hair.

INSECTIVORA:
9. Shrew: The Shrew hair is very small.

Through our work we have come to several conclusions:
1. We found that hair shows up better under the microscope without even using a slide. We did not use this method as it is too clumsy. 2. The only difference between the hair of the male and the female is that the hair of the female is thinner.
3. What gives hair its lightness or darkness is the amount of pigment in the hair.

The knowledge of hair is an important thing to police, to hair dressers, and to people with hair problems.

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BE SURE TO MARK YOUR CALENDAR FOR ANNUAL ACADEMY MEETING

AT BELOIT COLLEGE April 26 and 27, 1957

BIOCHEMISTRY OF CHEESE MAKING

By Ida Louise Reindl
Columbus High School, Marshfield

My study of the biochemistry of cheese making includes: 1. Making eight varieties of rennet cheese by using present day commercial methods on a reduced scale. 2. Identifying the micro-organisms which aid in producing these varieties of cheese.

To carry out my project I constructed a miniature cheese making vat that could duplicate all the conditions of a commercial cheese factory and yet produce samples not exceeding two pounds. All other conditions except pH, temperature, and time were likewise proportionately reduced. Essentially, this model consists of a water tank with two heating coils (500 and 100 watts) in series with a resistance block located outside the tank. The vat itself is suspended in the tank.

Since the purpose of this investigation was also to observe and identify the ripening agents of cheese, I made eight kinds of cheese that can be grouped into 3 classes according to these agents:

A. Bacteria: Cheddar, Swiss, Grating, Gouda Cheese
B. Mold: Roquefort and Blue Cheese and an original brand
C. Surface Micro-organisms and Bacteria: Limburger Cheese

Because the cheese I prepared was all of the rennet variety, bacterial growth was promoted by streptococcus lactis bacteria ("starter"). I made the needed quantities of the starter by injecting the original few milliliters of streptococcus lactis into milk sterilized in a pressure cooker for 20 min. at 15 lb. pressure. The viability of the starter bacteria was further checked with tests on freshly prepared litmus milk.

I began my cheese program by making Cheddar Cheese. This process consists of several fairly marked steps of distinct biochemical importance whose time and sequence appear in Fig. 7 and whose significance is briefly outlined below. Each run of 5 qt. of methylene blue tested milk was allowed to attemperate to 86° F in preparation for the addition of the bacterial starter. I made continuous tests of the whey formed at this stage against 0.1 N NaOH until desired acidity was reached. In the coagulation step that followed, I hastened the precipitation of the curd by adding 1 ml. of the enzyme rennet. A smooth curd was produced and later cut to start the separation of the whey from the curd more easily. Loss of moisture was further accelerated by heating the curd at 102° F, but this necessitated stirring to prevent rematting of the curd.

When the whey finally separated as a clear liquid, it was removed to prevent the acid of the whey from acting on the curd protein. Cutting the curd into blocks which were stacked on one another to express more whey is called cheddaring. Here the final drain of the siphoned-off whey showed the acceptable 0.8% lactic acid content, a necessary condition before milling can be started, i.e., cutting the curd into fine pieces to remove more moisture. This was followed by salting, the last direct attempt made to check the formation of lactic acid before setting the cheese aside for pressing and curing. From here bacteria, enzymes, molds, or a combination of these take over the ripening of the cheese, the results of which we recognize in such characteristics as flavor, odor, body, texture, and color.

None of the other cheese I made followed all the steps included in the Cheddar Process. In making Swiss Cheese, milling

ROQUEFORT CHEESE

AMOUNT	TIME	OPERATION	TEMP
4530 GM	9:00 AM	RAW MILK POURED INTO VAT	84°
181.2 ML	9:00 AM	STARTER ADDED	84°
1 ML	9:00 AM	RENNET ADDED	84°
	10:30 AM	COAGULATION	84°
	10:30	CUTTING	84°
	10:35	DRAINING ON RACK	84°
	11:05	HOOP	84°
0.2 GM.	11:05	MOLD INOCULATION	84°
18.1 GM	AFTER 5 DAYS	DUST SALT ON OUTSIDE	48°

1.

BLUE CHEESE

AMOUNT	TIME	OPERATION	TEMP
4530 GM	9:00 AM	HOMOGENIZED MILK POURED INTO VAT	90°
45.3 ML.	9:00	STARTER ADDED	90°
0.8 ML	10:00	RENNET ADDED	90°
	11:00	COAGULATION	90°
	11:00	CUTTING	90°
	1:15 PM	DRAW WHEY	90°
4.5 GM	1:30	SALT ADDED	90°
	1:35	HOOP	90°
	1:35	MOLD INOCULATION	
25 GM	AFTER 5 DAYS	DUST SALT ON OUTSIDE	50°

2.

GOUDA CHEESE

AMOUNT	TIME	OPERATION	TEMP
4530 GM	9:00 AM	PASTEURIZED MILK POURED INTO VAT	88°
453 ML	9:00	STARTER ADDED	88°
1 ML	9:30	RENNET ADDED	88°
	10:00	CUTTING	88°
	10:15	HEATING	98°
	11:10	DRAW WHEY	98°
	11:15	WASH IN 0.7% SALT WATER	98°
2 ML	12:15 PM	SALT ADDED	98°
	12:30	DRAW WHEY	98°
	12:50	PRESS FOR 60 MIN.	
	1:50	APPLY PRESS CLOTH	

3.

SWISS CHEESE

AMOUNT	TIME	OPERATION	TEMP
4530 GM.	9:00 AM	PASTEURIZED MILK POURED INTO VAT	86°
45.3 ML	9:00	STARTER ADDED	86°
1 ML	9:30	ADD PROPIONIC ACID BACTERIAL CULTURE	86°
0.9 ML	9:30	RENNET ADDED	86°
	9:55	CUTTING	86°
	9:15	REMOVE 1510 GM WHEY	86°
906 GM	9:45	ADD 150° WATER	100°
	10:20	DRAW WHEY	100°
	10:40	HOOP	90°
	10:55	LIGHT PRESSURE	
	10:40	REMOVE FROM PRESS	
23% SALT	NEXT DAY	PLACE CHEESE IN BRINE FOR 48 HR.	50°

4.

LIMBURGER CHEESE

AMOUNT	TIME	OPERATION	TEMP
4530 GM	9:00 AM	PASTEURIZED MILK POURED INTO VAT	90°
13.5 ML.	9:00	STARTER ADDED	90°
0.9 GM	9:00	CALCIUM CHLORIDE ADDED	90°
0.6 ML	9:00	RENNET ADDED	90°
	9:30	CUTTING	90°
	9:55	HEATING	98°
	10:55	DRAW WHEY	98°
	11:00	WASH WITH 2% BRINE	98°
	11:15	DRAW WHEY	98°
	11:17	HOOP	98°
	11:30	TURN CURD	98°
	NEXT DAY	DUST WITH SALT	60°

5.

GRATING CHEESE

AMOUNT	TIME	OPERATION	TEMP
4530 GM.	9:00 AM	HOMOGENIZED MILK POURED INTO VAT	88°
45.3 ML.	9:00	STARTER ADDED	88°
1 ML	9:50	RENNET ADDED	88°
	10:35	CUTTING	87°
	10:50	HEATING AND STIRRING	87°
	11:20	STOP HEATING	110°
	12:40 PM	DRAW WHEY	110°
9.1 GM	12:55	SALT ADDED	110°
	1:10	HOOPING	110°
	1:10	PRESS	
13.6 GM	NEXT DAY	DRY SALTING	60°

6.

9.

8.

10.

11.

CHEDDAR CHEESE

AMOUNT	TIME	OPERATION	TEMP
4530 GM.	9:00 AM	PASTEURIZED MILK POURED INTO VAT	86°
31.7 ML	9:00	STARTER ADDED	86°
1 ML	9:45	RENNET ADDED	88°
	10:15	COAGULATION	88°
	10:15	CUTTING	88°
	10:30	HEATING BEGINS	88°
	11:00	END OF HEATING	102°
	11:45	SETTLE CURD	102°
	12:15 PM	DRAW OF WHEY	102°
		CHEDDARING OF CURD	101°
	2:00	MILL	91°
113.6 GM.	2:20	SALT	89°
	3:00	HOOP	88°
	3:05	PRESS	88°
	3:25	PRESS AND DRESS OVERNIGHT	

7.

and cheddaring were entirely omitted (Fig. 4) and the curd was drained in a bag before pressing. Salting was done by means of a brine solution, and the use of propionic acid bacterial starter in addition to streptococcus lactis helped to produce the holes characteristic of Swiss Cheese. Milling and cheddaring were likewise omitted in making Grating and Gouda Cheese (Fig. 3,6). Other factors than these, however, govern the production of Limburger, the main one being the incomplete removal of whey which furnishes surface organisms as well as internal bacterial growth needed in its ripening stage. The addition of a second salt, .02% calcium chloride (Fig. 5), before the rennet step also influences the final results. In curing Limburger Cheese, I observed that its ripening odor did not appear noticeable until after three weeks of curing and then it was tolerably mild.

In making Roquefort and Blue Cheese, the whey was allowed to drain from the curd without application of pressure. This results in an acid curd since lactic acid bacteria is free to operate, producing a soft cheese. The mold, Penicillium Roqueforti, a distinct influencing factor in these varieties, was sprinkled on the curd during hooping (Fig. 1,2). Curing time was extended to four months.

To facilitate the study of Penicillium Roqueforti, I grew sufficient quantities of it by injecting small loaves of bread with its spores. The mold micro-organism easily distinguished itself through its characteristic branching spore heads, conidia, Fig. 8, but it took five weeks before the loaves were ready to be ground into powder for the mold cheese.

From what I learned and observed in making these standard varieties of cheese, I prepared an original brand of my own by using a 4:1 proportion of cow's to goat's milk and inoculating the curd with P. Roqueforti mold. This produced a soft cheese with the characteristic green, somewhat mottled streaks of commercial mold cheese, but with a pronounced sweetened flavor entirely different from other cheese of its kind.

Each type of cheese is distinguished by a characteristic sequence of desirable micro-organisms that normally grow in the curd and cheese. I limited my photo-micrography studies to the identification of only the essential ones responsible for the character of the varieties of cheese included in this study (Fig. 9-11).

From the numerous observations I made of bacteria in Cheddar and Swiss Cheese, I have reason to believe that during the first three weeks of cheese curing the "starter" bacteria, streptococcus lactis, dominates (Fig. 9), and that they are gradually succeeded by Gram-positive rods, occurring singly, in pairs, and in chains (Fig. 10). I also discovered that, although at the end of the ripening period, the number of bacteria decreased, they could be identified as the non-motile Gram-positive lactobacillus casei (Fig. 11). At no time, however, did I find only the one type to the exclusion of the others. Each bacteria merely appeared to have a peak period. The mold cheese bacteria, however, always appeared smaller than the rest no matter at what stage of development they were observed under identical magnification. Bacteria in Limburger, Grating and Gouda Cheese were also characteristically smaller but extremely plentiful throughout.

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(Editor's Note: IDA LOUISE RIENDL placed in the Westinghouse National Science Talent Search Contest, being one of the forty 1956 Washington trip winners.)

# # #

In Memoriam

George M. Reed
1878-1956

GEORGE MATTHEW REED, who was born at Ingleside, Pennsylvania on May 2,1878, died in that state on July 1, 1956. He was buried in Madison, Wisconsin beside his wife and child. He had been a member of the Wisconsin Academy of Sciences, Arts and Letters since 1905, becoming a Life Member in 1948. He graduated from Geneva College in Beaver Falls, Pennsylvania, in 1900 and received his Doctor's degree in Botany at the University of Wisconsin in 1907.

In his early professional career, George Reed was a professor of botany at the University of Missouri from 1907 to 1918 and a plant pathologist with the U. S. Department of Agriculture during 1919-20. In 1921 he joined the Brooklyn Botanic Garden as curator of plant pathology--a position he held for 25 years until his retirement as Curator Emeritus in 1946. From August 1943 to June 1944 he also served as Acting Director. Along with his fundamental research on the diseases of cereal grains and the breeding of new varieties of iris, he counseled many students preparing for their doctorate. He was a frequent contributor to the technical journals in his field and a member of many professional societies.

George Reed was an internationally famous authority on the Japanese and related irises. In 1930, under the sponsorship of the American Iris Society, Brooklyn Botanic Garden and National Research Bureau, he was sent to Japan to identify, establish the correct name and determine the lineage of 400 varieties of Japanese iris. Besides accomplishing this task, he also identified almost 2000 varieties of this plant. Many of his semi-popular articles were on this subject.

The Brooklyn Botanic Garden has patented a variety of weeping crabapple tree developed by George M. Reed under the name of "Red Jade." Also, Geneva College honored him in 1936 with the degree of Doctor of Science and the Pittsburgh Iris Society, of which he was Chairman of the Board of Managers, is establishing a "George M. Reed Memorial Garden." -- Adapted from a statement by Alexander C. Wellington of Pittsburgh, Pennsylvania, by W.E.S.

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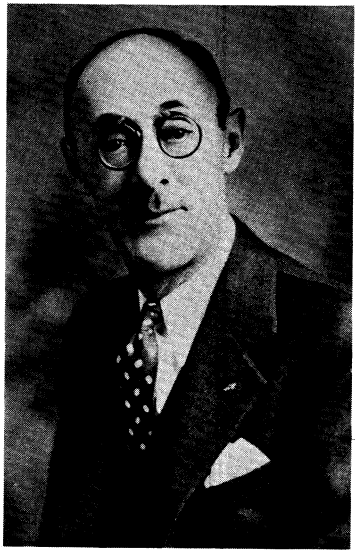
ACKNOWLEDGMENTS in addition to those mentioned elsewhere - Photos: p.8 - C. A. Thompson and permission Capital Times; p.16 - Smithsonian Institute; p. 1 - Platz studios; cover and p. 11 - UW Photographic Laboratory. Illustrations: p. 5 - Fig. 28, "The Physical Geography of Wisconsin;" p. 7 - plate 24 "The Quaternary Geology of Southeastern Wisconsin;" p. 10 - Wisconsin Alumnus, Nov.'56; p. 27 - the Farm Equipment Institute's "Land of Plenty" (horses) and Cornell Rural School Leaflet "Sky Laboratories;" p. 30 - UW Cir.519, "Figuring Irrigation Costs."

In Memoriam

Sid W. Gordon
1885-1956



SID W. GORDON, well known trout stream authority and writer, died at Oshkosh on October 28, 1956. He was born in Gladstone, Michigan in 1885. Although one of the leading angling experts in the country, he devoted years to the study of fertility of waters, aquatic vegetation and organic life. He was nationally known for his work in lake and stream improvement, which program he helped to inaugurate in Wisconsin for the federal government and the Conservation Department.

Rated as one of the best fly and bait casters, Sid Gordon introduced a new type of fly fishing, namely the "wet dry fly," based on insect behavior observed in his many surveys of the Brule River, Douglas County. He was one of the first writers to describe nymph fishing and he created a number of fly patterns to simulate aquatic insects. Many trout fishermen knew him best for his stimulating articles in outdoor magazines and his hunting and fishing columns published in a number of Wisconsin and Michigan newspapers. A prolific writer about trout streams from the scientific point of view, he authored a book entitled "How to Fish from Top to Bottom" in 1955. This volume advocated the reading of water for better fishing and received widespread recognition. The book dealt with a new idea in fishing--the result of years of study on a large number of lakes and streams in Canada and the United States.

Always a dynamic student of fishing waters and an enthusiastic teacher as well, Sid Gordon imparted a touch of science to fishing to all who met him, whether on a lake or stream or attending one of his frequent talks and demonstrations. He became a member of the Academy in recent years. Before retirement from business, he was a real estate broker in Chicago and Michigan.-- Otis S. Bersing.

# # #

Honors and Awards - Recent honors and awards to Academy members (besides that to Dean Elvehjem reported elsewhere) include: the Priestley Medal of the American Chemical Society to FARRINGTON DANIELS for distinguished service to chemistry; a testimonial dinner honoring HJALMAR R. HOLAND in Alexandria, Minn.; a post-doctorate fellowship from the National Science Foundation to WILLIAM H. McSHAN to study at the U. of Uppsala; selection by the Botanical Society of Amer. as one of the 50 outstanding contributors to botanical knowledge in the past half century for GEORGE W. KEITT; the Nash Conservation Award to Asst. Regional Forester JAMES K. VESSEY (Milw.) and the "Good Government" award of the Milwaukee Junior Chamber of Commerce to Mayor FRANK ZEIDLER. # # #

THE BOOKSHELF

SCIENCE AND STATE GOVERNMENT IN WISCONSIN
By Clara Penniman

Bureau of Government
404 South Hall, Univ. of Wis.
Madison 6, Wis. 1956

Wisconsin was fortunate to be one of the six state governments in the United States participating in this cooperative survey with the National Science Foundation. The broad objective of the study was to explore the role of state government in the scientific effort of the nation. Besides a description of such research and measurement of both dollar expenditures and assigned manpower, this report appraises the character of the work environment provided scientists by the state agencies. Director of this survey for Wisconsin was Professor Clara Penniman, assistant Director of the Bureau of Government, U.W. Political Science Department.

Separate chapters in this report deal with the state setting; state research program; the scientific program in agriculture; the scientific program in resource development and public works; the scientific programs in public safety and in business, labor and vocational licensing; research program in health, education and welfare; research program in fiscal and administrative control and legislative and judicial agencies; the role of the University of Wisconsin as a research agency for the state; and general policies and organization concerning scientific activity.

The report indicates that the State of Wisconsin spent $7.151 million in the fiscal year of 1954 for research and development and related scientific activities carried on by state agencies. (This was about two cents out of every dollar spent on state government). Of this, programs on agriculture alone claimed $3.624 million of which $3.497 million was credited to the Agricultural Research Station. The University of Wisconsin (excluding the Agr. Res. Station) spent $2.280 of which $1.714 was credited to the College of Letters and Science. A total of $923,000 was expended on resource development and public works of which the Wisconsin Highway Commission accounted for $451,000 and the Conservation Department $308,000. State agencies reported a total of 471 professional personnel engaged at least part time in research work, of which 279 were in state agencies other than the Agricultural Experiment Station.

This 255-page mimeographed report is the only recent attempt of its kind to appraise Wisconsin's research contribution. It contains an extensive bibliography and numerous tables. The National Science Foundation will publish a final report covering the six participating states. -- W. E. Scott

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WISCONSIN POETRY MAGAZINE
Clara Catherine Prince, Editor

Wisconsin Poetry Foundation, Inc.
1764 N. 83rd st., Wauwatosa 13, Wis.
$3.00 annual subscr.; $5.00 membership

This magazine is published bi-monthly "for the advancement and encouragement of poets." It was founded in 1954 by the present editor and is now supported by a newly incorporated group called the Wisconsin Poetry Foundation. Both the editor and one of the associate editors, William Lamers, are members of the Wisconsin Academy.

The January-February 1957 issue of Wisconsin Poetry Magazine contains 17 poems of which five are by Wisconsin poets and the remainder from seven other states. Their quality reflects the editorial policy of "Clarity, Sanity, Decency." The magazine and foundation sponsors several contests for poets as well as the reading of poetry on radio and television and a lecture program.--W.E.S.

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AMERICAN PARADOX: THE CONFLICT BETWEEN THOUGHT AND ACTION
By Merle Curti

Rutgers University Press
30 College ave.
New Brunswick, N.J.
1956 $2.50

Interpretation of the conflict between the American faith in the power of enlightenment and education, on the one hand, and the cult of practicality on the other. Academy Member Curti has drawn on the writings of leading American thinkers, of business men, and of "average" men and women in an effort to present in a systematic way the development of the relations in American experience between thought and action, between theory and practice.

The author is Frederic Jackson Turner professor of history, University of Wisconsin, and is past president of both the Mississippi Valley and the American historical associations. His other books include: The Growth of American Thought which won the Pulitzer Award for History, 1943.--Reprinted with permission from Essential Books Magazine (copyrighted) of Feb. 1956.

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HIGHER EDUCATION IN WISCONSIN
By Caryl A. Regan
League of Women Voters of Wisconsin

League of Women Voters of Wisconsin
119 East Washington avenue
Madison 3, Wis. $1.00

This publication is the result of a three year study by the League's Committee on Higher Education of which the author was chairman. The report actually surveys only the present facilities and future needs of public higher education and was undertaken because of the expected great increase in enrollment in the near future. The information was secured from authoritative sources and reviewed by leaders in this field.

A large size booklet of 54 pages, it is divided into two parts: "The Pattern of Higher Education in Wisconsin" and "Education for Democracy." There are separate chapters on the University of Wisconsin, the Wisconsin State Colleges, County Teachers Colleges and Vocational Education as well as financial problems and expected future developments. One appendix lists 33 private college in Wisconsin and another the educational structure of each state in the nation. There is a substantial bibliography. The 1955-56 enrollment of all private colleges is listed, the first five being: Marquette, 7,421; Milwaukee School of Engineering, 1,597; Beloit, 997; Mount Mary, 939; and Lawrence, 810.

One highlight of this report is the table of enrollment projection for the University of Wisconsin and the State Colleges. These are for a "normal" or "average" trend based on certain assumptions and for the periods of 10 and 17 years after known actual enrollment in 1955 of 20,535. For the UW this is 39,000 in 1965 and 49,300 in 1972. In 1972 this is expected to represent 32,500 on the Madison campus, 13,000 on the Milwaukee campus and 3,800 at Extension centers. In 1972 all State Colleges are expected to have over 2,000 students each (except the Institute of Technology) and five over 3,000 as follows: La Crosse, 3,864; Eau Claire, 3,378; Stevens Point, 3,177; Oshkosh, 3,016 and Whitewater, 3,002. Total State College enrollment is expected to jump from the actual of 9,738 in 1955 to 22,600 in 1965 and 27,804 in 1972. (If the Wisconsin Academy experiences corresponding growth, it should have 2,000 members to help celebrate its 100th Anniversary in 1970!)

Miss Regan is a former president of the League of Women Voters of Wisconsin and member of their Board. -- W. E. Scott

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THE LAST ONE
By Dion Henderson

Henry Holt & Company
New York, N. Y.
1956 $3.50

Swashbuckling, incorruptible Cameron Blue, hell on wheels journalistic hero of this tense tale of a newsman, is the toughest reporter who ever leveled a double barreled question at a quailing politician. This is the second novel of Dion Henderson (Academy member), a newsman in the Milwaukee bureau of the Associated Press.

... In Henderson's new novel, Blue, a two time Pulitzer prize winner for reporting ... is switched from his job as a foreign correspondent to be chief of the fictitious "AmerPress" bureau in a midwestern city. ... Blue starts a merciless quest to uncover corruption, let the chaps fall where they may. His ideal is objectivity; he thinks a reporter should be a recorder of the naked fact. ... His bannerline scandal scoops are nation-wide shockers.

Sometimes Blue wonders whether he is "the last one" of his kind. Henderson, discussing his protagonist, told this reviewer: "Cameron Blue is not anybody in particular, but in a way he is everybody--all the professional newsmen who give up what they have to give up to keep themselves the way they have to be when they are alone with themselves. ..." Henderson has a fine flair for characterization and plots his novel with ingenuity and suspense. He writes cleanly and tightly, like a good newsman, and the novel is loaded with lines that stop you merely for the sensation of appreciating good writing. ... ---Selections from a copyrighted review by Waldon Porterfield reprinted with permission from The Milwaukee Journal of October 14, 1956.

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THE JOURNALS OF WELCOME ARNOLD GREENE: THE VOYAGES OF THE BRIGANTINE PERSEVERANCE, 1817-1820
Edited by Howard Greene and Alice E. Smith

State Historical Society
816 State st. (of Wis.
Madison 6, Wis.
Ill. 1956 $5.00

On an April day in 1817, young Welcome Arnold Greene started from his home in Providence, Rhode Island, on the first of two long trading voyages. For nearly four years the Perseverance sailed the Atlantic, carrying cargo from Virginia to Norway, then to Gibraltar and Cadiz and down the coast of South America before heading northward for Havana and home, and then substantially recoursing the route on a second voyage. In journals kept on these trips and

correspondence with the ship's owners, Greene depicts the problems of an overseas trader in the days of the sailing vessel. Basically a narrative of the search for cargo and markets, the account is enlivened by numerous side descriptions: of a fasionable Norwegian wedding, sight-seeing trips at Gibraltar, an encounter with Spanish-American revolutionists, expeditions to Rio Grande charquiadas for beef, a Cuban independence celebration, and the skillful maneuvering of the brigantine in violent storms at sea and through treacherous and uncharted harbor entrances. The heretofore unpublished journals and letters were prepared for publication by the grandson of the journalist, the late Howard Greene of Milwaukee and Delaware, and Alice E. Smith (Academy member) of the Society's research division. An end paper map shows the ship's routes. -- Reprinted from the State Historical Society's Wisconsin Magazine of History for Winter 1956-57.

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THE COLONIAL AMERICAN IN BRITAIN
By William L. Sachse

University of Wisconsin Press
Madison 6, Wisconsin
1956 290 pp. and index $5.50

Mr. Sachse has undertaken a most ambitious task in endeavoring to present a panorama of the American visitors in Britain during the whole course of our colonial existence. Social history always presents its own peculiar difficulties but they are magnified when one considers so many different sorts of men on so many different missions over so long a span of time. The dedicated Puritan who returned to England in the 1650's bore but a passing resemblance to the student of the 1750's who sought knowingly the wellsprings of the Enlightenment. Within the context of these problems, the book represents a remarkable achievement.

The research upon which it is based has necessarily been far-ranging for the diversity of facts upon which it depends were not to be found in any neat packet of Colonial Office papers but in a great variety of correspondence, diaries, journals, histories, and biographies. The facts and incidents thus culled might easily have been permitted to fall into a fatiguing, kaleidoscopic pattern, but instead, they have been fitted harmoniously into topical chapters each of which deals with a different sort of traveler who sailed "home for England." The student, cleric, colonial emissary, merchant, political suppliant or emigré, and man of culture are all delineated. The accounts are successful not only because they are skillfully constructed but more especially because a sufficient breadth of description is offered, supported by a depth of perception which prevents the emergence of a mere parade of personalities.

... This book offers many new insights into a current of travel that has been too much overshadowed by the larger and more dramatic westward movement. This smaller current is a phenomenon that is becoming of increasing interest to intellectual and social historians and this study is particularly timely. It gives the only satisfactory picture we have of an important two-way communication mechanism: the American brought understanding of the colonies to England but he also provided an usually effective means of returning knowledge of the Mother Country to this side of the Atlantic. ... Mr. Sachse has produced a book distinguished both for its artistic merit and for the new light it casts upon a very extensive scene. -- Reviewed by Brooke Hindle of New York University and reprinted with permission from the copyrighted Mississippi Valley Historical Review for September, 1956.

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MISCELLANEOUS BOOKS AND BOOKLETS

Two other 1956 books published by the State Historical Society of Wisconsin are: "Westernized Yankee: The Story of Cyrus Woodman" by LARRY GARA ($4.50) and "La Follette and the Rise of the Progressives in Wisconsin" by ROBERT S. MAXWELL ($4.50). ... An interesting booklet of 44 pages entitled "Loggers Words of Yesteryears" has been published by L. G. SORDEN (212 North Allen st., Madison), who was the author along with ISABEL J. EBERT. This collection of lumberjack words was started by the authors over 25 years ago in connection with the logging museum at Rhinelander. Professor Sorden is now employed by the UW College of Agriculture. This unique dictionary, which is particularly important to Wisconsin, sells for 50¢.

The entire fall quarterly bulletin of the State Board of Health, "Health," was dedicated to the subject of water pollution control. Five of the articles were by Academy members K. M. MACKENTHUN, LAURENCE F. MOTL, RAYMOND J. PENN, EDWARD SCHNEBERGER and T. F. WISNIEWSKI. Copies are available free on request as is the case with booklets and leaflets here listed unless otherwise so indicated. ... An unusually interesting book, "Wisconsin's Renewable Resources" by JAMES A. LARSEN, Editor of the Wisconsin Academy TRANSACTIONS, will be reviewed more fully next issue. It can be secured by writing to him at UW News Service, Observatory Hill Office Bldg., Madison 6. ... Still available free in single copies from the Conservation Department, Madison, 1, are three books: "Wisconsin Grouse Problems," "The White-tailed Deer in Wisconsin" and "Soils in Relation to Silviculture."

Recent publications of interest to Wisconsin workers are the following from the Lake States Forest Experiment Station, St.Paul 1, Minn.: Station Papers No. 33, 37, 39 and 40 respectively on "Oak Wilt Damage - A Survey in Central Wisconsin;" "Lake States Timber Resources;" "Publications of the Lake States Forest Experiment Station 1923-1955" and "Guide for Selecting Superior Forest Trees and Stands in the Lake States." ... Recently Wisconsin Forest Inventory Publications No. 20 and 21 covering Bayfield and Sawyer counties were distributed. These have been prepared under the supervision of Academy member S. W. WELSH and are available free from W.C.D., Madison 1. ... The 12th Annual Report (1956) of Trees for Tomorrow, Inc. of Merrill (Wis.) titled "An Industrial Approach to Resource Management," is exceptionally interesting.

The future hopes and plans of the Milwaukee Public Museum were explained with fine illustrations in their Fall, 1956 issue of Lore, edited by Academy past-president W. C. McKERN and including articles by other members: W. E. DICKINSON, MURL DEUSING, ALBERT M. FULLER, KENNETH MacARTHUR and ROBERT E. RITZENTHALER. ... Wisconsin Academy chemists HENRY A. SCHUETTE (past-president) and AARON J. IHDE issued another 24-page Badger Chemist in Summer 1956 featuring biographical sketches of professors in the UW Dept. of Chemistry and alumni notes. ... Miss RUTH HINE edited a series of talks on the subject of "Directing Land Use in a Forest and Recreation Area" presented at the Summer 1956 meeting of the Wis. Chapter, Soil Conservation Society of America. This contains a summary by another Academy member, I.C.M. PLACE and copies are available from Miss Hine, c/o W.C.D. in Madison. ... Other recent publications by members of the W.A.S.A.L. include: "Landscape Plants That Invite Birds" by G. W. LONGENECKER (UW Coll. Agr.Cir. 514,Jan.'56); "Supplement to Fungi of the University of Wisconsin Arboretum" by H. C. GREENE (UW Dept. Botany, Madison, No.'56); and "Bibliography on Introduced or Transplanted Animals - Additions May 1956" by HERBERT W. LEVI (UW Dept. Zoology, Madison). # # #

AARON BOHROD — RETIRING ART EDITOR

Since the fall of 1954 AARON BOHROD has served as Associate Editor in the arts for the Wisconsin Academy Review. His assistance in selecting cover illustrations and explaining their significance has been important to the success of this publication. He is retiring from this position with the next issue.

Aaron Bohrod, artist in residence at the University of Wisconsin for the past eight years, was born in Chicago in 1907. As a youngster he spent a great deal of his time drawing and in his first year in Junior College, he decided to try art for a livelihood. He studied under JOHN SLOAN at the Art Student's League, afterwards returning to Chicago where he became art director of a department store. This life was too hectic and he soon turned to painting as he wanted to paint. He won prizes at the first three shows to which he submitted works. Eastern museums began to ask him to submit paintings to their shows and his work was soon handled through a dealer in New York. He spent a large part of World War II on the battlefronts as an artist war correspondent, covering the South Pacific, Germany and France. From his was experiences, Bohrod created a moving series of paintings which are owned by LIFE Magazine.

In 1954 Aaron Bohrod opened a show of his newest style, called "trompe-l'oeil" (fool the eye), in the UW Library galleries. When asked to explain this new form, he was quoted as stating: "If explanation of these works is needed at all, I might say that they come about partly because of my impatience with and reaction against the scatter-shot, non-objective and surface decoration schools of painting which seem to constitute the bulk of current recognized endeavor. This is not a speck-by-speck translation. It is a distillation process sending it through an artist, that means the difference between this art and a camera job. I have never experienced a more gratifying way of working."

In October, 1955 Bohrod was featured in the UW Union Galleries with an exhibit called "Twenty-five Years of Painting, 1930-1955." This showed his work in the various styles of painting during his 25 years as a professional artist.

He has received an extraordinary number of awards and his work hangs in nearly every important museum. Included among these awards are the Clark Prize of $1500 and Silver Medal from the Corcoran Gallery of Art and the $1000 prize in the "Artists For Victory" exhibit of the Metropolitan Museum of Art.

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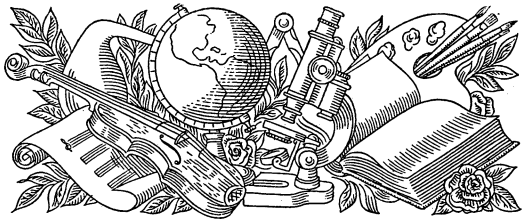


STATE AND ACADEMY NEWS

Governor Thomson's Inaugural Address

Governor Vernon W. Thomson, in his inaugural address on January 7 at Madison, made the following comments of special interest to Academy members:

"I observed on a recent occasion that we are symbolic members of our Wisconsin family through the varied means by which we earn a livelihood or are sustained.

"Without attaching relative importance to their order, we recognize early sources of livelihood were Wisconsin's lumbering, agriculture and mining.

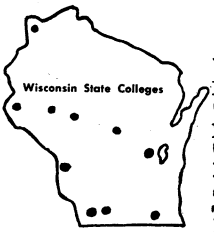
"Second among our workaday endeavors we could list merchandising, manufacturing and construction. Then I would cite the professions concerned with human endeavor and well being: religion, education, the arts and sciences, and the protection of health.

"Fourth, the operation of our transport and energy establishments of marine and rail, motor and air facilities as well as of electric power, gas, oil and coal resources. Fifth, the maintenance and extension--not curtailment--of our free press and of the allied communications: radio, television, motion pictures and the graphic media. Sixth, are the activities providing optimum use of our growing leisure through recreation: the tourist industry, sports, entertainment and stimulating programs for youth and senior citizens. Seventh, are the practices of conservation:of soil and water, of woods and wildlife, of time itself, and of family savings and investments."

NEWS NOTES FROM MARQUETTE UNIVERSITY

Collected by Prof. Scott L. Kittsley (Review Reporter)

Professor RAYMOND J. KIPP, a Marquette University civil engineering instructor, was named director of the 1957 Regional Science Fair annually co-sponsored by Marquette and the Milwaukee Journal. Last year's fair drew representatives from 43 high schools and almost 300 entrants. Academy member Rev. L. W. FRIEDRICH is chairman of the Executive Committee. ... Two Academy members, Rev. JOHN P. O'Brien and JOHN G. SURAK, have been appointed to a special committee established to investigate the possibilities of acquiring a nuclear reactor for Marquette. ... The Milwaukee Division of the American Cancer Society has presented a grant of $1,500 to Professors PETER ABRAMOFF and JOHN W. SAUNDERS, Jr. for the continuation of their research in this field. ... Rev. JOHN P. O'BRIEN of Marquette's Biology Department recently received renewal of an $8,845 grant from the U.S. Atomic Energy Commission for continuation of his research on temperature effects on x-rayed mammalian skin. ... Marquette's Research Committee has awarded a $3,000 grant to physics professor ARPAD E. ELO for the construction of a special spectrograph for investigation into the "Zeeman effect" involving the action of a magnetic field on the lines of a spectrum. ... A paper published in the September issue of Experientia by D. T. HAWORTH, E. F. NEUZIL, and S. L. KITTSLEY was entitled "Thermodynamics of the cis-trans Interconversion of Dichlorobis-(ethylenediamine)-cobalt (III) Chloride".



REPORT ON THE STATE COLLEGES

President E. H. KLEINPELL of W.S.C.-River Falls will devote half time in the future (with UW Vice-president I. L. BALDWIN) in studies upon which the Coordinating Committee for Higher Education will base plans to take care of enrollment expansion. ... The Coordinating Committee recently submitted to the Legislature a biennial budget of about 157 million dollars of which the UW budget portion is about 90½ million. This biennial budget includes, besides substantial salary increases, almost 75 million dollars for building construction. First priority is $1,200,000 for repairs and maintenance and second priority a $1,725,000 academic and laboratory building at W.S.C.-Superior. In sixth and seventh priority are a million dollar physical education building at W.S.C.-River Falls and another similar unit at W.S.C.-Stevens Point. Since 1952 enrollment at the state colleges has risen about 75% and many new facilities are needed. A step in this direction was the recent authorization for construction of three dormitories (about $450,000 each) at W.S.C.-River Falls, Superior and Platteville. ... President WILLIAM C.HANSEN of W.S.C.-Stevens Point reports their recent request for authority to offer a major in music and plans to construct a new student union.

MISCELLANEOUS NEWS - (Editor's Note: All Academy members are invited to contribute news notes about their work or about other members which they consider worthy of publication).

MAURICE R. HAAG is leaving Madison to accept a Journalism teaching research appointment at Oklahoma A.and M. at Stillwater. He will continue his special studies and publication in the field of communications. Previous to his most recent Madison activities with Scientific Laboratories, Inc. he served for several years as Editor of The Agronomy Journal and also of Soils. ... Dean L. J. STILES is the author of an article with constructive proposals for competitive salary recompenses and merit raises based on good teaching in The Nation's Schools of December 1956. ... Prof. ROBERT C. POOLEY took part in the convention of the National Council of Teachers of English at St. Louis last December.

ORGANIZATIONAL POSITIONS - BRUCE G. BUELL, Chief Forester of Marathon Corporation at Green Bay, has been named chairman of Wisconsin Forest Industries. ... State Entomologist E. L. CHAMBERS is Treasurer of the Wis.State Horticultural Society. ... GRANT COTTAM is an Associate Editor of Ecology. ... FARRINGTON DANIELS is chairman of the National Research Council's newly formed Committee on Photochemical Storage of Energy. ... UW Regent ELLIS JENSEN recently was appointed to the Coordinating Committee for Higher Education. ... LOUIS KAPLAN is president of the Wis.Chapt. Amer.Asso. of University Professors. ... CLIFFORD L. LORD is the new president of the Amer. Asso. of State and Local History. ... Mrs. FRED C. MARQUARDT is state radio-TV chairman of the Wisconsin Garden Club Federation and an accredited flower show judge for the National Council of State Garden Clubs. ... L. F. MOTL is chairman of the Ethics and Practices Committee for the SW Chapter, Wis. Society of Professional Engineers. ... D. JOHN O'DONNELL is a member of the newly-formed Wis.State Soil and Water Conservation Needs Committee. ... EDWARD SCHNEBERGER was elected chairman of the recently formed North Central Division of the American Fisheries Society. ... A. W. SCHORGER was elected a director of the Nat'l Audubon Society. ... FRED TRENK is a vice-president of the Wis. Roadside Development Council. ... FRANK ZEIDLER was re-elected a member of the Executive Committee of the Amer. Municipal Association. ... Academy members on the Governor's new advisory group, the Wis. Committee on Atomic Energy, include GEORGE F. HANSON, L.F. MOTL, O.J. MUEGGE, R. E. PURUCKER and T. F. WISNIEWSKI. - - -

REPORT FROM THE SECRETARY

By Francis D. Hole
Secretary-Treasurer

Membership

Since the last issue of the Review, applications for 120 new active individual members, a new Library membership, and one new sustaining membership have been received up to December 31. The list at the end of this report does not include addresses or titles because these details will be fully covered in a new membership directory planned for publication in the Summer 1957 issue, Review.

To date our membership is as follows:

Patron	3	Active	766	Honorary	4
Life	31	Corresponding	3		
Sustaining	10	Library	17	Total	834

Special thanks for recruiting members are due HAROLD A. GODER of Wisconsin State College, Platteville, President FORREST R. POLK of Wisconsin State College, Oshkosh, OTTO L. KOWALKE, Madison, an Academy past president, and our Editor of the Review, WALTER E. SCOTT, who works tirelessly for the Academy. Enthusiastic letters have been received from FRANCES HAMERSTROM, Plainfield, and Mrs. IRMA CHIPMAN, Wautoma, of the Rural Rembrandts. One of Mrs. Chipman's paintings was reproduced on the front cover of the Fall 1956 Review. There are many persons who would be glad to become members of our Academy if they only knew about it. Members are encouraged to show their friends copies of the Review, and of the TRANSACTIONS. Editor JAMES A. LARSEN reports that Volume 45 of the TRANSACTIONS is at the printer and that there's a good chance it will be ready for distribution in February.

1957 Meeting

President STEPHEN F. DARLING of our Academy has accepted an invitation from President MILLER UPTON of Beloit College, for our annual meetings to be held at Beloit, Friday and Saturday, April 26 and 27, 1957. Professor JOHN W. THOMSON, Jr., Chairman of the Junior Academy of Science, announces a statewide Junior High School Academy of Science meeting at the high school at Appleton, Wisconsin on May 11, 1957.

Miscellaneous

Miss CAROL BUTTS, Academy member employed by the UW Memorial Library, and who has done a capable and faithful job of handling TRANSACTIONS exchanges during the past several years, was promoted to another position last December 15. The selection of a replacement for this position is still pending. The Academy staff who worked with Miss Butts always received efficient, courteous and pleasant service and her cooperation has been greatly appreciated.

With the retirement of AARON BOHROD as Associate Editor in the Arts for the Review, the editor has secured for this position the services of Academy member FREDERICK M. LOGAN, Chairman of the UW Department of Art and Art Education at Madison.

The Winter Council meeting will be held Saturday, February 2, at the University Club, Madison. Besides the report of the Membership Committee and consideration of new members and gifts, the Secretary will report on the status of the Academy's legislative request and there will be discussion of our publications, Junior program, and plans for the annual meeting. Former Secretary R.J. DICKE will report on the Academy's records in safekeeping at the Historical Society, and consideration also will be given to past issues of the TRANSACTIONS stored at the UW Memorial Library.

New Members

Sustaining: Dr. E. L. BELKNAP, Sr., Milwaukee
Library: MANDELLE LIBRARY, KALAMAZOO COLLEGE, Michigan

Active:

R. H. ANDREW, Madison
Mrs. J. P. BAMBACHT, Appleton
D. J. BEHLING, Milwaukee
Mrs. NILE J. BEHNCKE, Oshkosh
WALTER T. BJORAKER, Madison
LEO BOEBEL, Platteville
RADFORD E. BOEING, Oshkosh
MAX I. BOWMAN, Oshkosh
KENNETH D. BROWN, Milwaukee
CLARENCE L. BUCK, Garrett Park, Md.
BRUCE G. BUELL, Green Bay
Mrs. BRUCE G. BUELL, Green Bay
HERBERT CASH, Platteville
Mrs. IRMA CHIPMAN, Wautoma
Mrs. JEAN P. MINER COBURN, Wilmette, Ill.
ROBERT W. COOK, Oconto
JOYCE CORPIAN, Boscobel
ROBERT LEO COSTELLO, Milwaukee
E. M. DAHLBERG, Ladysmith
RUSSELL DALY, Bayfield
S. TENISON DILLON, Madison
DONALD G. DUNLAP, Ripon
WALTER S. DUNN, Jr., Madison
ARTHUR R. ENSIGN, Oconomowoc
EDW. W. ERDLITZ, Madison
W. J. ERLANDSON, Lake Mills
Mrs. W.J. ERLANDSON, Lake Mills
C. L. FARRAR, Madison
LEWIS C. FRENCH, Milwaukee
RICHARD GAMBLE, Platteville
WARNER J. GEIGER, Oshkosh
RUTH GOBER, Platteville
JAMES GROSKLAGS, Madison
RALPH C. GUETTINGER, Eau Claire
RALF E. HALVORSEN, Baraboo
E. G. HARRELL, Platteville
EDMUND E. HART, Wisconsin Dells
EARL M. HILDEBRAND, Chevy Chase, Md.
RUSSELL HILL, Platteville
RUTH L. HINE, Madison
Mrs. ELLEN H. HOY, Minocqua
SAMUEL A. IVES, Madison
BUDDY L. JACOB, Madison
EDWIN C. JENSEN, Madison
ELLIS JENSEN, Janesville
Mrs. ELLIS JENSEN, Janesville
LEON D. JOHNSON, Spooner
HAROLD C. JORDAHL, Jr., Madison
ALBERT G. KAIS, Milwaukee
BURTON E. KARGES, Oshkosh
S. JANICE KEE, Madison
HAROLD H. KERNAN, Madison
FRANK H. KING, Madison
RALPH M. KINGSBURG, Madison
STEPHEN KLIMAN, Milwaukee
J. MARTIN KLOTSCHE, Milwaukee
HARRY KOZEL, Rhinelander
ROLAND E. KREMERS, Appleton
GORDON E. KUMMER, Milwaukee
Mrs. GORDON KUMMER, Milwaukee
Mrs. DIXIE LARKIN, Milwaukee
ALBERT L. LEAF, Madison
ARLYN F. LINDE, Madison
L. JOSEPH LINS, Madison
MILTON LONGHORN, Platteville
RUSSELL G. LYNCH, Milwaukee
STUART B. McCOY, Tomahawk
HARLEY T. McKEAGUE, Rhinelander
Mrs. HARLEY T. McKEAGUE, "
HAROLD A. MATHIAK, Horicon
PETER E. MERSCHDORF, Wabeno
GERHARD C. MILLER, Sturgeon Bay
JOE MILLS, Ripon
V. A. MOON, Mercer
DONALD F. MRAZ, Delafield
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Mrs. E. L. OBMA, Dodgeville
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LOUIS OSHESKY, Pardeeville
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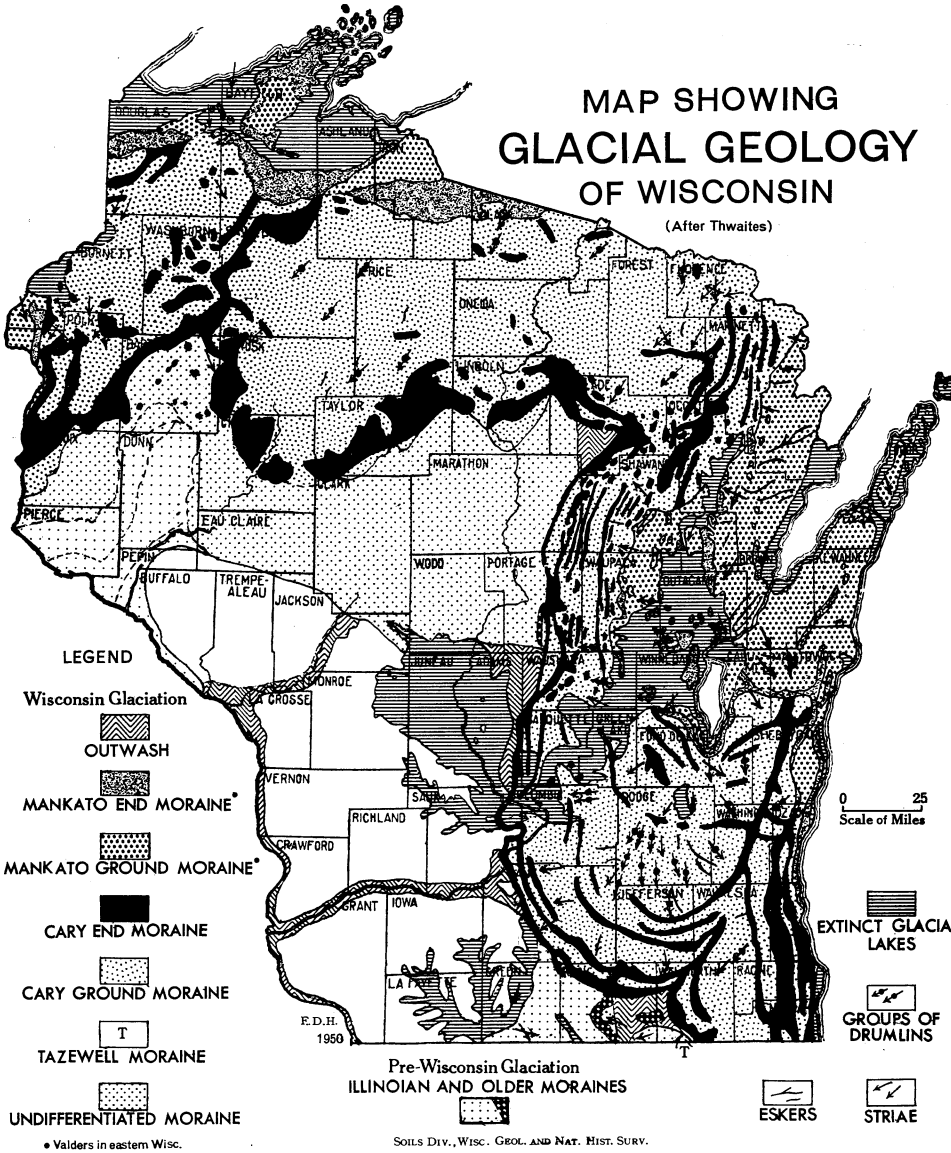

This map is from page 41 of Bulletin 79 of the Soil Survey Division, Wisconsin Geological and Natural History Survey, 203 Soils Bldg., University of Wisconsin, Madison, 6. A 48-page publication entitled "Introduction to the Soils of Wisconsin", it was prepared by FRANCIS D. HOLE (Academy Secretary) and GERHARD B. LEE and is available from the above address for 10¢ per copy.