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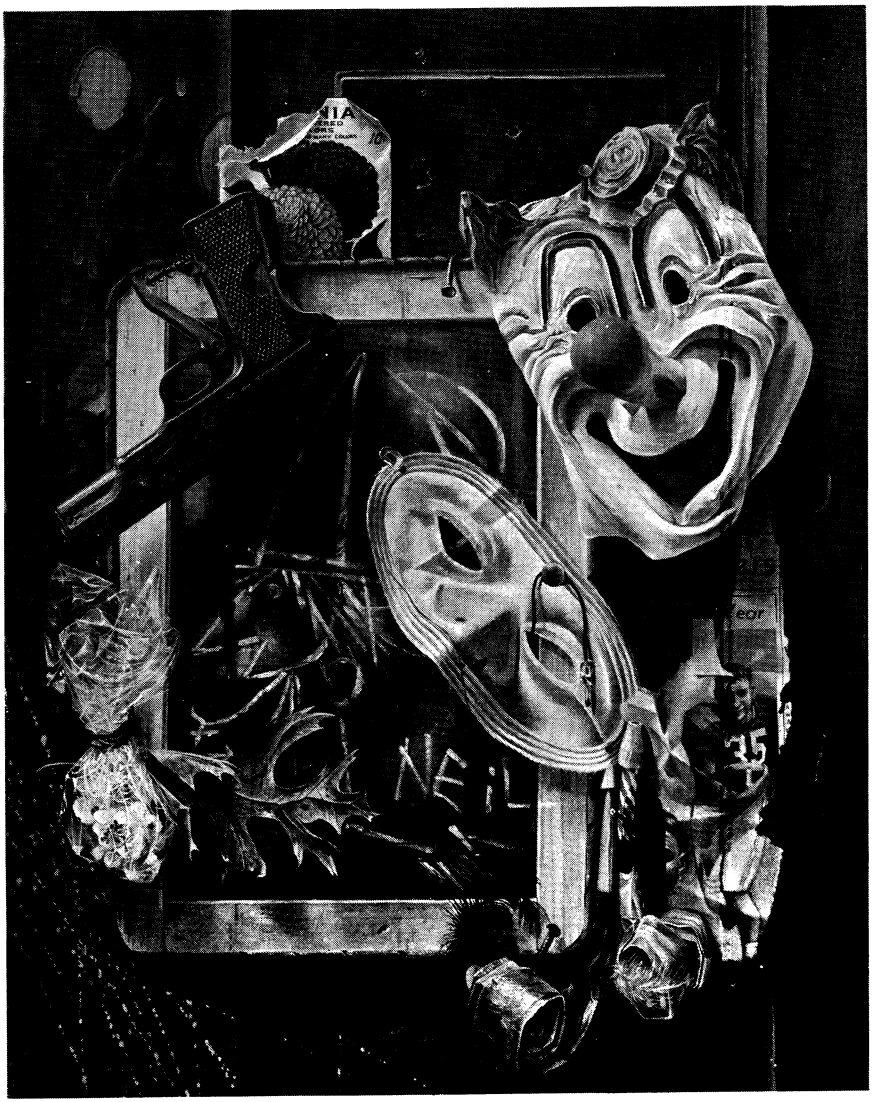
WISCONSIN ACADEMY REVIEW

FALL, 1954



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WISCONSIN ACADEMY REVIEW

Vol. 1 Fall 1954 No. 4

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WISCONSIN ACADEMY REVIEW

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THE SIGNIFICANCE OF THE OCONTO SITE IN WISCONSIN ARCHEOLOGY

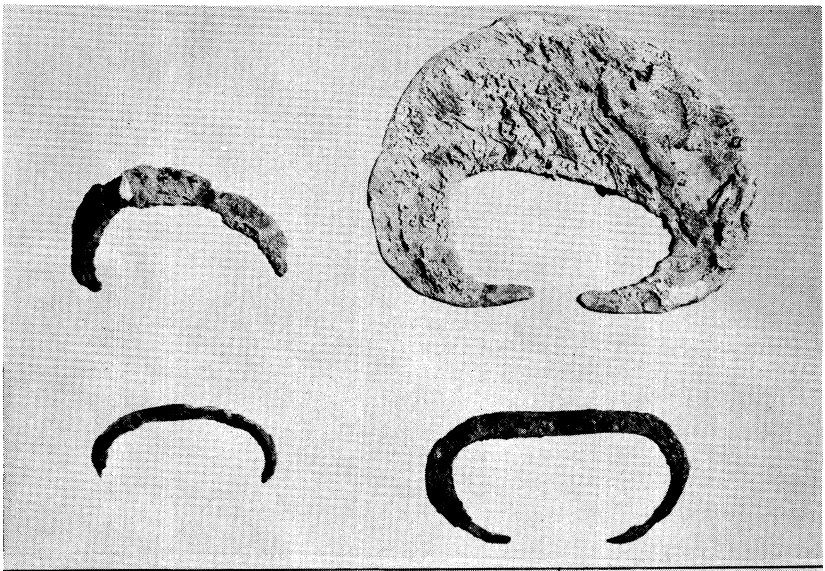
By Robert E. Ritzenthaler
Curator of Anthropology
Milwaukee Public Museum

During the summer of 1952 an Old Copper cemetery was excavated by a crew consisting of WARREN WITTRY of the Wisconsin State Historical Museum, and ARTHUR NIEHOFF and the writer representing the Milwaukee Public Museum, as a project of the Wisconsin Archeological Survey. The site proved to be an important one, not only in terms of adding cultural data to the little known Old Copper culture, but also in establishing for the first time the temporal position of this people in prehistoric Wisconsin.

The Old Copper culture, which centers in Wisconsin, had long been one of the intriguing problems of midwestern archeology. Until 1945 the only information concerning this group came from a considerable number of surface finds consisting of tools and implements beaten from native copper and encrusted with a heavy patination suggesting considerable antiquity. Differing in type from the artifacts of known local cultures, they were placed in a separate category labeled the "Old Copper Complex," and generally considered to represent the oldest manifestation of man in Wisconsin.

In 1945 came the first discovery of these artifacts in situ. A cemetery, which became known as the Osceola site, was uncovered on the banks of the Mississippi River near the town of Potosi in Grant County, and it was found to contain both copper and stone implements in association with the burials. To the concept of Old Copper was thus added data on burial practices and a chipped-stone industry. No information on age of site was obtained.

In 1952 a second cemetery was discovered, this time on the western outskirts of the city of Oconto. The excavation of this site produced a considerable addition to our information on the culture of these people, particularly in regard to burial practices and work in bone, antler, and shell. It also provided confirming evidence that this was the only known non-pottery culture in the state. Of particular importance, however, was the recovery of charred wood which occurred with the burials, and could be used in a carbon-14 analysis to establish a date for the site. Carbon-14 is the newest and most promising method of obtaining absolute dates by the technique of measuring the remaining amount of radio active carbon. It is known that organic substances upon death give off such carbon at a measurable rate.



KEY TO PHOTOGRAPHS

Upper: Copper crescents. Largest measures 4 5/16 inches across greatest width.
Lower left: Multiple burial showing outline of pit.
Lower right: Bone whistle, 6 1/8 inches in length.

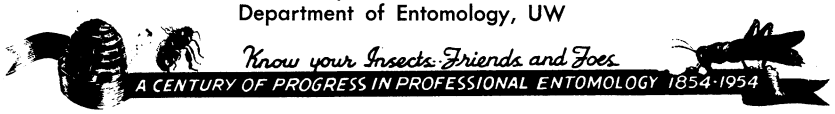
The charcoal samples were sent to Dr. W. F. LIBBY at the University of Chicago Institute of Nuclear Physics. After a period of suspenseful waiting, the results of the first carbon-14 run were received, providing a date of 5600 years ago, plus or minus 400. Here was not only the first date for a prehistoric Indian culture in Wisconsin, but also the earliest date for man in northeastern North America. An analysis of the second and final sample provided an unexpected date of 7510 years ago, plus or minus 340.

The differential of nearly 2000 years between the first and second dates is difficult to explain, although if natural contamination is the answer, the older date would be the more reliable. In any case, the relative chronological position of the Old Copper culture has been definitely established, and the importance of this knowledge to future archeology cannot be underestimated.

# # #

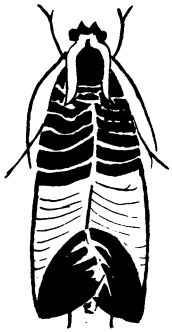
CENTENNIAL OF PROFESSIONAL ENTOMOLOGY IN THE U.S.A.—WISCONSIN'S CONTRIBUTIONS

By E. H. Fisher
Department of Entomology, UW



A century of progress in professional entomology in the U.S.A. has been highlighted by phenomenal advances during the past decade. Agriculture, industry, human and domestic animal health have benefited immensely as a result.

A small force of 6500 professional entomologists spearheaded the 100 years of research, educational and regulatory work in this field. They worked closely with chemists, application equipment manufacturers, custom pest control operators, County Agricultural Agents, the medical profession, and others to make developments practical and acceptable. Today there are 4500 professional entomologists who benefit from experiences of the frontiersmen, beginning with Mr. FITCH as entomologist of New York State and Mr. GLOVER as entomologist in the U. S. Patent Office, both appointed in 1854.



Looking upon the Wisconsin scene we find the first University Experiment Station insect bulletin was "Insects and Diseases Injurious To Cranberries," issued in 1893 and written by E. S. GOFF. In 1909 the Department of Economic Entomology was established in the College of Agriculture, with J. G. SANDERS as head. Sanders may be called Wisconsin's first professional entomologist.

Nursery inspection and other regulatory work was divorced from the University when an entomologist's office in the State Department of Agriculture was created in 1915. Sanders took that new position, and H. F. WILSON became head of Economic Entomology. Successive chief entomologists in the State Department were E. D. BALL, S. B. FRACKER, and E. L. CHAMBERS. University Entomology heads succeeding Wilson were C. L. FLUKE and T. C. ALLEN.

Federal insect laboratories for Truck Crops, Field Crops, Forestry, and Apiculture were later established here. Only the Bee Laboratory is now functional. There has been federal help on surveys of European corn borers, grasshoppers, and other insects. Entomologists are also active in the Wisconsin Pest Control Association, Wisconsin Alumni Research Foundation, Milwaukee Public Museum, colleges, insecticide companies, canning and other food production.

An inventory of some entomological accomplishments in Wisconsin would include the discovery that leafhoppers caused potato tipburn, the development of compatible and synergistic insecticidal mixtures, the development and testing of insecticides for future use, the determining of plant growth stimulation and phytotoxicity by insecticides, linking some insecticidal oils with hyperkeratosis in cattle, the artificial insemination of bees to produce selected breeding stock as is done with cattle, and the identification and naming of insects. In addition to these more specific feats, numerous local problems of insect control have been solved. Quarantine and inspection helps us steer clear of insect pests foreign to our State, and the Economic Poisons Law requires properly labeled, acceptable insecticide formulations for specific uses. Results are exemplified as: increased and better quality yields of vegetables, fruits and field crops; protection of buildings, furnishings, clothing and

stored foods; assurance of better human and livestock health and contentment. Nearly a million acres of crops are treated for protection against insect ravages annually.

Entomological work expanded rapidly in the past decade. Today there is a professorial staff of thirteen entomologists, working with thirty-five graduate students and six undergrads at the University of Wisconsin. The entomologist of the State Department of Agriculture has seven men concerned with survey, inspection and other regulatory work in this field. Three foresters in the Conservation Department are concerned with insect problems. Six major, and several smaller insecticide formulators are within our boundaries to supply needs here and afar. Some spray and dust application equipment is made here. And there are numerous custom pest control concerns with hand equipment, ground sprayers, and airplanes who offer insect control services for homes, business establishments, institutions, city and park areas, crops, farm buildings and livestock.

A survey among County Agricultural Agents in Wisconsin showed an average of thirty percent of the queries directed to them during the growing season concerned insects -- for the entire year, it was twelve percent. This points to the demand for help in this important field. Professional entomology is growing, and the public is benefiting commensurately. Further advantages will come with research progress.

# # #

ARTICLES ON MAMMALOGY AND WILDLIFE

HARTLEY H.T.JACKSON, reporter for The Review in the fields of mammalogy and wildlife management, lists the following articles by Wisconsin people or Academy members to date in 1954:

DORNEY, ROBERT S.--Ecology of marsh raccons. J.Wildlife M.

ERRINGTON, PAUL L.--On the hazards of overemphasizing numerical fluctuations in studies of "cyclic" phenomena in muskrat populations. J.Wildlife Mgt.

HAMERSTROM, FRANCES--Review of Bird Box Manual for Forest Protection (Konrollbuch für Vogelnistkästen der Forstwirtschaft.) by Otto Henze. J.Wildlife Mgt.

HICKEY, JOSEPH J.--Mean intervals in indices of wildlife populations. J. Wildlife Mgt.

JACKSON, HARTLEY H.T.--Wolverine (Gulo luscus) specimens from Wisconsin. Jour. Mammal.

--Biographical note on Gerrit S.Miller,Jr. J.Mammal.

JOHNSON, WALDO E.,and ARTHUR D. HASLER--Rainbow trout production in dystrophic lakes. J.Wildlife Mgt.

(continued on page 30)

THE AMERICAN CHEMICAL SOCIETY IN WISCONSIN

By H. J. Peppler*
Milwaukee Section

The membership of the American Chemical Society is centered in three principal areas: The Milwaukee Section, the Madison Section, and the Northeastern Wisconsin Section. The Milwaukee Section maintains a permanent office at 710 West National Avenue; the Madison Section resides in the academic activities of the University of Wisconsin; and the Northeastern Wisconsin Section is centered at the Paper Institute, Appleton.

Approximately 525 chemists and biological scientists are listed in the Milwaukee Section membership which embraces the counties of Milwaukee, Ozaukee, Waukesha, Racine, Kenosha, Washington, Jefferson, Walworth and Dodge. Most of the 105 members of the Northeast Wisconsin Section are located in the paper industry, chemical plants and food processing groups in cities and counties surrounding Appleton. The absence of reliable data allows no estimate of the size or activity of the Madison Section.

This report may serve to promote greater interest in the affairs of neighboring sections, stimulate the unattached scientists to join the Section of his choice, and encourage participation in technical and social programs of different sections by persons desiring contact with scientific progress. Perhaps a joint session of two or all three Sections could be arranged.

The Amalgamator is a free press for the Milwaukee Section Chemist. For ten years its eight different editors and their staffs have reported on Section business affairs, news and views of current interest and informative advertisements useful to all chemists. The non-profit organization is responsible to the Chairman of the Section. The chairman appoints the key members of the staff. The Amalgamator is an extra-curricular activity of the appointed staff -- something done while resting from the pursuit of daily bread, meat and dairy products.

Publicity for the affairs of the Northeast Wisconsin Section is released through The Chemical Bulletin, the publication of the Chicago Section. Announcements and news concerning the Madison Section appear to be restricted to the campus of the University of Wisconsin.

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* Editor of The Amalgamator

Activities of the Milwaukee Section for this year are summarized to illustrate the broad interests of this group:

Speakers at Business Meetings

1. Walter J. Podbielniak - Low Temperature Distillation
2. Harold H. Strain - Chromatography
3. Andrew P. Dunlop - Furan Chemistry
4. R. L. Saur - Photochemical Deterioration of Lacquers
5. Icie M. Hoobler - Nutrition of Mothers and Children
6. W. Albert Noyes, Jr. - The Chemist and Public Life

Other Sessions

1. "Chemistry and Vocation" - Milwaukee Vocational and Adult Schools as co-sponsor; a program for high school students
2. "The Chemist as an Executive"
3. Dinner and Dance
4. Social Mixer

Awards and Other Activities

1. Certificate of Merit awarded to outstanding Junior Achievement sponsored by chemical company
2. Employment Center
3. Speakers Bureau, Listings available to local groups
4. Radio and television appearances pending
5. Hosts to the National Meeting of ACS three times.

Membership information will be gladly supplied by EDWARD A. WILDER, 2924 LaSalle street, Racine, Wisconsin.

Requests for sample copies of The Amalgamator directed to the writer will be honored while the supply lasts.

Join the group nearest you; there is no substitute for the fellowship of professional associates.

INTRODUCTION TO HIGH CLIFF FOREST PARK

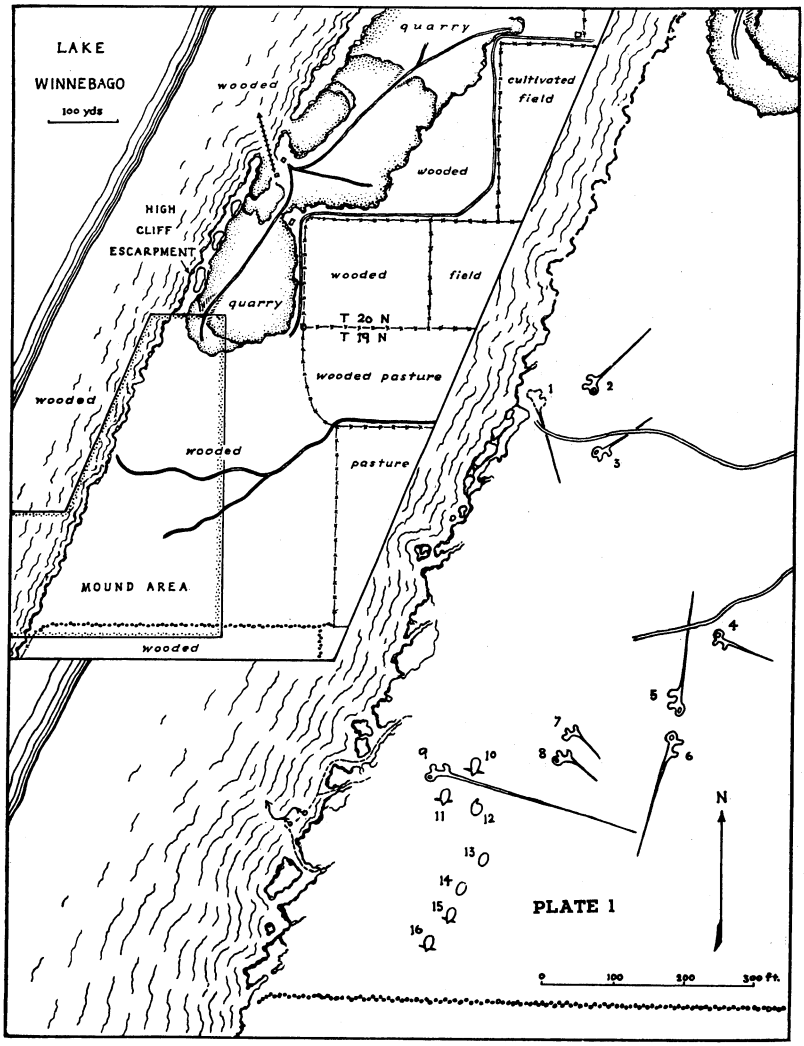
By William F. Read
Geology Dept., Lawrence College

To all lovers of the woodland trail, the campfire, and the wave-washed shore, the recent action of the State Conservation Commission in approving Lake Winnebago's High Cliff area for addition to the Kettle Moraine State Forest lands should be welcome news. "High Cliff" is the limestone scarp, approximately 200 feet high, which flanks the east side of the lake in Calumet County. Farther north, in Door County, the continuation of this same scarp, overlooking Green Bay, is responsible for the splendid scenery familiar to those who have visited our Potowatomi and Peninsula State Parks.

In general, High Cliff resembles the Door County parks. Though it is within fifteen miles, by road, from the industrial centers of Neenah, Menasha, Appleton, Kimberly, and Kaukauna--and only about thirty miles from Oshkosh and Green Bay--the natural beauty of this wooded area has remained singularly untouched. Doubtless one reason for this is that the rugged slope from the rocky crest of the scarp down to the lake has discouraged road-building. Between the old lime works near Clifton at the northeast corner of the lake and Calumet County Park two miles north of Stockbridge, there is not a single road going through to the water's edge.

It is this five-mile stretch, plus an adjoining mile or two of lower ground curving off around the north end of the lake, which is to be saved as a permanent forested recreation area for the people of Wisconsin. It will take time, of course, to secure title to the land, and more time to lay out roads and trails, construct buildings, and attend to all the other matters necessary to bringing park land to its fullest usefulness and beauty. Meanwhile, however, High Cliff is there, very beautiful as it stands, and open to inspection by any of its future owners and beneficiaries who may happen to be passing that way.

For those who would like to get an overall impression of the area in a short time, the following reconnaissance is suggested. From Highway 55 two miles north of the town of Stockbridge, turn west on the gravel road leading to Calumet County Park. (Whether this park will or will not eventually be included in the state park remains to be decided, but the County Park gives a good idea of the terrain and of some of its recreational



MAP OF HIGH CLIFF MOUNDS

From an article on this subject by Professor William F. Read in The Wisconsin Archeologist (Vol. 28, No. 1, New Series, March, 1947). Increase A. Lapham originally surveyed these mounds in 1851. Other Indian mounds have been located in the Calumet County Park and north of Stockbridge.

possibilities.) The distance from the turnoff to the lakeshore is a little over a mile. There is a splendid view of Lake Winnebago from the crest of the limestone scarp (here less pronounced than farther north). As one approaches the lakeshore, the road turns northward along a grassy bench about fifty feet above water level -- apparently old pasture land. Norway pine seedlings set out by county youth groups may be seen on the slope to the right. On the left, a somewhat precarious roadway winds down to the water's edge. This is a thorofare for ice fishermen in the winter, when whole villages of sturgeon shanties spring up offshore, and for boat launchers in the summer. Farther along, there is a lodge building for Scout groups, and one can see many a fine spot for picnic fire and pup tent. Then, at the end of the road, is the neat warming house jointly maintained by the County and by the Fox River Valley Ski Club. The ski slope, with its two tows--one for beginners--is a few hundred yards beyond.

A short distance north of the ski slope one will be in heavily wooded and entirely undeveloped ground typical of the intended state park area. The walking here is difficult, however, and another point of approach is recommended. After returning to Highway 55, proceed northward for about three miles to the American Legion Schoolhouse. Follow the gravel road west from here until it ends. (This is a county road, but the adjoining land is at present still private property, so before proceeding further, it would be well to obtain permission at the nearest farmhouse.) The end of the road is a few steps from the top of the scarp, which here has a ledge of limestone jutting out to form a ragged cliff twenty to thirty feet high. Below the ledge is a long steep slope heavily wooded with maple, birch, and basswood. There is no definite trail, but the bare and nearly level upper surface of the limestone ledge presents an easy and interesting route along the top of the cliff--to the north especially. Here are ancient rock formations for the geologist; trillium, wild columbine, and dutchman's breeches for the botanist; warblers, woodpeckers, and nuthatches for the ornithologist. The descent to the lakeshore is not recommended unless one is equipped with stout boots. It cannot be seen from the top of the ledge, but there is a bench down there like the one at Calumet County Park (a high-level shore terrace formed in late glacial times), which can be used for park roads and buildings.

The north end of the park area has a road through it and may be seen directly from the car. After returning to Highway 55 at the American Legion School, turn left (northeast); then left off the highway again at the next gravel road, which runs north. After about a mile,

this road turns west and descends the slope below the limestone ledge to the little town of Clifton. From there follow the edge of the lake northwest for about a mile before turning north to meet Highway 114. There are farms, and a number of summer cottages, along this stretch of lake front. One reason for including it in the proposed state park area is that it has a sandy shoreline suitable for development into a bathing beach. Another, of course, is that it will provide a large area of fairly level ground adjoining the lake. And still another is that from here one obtains a splendid view of the rugged shoreline curving away to the southward.

No one who has watched the sun go down over the west bluff at Devil's Lake, or tramped through glistening snow at Potowatomi, can doubt the immeasurable value of our great state parks. We can be thankful that one more area, suitable for such a park, and readily accessible to heavily populated areas, has been marked for preservation.

# # #

FUTURE PLANS FOR THE WISCONSIN GEOLOGICAL SURVEY

By George F. Hanson
State Geologist

The present Wisconsin Geological and Natural History Survey was established in 1897. At first it consisted of two divisions, those of Geology and Natural History, and in 1909 the Soils division was added. The duties which are assigned to the Survey by statute are most impressive. They include the completion of the geological survey of the state with special regard to economic and road-building materials; the study of the plants, forests, animal life, fish, water powers and soils; the completion of the topographic map; the preparation of a manual of physical geography; the examination and valuation of mines for the purposes of taxation; and the publication of the results of the studies.

A noteworthy start was made on this program. The Natural History Division headed by BIRGE and JUDAY made contributions in that field which are now classical. Publications ceased in 1928, however, and the division has been inactive for many years. At the end of the first thirty years the Soils Division had completed the survey of forty-four counties and revised the generalized soils map of the state. This division still con-

tinues actively in both field mapping and public education. Detailed information on several counties has been assembled, but only two completed reports have been issued during the last twenty-four years.

The Geologic Division was also extremely active and many publications were issued on the geography and basic geology of the state as well as upon the economic geology. Although publications were discontinued with the 1932 revision of the "Physical Geography of Wisconsin" by MARTIN the survey has continued to add to the geologic knowledge of the state. Each summer field parties, financed by the State Highway Commission and directed by the State Geologist, conduct surveys for road building materials. Hundreds of cuttings from deep wells are examined and logged each year which have added enormously to our knowledge of the subsurface geology. Cooperative programs with the U. S. Geological Survey include topographic mapping, groundwater investigations and the geologic mapping of the zinc-lead district. Staff and students of the Geology Department of the University have done notable work, particularly in the fields of geophysics and glacial geology, although the survey has been able to provide little more than token support for their activities.

It is often considered unethical or immodest for scientific organizations to mention money, yet the primary purpose of a state geological survey is to enable the state to make the best possible use of its mineral resources; hence, the economic aspects are extremely important. It has been estimated that the highway materials program has saved the state as much as $400,000 in a single year at an operating cost of about $10,000; the total savings over the years have amounted to millions of dollars. The cooperative investigation of the zinc-lead district has indirectly resulted in the location of ore bodies worth an estimated thirty million dollars and

has re-awakened the interest of the largest zinc and lead producing companies in the potentialities of the area. The information gathered on the subsurface geology is of inestimable value to municipalities and industries when planning for their water supplies. It is of course obvious that not every geological investigation is a spectacular economic success, but it should be equally obvious that a well-staffed, well-equipped survey is a sound investment of the money required for its upkeep.

Wisconsin has not been blessed with great concentrations of mineral wealth but its potentialities, especially in the non-metallic minerals, have by no means been fully realized and much work remains to be done if this is to be accomplished. Advancing technology and changing demands make continual investigation and research essential. Low grade iron ores formerly considered worthless have now assumed major economic importance; clays and shales suitable for making light weight aggregate are in great demand and we should determine if any of our deposits meet the required specifications; high-grade silica sand is also in demand and yet we know little about our resources of this commodity. Many other examples could be cited to show the need for keeping our geologic knowledge up-to-date if we are to capitalize upon our available mineral resources. The survey is presently not equipped to carry out either the field work or the laboratory research necessary for such a program. The future plans for the survey must therefore be first to convince the state that an active geological survey is to its benefit, and second to build it to the level of excellence necessary to discharge effectively the duties for which it was created.

# # #

Reporter GENE UEHLING has contributed the following notes on the Junior Academy:

Aquinas High School (La Crosse) has received four awards from the American Society for Metals Science Achievement Awards. TOM WEIDENKOPF received first; JAMES SCHAULS, ROGER COMEAU and GENE UEHLING, honorable mention. The La Crosse District of the Wisconsin Junior Academy has presented a series of six fifteen-minute radio programs on WLCX. They were heard on Saturdays at 11:30 and were billed as "The Wisconsin Junior Academy of Science on Review." Each of the local members gave their Academy papers on the air. All members cooperated with UEHLING, who originated and taped the program. WLCX has invited them back.

ON EDUCATION FOR SOCIETAL HEALTH

By Charlotte G. Babcock, M. D.
University of Pittsburgh

(Excerpts from a talk delivered at Commencement at Milton College, June 7,1954, during which the degree of Doctor of Science, honoris causa, was conferred on Dr. Babcock, a 1929 graduate of the College. She is currently Professor of psychiatry at the University of Pittsburgh, having been also at the University of Chicago as lecturer.)

...Today we discuss the recent Supreme Court decision regarding education and segregation, our concern for academic freedom endangered by the tremendous pressure often cliched under the concept "guilt by association." We struggle to protect our most precious heritage, the climate of thought in which free man can freely and honestly think, debate, and learn in order to take responsibility for the consequence of his thought. As a psychiatrist who has professionally worked with some of the atomic scientists I can report to you the painful anxiety and depression experienced by these men when they first discovered not the scientific but the social consequences of atomic energy. ...

...education at all of its levels and in all of its forms, from the family unit to the great university, is the most important civilizing force we have. Though the form (or structure) of education may change as is made necessary by changing forms in other areas of life, it is in the spirit--the ideas and the practice by man of man's humanity to man that a culture, a civilization is maintained. And the carriers of culture which gives purpose to life, are people. ...

Furthermore, we are struggling with changes in our ideals and in our attitudes that have value to us. Many discrepancies appear in our social thinking. On the one hand the teacher is expected to teach his pupil that a person is considered innocent until he is proven guilty, but in practice daily we discover that an accused is considered guilty until proven innocent. Again, under the law, maximum protection of the accused until he is proven guilty is an ideal, but in practice the accused often receives maximum publicity with or without evidence. In the past the teacher was expected to teach contempt for

the "tattler" (and informer). Now there is in many places glorification of the informer. In the secondary schools the teacher is over-worked, over criticized, and underpaid. Many parents, beset with all the problems of adulthood, and perhaps still with their own rebellious youth unsolved, join with the child in his rebellion against becoming civilized. They thus join in the attack against the school, the church or other socializing influences in the community. Earlier in the field of college and post-graduate education, the academician was an unhampered thinker, working to follow his research wherever its ideas might seem worthy of his courageous exploration. Today a teacher may be punished by loss of job, prestige or by damage to his family either if he teaches controversial points of view or if he tries to investigate their validity or invalidity. How are we, we who are responsible for our society, to reconcile such conflicting attitudes as these? Our society and our health are closely interrelated. Today everyone knows the common cliche that the "peptic ulcer is the wound stripe of our civilization". Do we as our social scientists and our historians are saying, live in an "age of anxiety" and in an "age of unreason" from which there is no recourse? Is this a sick society? If so, who is sick and who is well? There are profound questions indeed. Yet there is still security in our society. We know today more about man than we ever have before. ...

... Out of his [Freud] work and that of many colleagues in medicine, psychology, anthropology and sociology, what have we learned? (1) That motivation is a very complex phenomenon; (2) that the goals of man as an individual and at the same moment as a member of society are from the beginning of any given life more often in conflict than in harmony; that to provide protection and growth for both the individual and society, the biological drives which supply the energy for these goals in man must be "educated". ... (3) that psychological and emotional maturation occurs in a logical progression just as surely as physical growth does; (4) that emotional and psychological growth can be interfered with just as severely as the unseen germs, the automobile accidents or the fourth of July firecrackers blind the physical seeing of human beings; (5) that the human infant is born with the capacity to respond to love and with the capacity to grow; the ability to give love to a person outside of the self has to be cultivated. ... (6) Freud demonstrated, moreover, that the human organism often faces complex needs, sometimes more than one of them demanding expression or relief at one and the same time. These phenomenon produce conflict and anxiety; anxiety is painful and under stress, the human organism often returns to its primitive ways of handling its stresses. ...

(7) Freud realized eventually, that the personal experience of conflict is inevitable if a human being is going to be civilized. ...

Education then, is a tool with which we can master ourselves; we can learn to pay heed to our anxieties, to discriminate whether they come from ourselves or are stimulated by our environment; we can perceive the nature of the physical, intellectual or social force that impinges upon us, those which we provoke and for which we are responsible and those from outside ourselves. We need not confuse them. We may defend ourselves wisely, investigate ourselves the nature of the stress, become acquainted through the free use of our imagination with the unknown and come to some course of action. Education then, is not only for the college student; it is an essential for the man who in his older years would have an attribute greater than knowledge, namely wisdom; for wisdom implies not only the acquisition of facts but the freedom to be curious, to think, to integrate all aspects of a problem as they relate to one another. Education thus applied might be as practical as permitting oneself unafraid, to read both a Republican and Democratic newspaper; education might be the spirit which would encourage our children to know about natural phenomena in realistic terms such as the laws governing atomic energy rather than the fear and hate engendered in fantasy about crime-busters with deathrays, or to know function and continuity of sexual patterns in a disciplined mores rather than the power of licentiousness in lieu of the creativeness of license in the use of human feeling; education might be as practical as finding out that life is more than sordid, banal or boring. ...

... we are frightened by the reality of mass weapons and the reality of the value attitude that human life is cheap and expendable for the sake of a nation's power. Our ability to look at, study, act with caution and reason and to control ourselves from the panic that leads to false generalizations and mass destruction, will play an important part in whether or not man can stand the stress of this age of anxiety, this century.

Education is one of our great constructive and curative forces; to master the unknown, we must use the known. To know we must communicate with ourselves and with one another. We must be aware of those forces within us that would divide and conquer us, and those forces without that would emasculate us. It is we who must know our hungers and feed ourselves--food, companionship, work, wisdom and it is we, the carriers of culture, who must make real man's humanity to man.

# # #

JAMES DUANE DOTY — A VIGNETTE

By Alice E. Smith
Head of Research Division
State Historical Society

If James Duane Doty had had his way, Wisconsin would have reached from the straits of Mackinac to the Lake of the Woods. The Illinois boundary line would have been sixty miles farther south, placing the Galena lead mines, the great stretches of northern Illinois farm land, and the populous Chicago area within our state. Year in and year out Doty propagandized for the restoration of Wisconsin's "rightful" boundaries, a move that would, he declared, have given her an area of 117,000 square miles and made her "the Empire State of the Northwest."

But like countless other schemes concocted by the promoter's fertile brain, the boundary restorations failed to materialize. Throughout his life Doty dreamed dreams and tried to make them actualities. Roads, canals, railroads, banks, land speculation, investments, selection of town sites, government administration, and all the other things that were needed to transform a wilderness into civilization were the object of his busy promotional planning.

James Duane Doty ca.1858

In his spare time he considered such interesting subjects as Indian welfare, place names, and spelling reforms. He collected Indian objects and a fine library. He built several houses in Wisconsin, all of them in scenic spots. Although transportation facilities in his day were crude and uncomfortable, he traveled thousands of miles in his lifetime, mostly by canoe, horseback, and stagecoach. People found him a remarkably interesting person, a "good mixer," and a fine conversationalist, genial and friendly.

These are some of the less known facets in the career of Doty that are brought out in this new biography. We are perhaps familiar with the better known facts of his life: the man who successfully lobbied at Belmont in 1836 to make Madison the capital; the founder and promoter

of numerous Wisconsin townsites; the judge, territorial governor, and member of Congress from Wisconsin. But here we can not only follow his public career but learn some of the more unusual sides of this remarkable man, the man who was continually driven by a compelling personal ambition but nevertheless, the one of whom an observant Congressman said, "His whole body and soul appear to be absorbed in devising plans to accelerate the prosperity of Wisconsin."

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Miss Smith's biography of James Duane Doty is described elsewhere in this issue.

# # #

PAPERS IN THE FIELD OF PHYSICS

J. GIBSON WINANS, reporter for The Review in the field of Physics, lists the following papers and reports presented at scientific meetings by members of the U.W. Physics Dept. for the period January-October, 1954:

American Physical Society (New York, Jan.28)--The Faraday Effect in Gases, L.R.Ingersoll and D.H.Liebenberg

American Physical Society (Washington, D.C., April)--Equipment for the Measurement of Very Small X-Ray Scattering, W.W.Beeman and R.H.Neynaber; Isotope Shift in Li I Spectrum, Raymond H. Hughes (Student of J.E.Mack), and Motion of Arc Cathode Spot in a Magnetic Field, Robert St.John and J.G.Winans.

Wisconsin Assn. of Physics Teachers (Ripon, May 8)--Demonstration Lecture on Properties of Liquid Helium, J.R.Dillinger; Motion of Arc Cathode Spot in a Magnetic Field, Robert St.John and J.G.Winans; The Importance of studies of Properties of He^3 to Low Temperature Physics, J.R.Dillinger; The Isotope Effect in Electrical Superconductors, A.H.Markham (Student of J.R.Dillinger).

American Assn. of Physics Teachers (Minneapolis, June)--Volume Exclusion Principle, J.G.Winans.

American Physical Society (Minneapolis, June)--From the Nuclear Physics Group directed by H.H.Barschall, R.G. Herb and H.T.Richards: Small Angle Scattering of 1-Mev Neutrons by Intermediate and Heavy Nuclei (by Darden, Haeberli and Walton); Scattering of Polarized Neutrons from Heavy Nuclei (by Okazaki, Becker and Barschall); Energy Levels of Li^6 (by Galonsky and McEllistrem); Gas Recoil Fast Neutron Spectrometer (by Benenson, Shurman and Haeberli) and Recent Progress in Electrostatic-Generator Techniques (Invited Paper by R.G.Herb, Bull. Am. Phys. Soc.).

Fifth Internat'l Symposium on Combustion (Pittsburgh, Pa., Sept.)--Temperature Measurements from Iodine Absorption Spectrum, N.J. Beck, Simon K. Chen, O.A. Uyehara, J.G. Winans and P.S. Myers.

In Memoriam

Norman C. Fassett

1900-1954

With the death of NORMAN CARTER FASSETT at Boothbay Harbor, Maine, the University of Wisconsin has lost the services of one of the outstanding plant taxonomists of the nation.

NORMAN FASSETT was born on March 27, 1900 in Ware, Massachusetts. His entire higher education was obtained at Harvard University where he earned the degrees of B.S. in 1922, M.A. in 1923 and Ph.D. in 1925, specializing in taxonomic botany. Appointed to the University of Wisconsin as instructor in botany in 1925, his services to this institution and to the people of this state encompassed his entire professional life. His advancement to Assistant Professor in 1929, to Associate Professor in 1937, to Professor and Curator of the Herbarium in 1944 reflect the development of this professional life.

Active and interested in people and in the many ramifications of his field, Fassett was a member of many organizations, among them the American Society of Plant Taxonomists, of which he was one of the founders, the Secretary-Treasurer during 1936 to 1944, and the President at the time of his death. He was a member of the Wisconsin Academy of Sciences, Arts and Letters since 1926 and gave the organization both inspirational and financial support.

A forceful and stimulating personality, Fassett was noted for the excellence of his lectures. His classes

were sought by students in many fields of science. Sparkling wit, dry humor and a wealth of illustrative material characterized his delivery. Always a firm believer in the necessity of field work in botany, Fassett led his classes on many memorable trips.

Under his guidance the Herbarium of the University has grown from a collection of 96,000 specimens (including 15,000 of Wisconsin plants) to the impressive and exceedingly valuable collection of 380,000 specimens, including 68,000 in the Wisconsin Collection. The specimens personally collected by him numbered over 28,000.

Fassett's profound enthusiasm for the out-of-doors and his sensitive dismay at the changes being wrought by man led him to become one of the leaders of conservation thought in Wisconsin. His lectures and his conversations with his students and colleagues imbued many with the spirit of conservation. Through his influence an undergraduate major in the biological aspects of conservation was started at the University and the State Board for the Preservation of Scientific Areas was brought into being. He was active in the establishment and development of the University Arboretum. His wide influence upon the students from so many diverse fields impressed many of the citizens of Wisconsin with the importance of an ecological conscience. As a dynamic and inspiring teacher, Fassett must be rated with Wisconsin's great conservationists of the present century, Van Hise, Wehrwein and Leopold.

The author of over 100 professional papers, he wrote books upon the aquatic plants of North America, hay fever plants, the spring flora of Wisconsin, the grasses of Wisconsin, the legumes of Wisconsin, and was co-author of a book on the ferns and fern allies of Wisconsin. Notable to Wisconsin citizens is the long series of reports on the flora of Wisconsin by himself and his students, published in the Transactions of the Wisconsin Academy, and a paper on the past and present vegetation of the Brule River which appeared in the same journal. As a specialist on aquatic plants, his advice was sought by many colleagues, and it was on an expedition to Central America for these plants that he was first stricken with the illness which led to his passing.

His students and his colleagues mourn the passing of a great friend, a great mind and a life of immeasurable usefulness. His inspiration will be sorely missed.
-- [Adapted from the report of the U.W. Memorial Committee consisting of E. F. Bean, J. T. Curtis, H. C. Greene, Joseph J. Hickey and John W. Thomson (Chairman).]

# # #

DOMAIN OF LETTERS

Collected by Prof. Ralph A. McCanse
Associate Editor in Letters

Alert to expanding interests recognized and fostered by the Constitution of the Academy, your staff of The Review is planning certain special emphases in future. For the great field of Letters, materials of the following typical kinds will be solicited and welcomed for publication in a distinct section: Creative work such as original verse of merit; personal sketches, brief suggestive essays on significant subjects; accounts of meetings attended--and of important policies or actions transpiring there; reports upon publications (summary, or precis, or review, as well as simply title and placement); offices assumed, either elective or appointive; services rendered; honors known to have been extended to colleagues. It is fundamentally important that coverage of Wisconsin entire, and of the Academy associates throughout the country be given in all issues of The Review. Communications will most conveniently be sent to the Associate Editor designated as staff aid in the Academy Domain of Letters at 110 Extension Bldg., UW, Madison. Academy members from educational, civic, art, and literary institutions or societies are earnestly besought to take upon themselves the duty, assuredly not an unpleasant one, of sending in materials calculated to inform and guide readers of The Review.

* * *

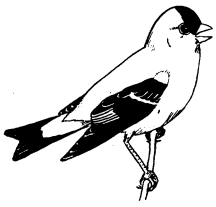
Series of Broadcasts by Authoritative Lecturers

Of fundamental significance to our present-day world, nation, state, and local life are the authoritative discussions on "What We Stand For," originating from the University of Wisconsin by faculty speakers. Continuing throughout the first semester of 1954-55, subject matter is organized under five topical headings: Free Government, Free Inquiry, Free Economy, Free Arts, and Free World. Broadcast over the state radio network, lectures may be heard Tuesday mornings at 11:00 or on F-M, Friday evenings at 8:00.

* * *

News Notes

Prof. ROBERT C. POOLEY, Chairman UW Integrated Liberal Studies Course, presents the neo-humanist position in a symposium on general education in the October College and University Bulletin. He makes plea for the main function of general education as serving to transmit the cultural heritage from generations past to potential leaders and thinkers in the future....GILBERT H. DOANE, Director of Libraries, UW, recently delivered an historical address at dedication of Chester A. Arthur State Memorial Park, Fairfield, Vermont.



GOLDFINCHES ON THE LAWN

Flower gold, bird gold
Scattered on the green:
Dandelions yellow,
Finches in between.

Myriad voices on the lawn,
Cheery twittering --
I could almost say I heard
The dandelions sing.

Did perhaps the morning sun
Let fall this feathered shower,
Whereof each winged flake alighting
Turned into a flower?

Bird gold, flower gold,
Grasses in between:
Nature's treasure chest has burst;
Her wealth is on the green.

---Lowell E. Noland

AUTUMN NIGHT

Silent and chill
The clear, heavy moonflood pours on the autumn night,
Breaking in crystal droplets over the grass,
Wetting my feet as I pass
Pensively through the almost palpable light
Over the hill.

Withered and old
The yellowing maple leaves loosen their grasp and fall,
Winged for one thrilling moment in the still air,
Quivering, fluttering, gyrating down to prepare
A cloak for the shivering shoulders of earth, a shawl
Of russet and gold.

---Lowell E. Noland

Distinguished zoologist, devoted teacher, and a past president of the Academy, Professor Lowell E. Noland has consented to publication of these two original poems in The Review.

LEOPOLD PORTRAIT PRESENTED TO UNIVERSITY OF WISCONSIN

(Excerpts from presentation statements made at American Ornithologists' Union meeting, September 9, 1954)

Remarks by ALDEN H. MILLER, University of California
President, American Ornithologists' Union

We are here this evening to pay tribute to a naturalist of great wisdom and achievement, the late ALDO LEOPOLD. ... It was not my privilege to know Aldo Leopold well, although one meeting served as a magnet to draw me to him. But I do know the West where his early life was spent in nurturing, indeed creating the modern field of wildlife management and conservation.

...Aldo Leopold was first an ornithologist, as so many biologists are. To this boyhood bent he added a formal training in science, particularly in the school of forestry at Yale. In 15 years in Arizona and New Mexico, working for the U.S. Forest Service, he developed vigorously his positions and thinking on soil erosion, preservation of wilderness areas, wildfowl conservation, human utilization of resources, and fundamental game research. ... His prolific writings, his seemingly endless array of advisory committee functions, and his originality earned for him a unique position in conservation. Fortunate indeed was the University of Wisconsin in being able to bring him to its faculty.

... In the University, Leopold built a department of Game Management, now the Department of Wildlife Management (which) under his direction, became the foremost center in the nation for basic training and policy in wildlife conservation. The training was and is not just in technology but in the fundamental biologic economy of the land and its products and schooling in an attitude of human responsibility, ethics, and appreciation of nature.

Presentation by ROBERT A. McCABE, Chairman of Dept. of Forestry and Wildlife Management, UW

... With the stubby fingers of words, I would like to add a few brush strokes to help the features of this portrait convey the man. ... Aldo Leopold possessed that enviable quality of being able to inspire by presence alone. As a teacher, his hand lightly placed helped students rise above their own intellectual limitations. This subtle and effective guidance, enlightened the student, gave prestige to the University, and strengthened the integrity of his profession. ... One of the basic Leopoldian concepts was the necessity of society's moral obligation to the land. To him, abuse of the land ranked with abuse of civil rights. His was the ability to feel of the soil and see its genesis, growth, evolution, exploitation, and death. From this insight he taught of an ecological conscience. ... The human attributes which best characterize Aldo Leopold are humility and understanding. ... Those of us who stood in the warmth of his shadow know that he better than anyone has understood our inner, personal feelings toward natural beauty. His own feelings on the esthetic values of nature were not ephemeral or lofty affectations, but were those genuine, sincere responses that were shared by many, who are less gifted with the pen. ...

Acceptance by IRA L. BALDWIN, Vice-Pres. Univ. of Wis.

... Leopold was one of those rare, articulate visionaries upon whom mankind often must wait for the opening of new fields. Leopold possessed the additional virtue of a questioning mind; a mind which ever asks whether our accepted ways of doing things are as good as we think they are. ... Leopold's teachings have been the basis of much of our reassessment of conservation practices in the light of the findings of the science known as ecology. ... he also saw that much of the earth would inevitably be turned to man's use (and) taught that men must find a way to use the resources of the earth with intelligence and wisdom, lest those resources vanish completely. A scar on the land violated Leopold's sense of natural values. It also meant that resources had been destroyed that future generations might sorely need. ... This is a challenge that we must accept as dependents upon the resources of the earth. We must fulfill the obligations of a philosophy that goes beyond the needs of the living generation. ... Our challenge to live as part of the world around us, and not as exploiters, is one for which future generations will pay greater tribute than we, for by meeting this challenge we leave a heritage of lake and stream, field and forest, that otherwise we would have squandered....

# # #

In Memoriam - William O. Hotchkiss - 1887-1954

Dr. William Otis Hotchkiss passed away June 30, 1954 at Scarsdale, New York. A long time member of the Wisconsin Academy, Dr. Hotchkiss became an Active member in 1911, and was elected to Life membership in 1950. His 44 years of membership in the Academy is but one indication of his life-long interest in Wisconsin as a professional geologist, scholar, and administrator.

Dr. Hotchkiss was born in Eau Claire on September 17, 1878. He was a graduate of the University of Wisconsin and was awarded a Ph.D. degree in geology in 1916. His honors in recognition of his work as a scholar and geologist were many. In 1937 he received the LL.D. degree from his Alma Mater, an honorary D.Sc. degree from Lafayette College in 1929 and Columbia University in 1940, and an LL.D. degree from Middlebury College in 1936. Dr. Hotchkiss began his service to Wisconsin as a geologist in 1904 advancing to State Geologist in 1909 and becoming Director of the Wisconsin Geological and Natural History Survey from 1919 to 1925. In addition to being Wisconsin's chief geologist, he was a student of highway construction, and headed the State Highway Commission from 1911 to 1925. He left Wisconsin in 1925 to become President of the Michigan College of Minerology and Technology, which he served until 1935. From 1935

until his retirement as Emeritus President in 1943, he was associated with Rensselaer Polytech. During the war he spent a year in Washington assisting to organize the hundreds of engineers needed by the Army, returning to Rensselaer to run the school on a twelve-month basis training more engineers.

The citizens of Wisconsin are indebted to the foresight and service that Dr. Hotchkiss has given them, and we can refer with pride to his achievements outside the boundaries of our State as well. Our Academy marks his passing with deep regret, but also with pride in recalling his distinguished record and long association with us.

---Robert J. Dicke

# # #

VERNOR C. FINCH—ECONOMIC GEOGRAPHER

(A UW Retirement Profile by Hazel McGrath, Revised and Abridged)

Harold N. Hone Photo

Twice in the past five years one of the most unassuming of men has occupied the place of honor at a banquet table in Chicago, listened uneasily while words of praise were heaped upon his reluctant head, and accepted gold medals and awards for distinguished service in the field of geography. Nothing but the knowledge that his presence reflected credit on the University of Wisconsin could have induced Prof. VERNOR C. FINCH to attend these affairs. Prof. Finch came to Wisconsin in 1911 and was chairman of the department of geography from 1928 to 1945. He affiliated with the Wisconsin Academy of Sciences, Arts and Letters in 1921 and has been an active member since. His colleagues recently honored him by turning his long-time office in Science Hall into the Finch Seminar Room.

For a man who has spent the best part of his 70 years trying to stay out of the limelight, Prof. Finch has gathered an outsize portion of professional kudos and personal friendships. Long known as one of the world's outstanding economic geographers, he was honored by his

U. S. Colleagues in 1923, when they elected him treasurer and member of the council, and in 1938, when they elected him president of the Association of American Geographers, the professional organization in the field.

In 1925 he was named to the National Research Council's committee on geology and geography, and a year later to the special committee on the study of pioneer regions. Earlier still, in 1915, he was called to Washington by the U.S. Dept. of Agriculture to do special research on world agriculture; and during World War I he returned there as expert for the U. S. Shipping Board.

His books: "Geography of the World's Agriculture" (with O.E.BAKER); "Economic Geography" (with R.H.WHITBECK); and "Elements of Geography" (with GLENN TREWARTHA) are classics in the field. He was one of the first men to use dots on maps to show graphically the location of the world's resources and products. Between 1920 and 1930 he turned out five series of wall maps for A.J.Nystrom & Co.

By 1920, when geology became the department of geology and geography, he was associate professor; and by 1928, when geography and geology obtained a legal separation, he was full professor and chairman of the new department. Professor RICHARD HARTSHORNE, present chairman, recently observed that "by working quietly and competently, without ever throwing his weight around, he has made this department one of the best in the country. Almost every member of our staff was either trained or selected by him. His graduate students are carrying on the Finch tradition elsewhere: JOHN WEAVER at the University of Minnesota; EUGENE MATHER at the University of Georgia; and LOYAL DURAND at the University of Tennessee, to name a few." Mr. Finch has given the department his collection of almost a thousand hand-colored slides showing interesting geographical views of the United States and Canada, for he feels good pictures are next best to taking students into an area.

The citation accompanying Prof.Finch's distinguished service award for 1950, the highest honor given by the National Council of Geography Teachers, lauds his career of teaching, research, and writing, and adds that no one has done more than he to provide the colleges of the country with well-organized, challenging teaching material. In 1948 he had collected the Helen Culver gold medal, annually given by the Geographical Society of Chicago for distinguished contributions in economic geography and related fields.

Dean Mark Ingraham of the College of Letters and Science recently commented: "For many years, as a member of the executive committee of the college, he worked tirelessly to do everything he could to help the University on any occasion. He is a splendid person to whom we all owe a tremendous debt."

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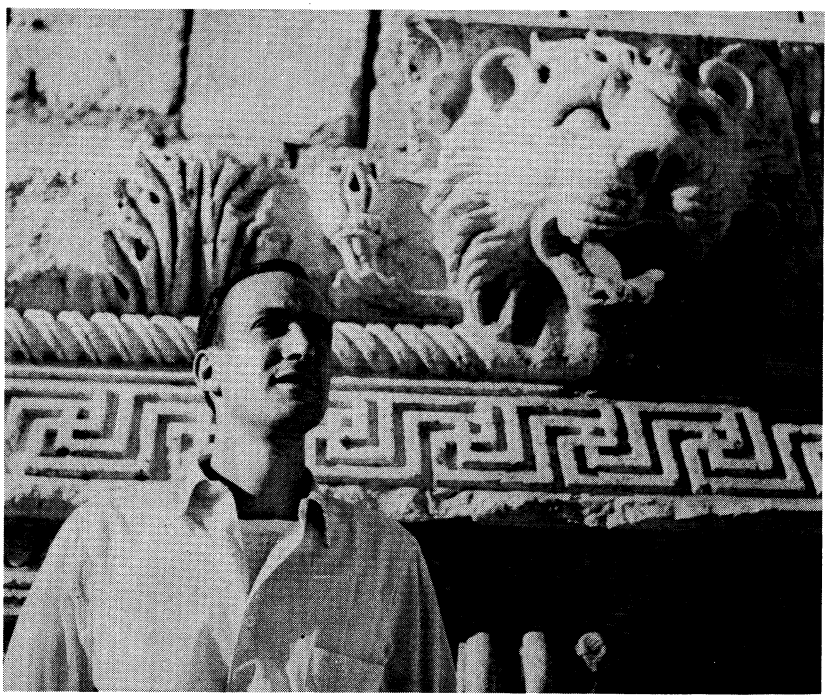

WILLIAM DAVISON SCHORGER — NEW LIFE MEMBER

It is a pleasure to recognize and announce the acceptance of a Life membership for WILLIAM DAVISON SCHORGER. Dr. Schorger is presently an Assistant Professor of Anthropology and Middle East Studies at the University of Michigan, a position he has held since 1952.

Dr. Schorger was born July 26, 1921 at Madison, Wis., the son of Prof. and Mrs. A. W. Schorger. He served in the American Field Service in North Africa from 1942 to 1943, and in 1945 graduated from the Merchant Marine Academy at King's Point, Long Island.

Schorger is a graduate of Harvard University with a B.A. degree in 1947 and a Ph.D. degree in Anthropology in 1952. During this time he obtained a Sheldon Travelling Fellowship from Harvard for work in anthropology with headquarters at Tangier, Morocco, and a Social Science Research Council Fellowship in connection with teaching at the American University, Beirut, Syria.

Dr. Schorger is the father of two sons, and presently resides at 1609 S. University, Ann Arbor, Michigan.
(Photograph taken at Roman ruins, Baalbek, Syria in 1950)

ARTICLES IN THE FIELD OF PHYSICS

J. GIBSON WINANS, reporter for The Review in the field of Physics, lists the following publications by members of the U.W. Physics Department for the period January 1-October 1, 1954; these include five by the Nuclear Physics Group, H.H. BARSCHALL, R.G. HERB, H.T. RICHARDS, and associates.

AITKEN, A.--Some Possible Relationships between π^- Meson Nucleon Scattering and π^--Meson Production in Nucleon-Nucleon Collisions Physical Review, with H. Mahmond, E.M. Henley, M.A. Ruderman and K.M. Watson

BULA, R. J.--Measurements of light beneath a small grain companion crop as related to legume establishment. Botanical Gazette with Dale Smith and Edward E. Miller

FIELDS, R. E.--Measurement of the Neutron-Proton Cross Section at 1.0 and 2.5 Mev. Phys. Rev. with R. L.Becker and R.K. Adair

FRY, W. F.--K-mesons and a Charged Hyperon Produced by 3 Bev Protons in Emulsions. Phys. Rev. with M. S. Swami
--Energetic Disintegration of a Heavy Nuclear Fragment. Phys. Rev. with M. S. Swami
--Negative π-μ Meson Decays in Photographic Emulsion. Phys. Rev. with George R. White
--Non-Mesonic Decay of a Bound V_1^0 - Particle. 11 Nuovo Cimento with G. R. White

GOLDBERG, E.--Elastic Scattering of Alpha-Particles by Neon. Phys. Rev. with W. Haeberli, A.I. Galonsky and R.A. Douglas

INGERSOLL, L. R.--The Faraday Effect in Gases. Jour.Opt.Soc.Am. with D. H. Liebenberg

JONES, K. W.--A Comparison of Nuclear and Gamma Ray Energy Scales Phys. Rev. with R.A. Douglas, M.T. McEllistrem, and H.T.Richards

KNUDSEN, W. C.--Experimental evidence for structure in the Helium II film. Phys. Rev. with J. R. Dillinger

OKAZAKI, A.--Total Cross Sections of Rare Earths for Fast Neutrons Phys. Rev. with S.E. Darden and R.B. Walton

ROEBUCK, J. R.--A precision multiple-mercury-column manometer. Rev. of Sci.Instr. with H.W. Ibser

SACHS, R. G.--Structure of the Nucleon. Physical Review

SCHMIDT, PAUL--Small-Angle X-Ray Scattering from Turnip Yellow Mosaic Virus. Biochimica Et Biophysica Acta with Paul Kaesberg and W. E. Beeman

TAKEDA, GYO--High-Energy Protons in Nuclear Interaction of 220-Mev π^- Mesons in Nuclear Emulsions. Phys. Rev.
--Application of the Intermediate Coupling Theory to the Scattering of Pseudo-scalar Mesons by a Nucleon. Phys. Rev. (Research Associate to R. G. Sachs)
--Polarization of Fast Protons Scattered by Nuclei. Phys. Rev. with K. M. Watson

VOLKOV, A. B.--A Modified Shell Model of Odd-Even Nuclei. Phys. Rev. (Research student of R. G. Sachs)

WALT, M.--Scattering of 1-Mev Neutrons by Intermediate and Heavy Elements. Phys. Rev. with H. H. Barschall

WATSON, KENNETH M.--Some General Relations Between the Photoproduction and Scattering of π Mesons. Phys. Rev.

WINANS, J. G.--Doppler Effect Equation. Am. J. Phys.

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ARTICLES on MAMMALOGY and WILDLIFE--cont'd from page 5

McCABE, ROBERT A.--Training for wildlife management. J.Wildlife M.
--Review of Round River, From the Journals of Aldo Leopold. " "

THREINEN, C.W., and WM.T.HELM--Experiments and observations designed to show carp destruction of aquatic vegetation. J.Wildlife M.

SOUTHWICK, CHARLES H.--Canine teeth in a Wisconsin white-tailed deer fawn. Jour. Mammal.

* * *

REPORT FROM THE SECRETARY

By Robert J. Dicke, Secy.-Treas.

MEMBERSHIP

Fifteen new memberships have been received since publication of the last issue of the Review:

ROBERT A. BAILEY, Sarona
JOHN A. BEALE, Conservation Dept., Madison
Mrs. MARGARET S. BERGSENG, University of Wisconsin
AARON BOHROD, University of Wisconsin
H. R. HOLAND, Ephraim
C. M. HUFFER, University of Wisconsin
W. W. MORRIS, Madison
R. W. NERO, University of Wisconsin
A. P. NEUMANN, Wauwatosa
R. W. POULTER, Horicon
RICHARD H. ROBERTS, University of Wisconsin
J. R. THOMAS, Loyal
F. B. TRENK, University of Wisconsin

WILLIAM D. SCHORGER, Ann Arbor, Michigan is a new Life member and the INSTITUTE OF PAPER CHEMISTRY, Appleton has subscribed to a Library membership.

To date our membership is as follows:

Patron	2	Honorary	4
Life	33	Corresponding	10
Sustaining	0	Library	6
Active	436	TOTAL	491

Although the Academy has gained appreciably in numbers during the past year, we are still considerably behind the membership potential in this state. To date, we have no Sustaining members, and membership within the Patron and Life groups are urgently needed. It should be remembered that Active members can readily change their class of membership upon application to the Council, and that the wife or husband of an Active member can also become an Active member under the Family Membership plan upon payment of an annual dues of one additional dollar.

Membership subscription rates are as follows:

PATRON -	$75 to $100 contributed annually
LIFE -	$100 single paid-up membership and election by the Council
SUSTAINING -	$10 annual dues
ACTIVE -	$3 annual dues
ACTIVE FAMILY-	$1 annual dues in addition to husband's or wife's membership in one of above
HONORARY -	Honorary recognition of a Wisconsin scholar
CORRESPONDING-	Recognition for long membership in the Academy, entitled to general news correspondence only
LIBRARY -	$3 annual subscription

Our publications are attractive and our purpose worthwhile. Many of your colleagues are potential members, and it will require little of your time for a contact and explanation of our program. As an added incentive, please note that all new members whose applications were received after August 1, 1954 will be exempt from annual dues during the year 1955, and will receive the current (1954) issue of the Transactions. Use the enclosed brochure as an invitation to a prospective member, and ask for more. Be an ACTIVE member of the Academy!

AAAS GRANTS-IN-AID

The Wisconsin Academy, along with 40 other American academies, is an affiliate of the American Association for the Advancement of science, and during the past years has taken an active part in the Academy Conference held in conjunction with the AAAS annual meetings. At the present time, 176 of our Academy members are also members of the AAAS. In recognition of our affiliation, the AAAS refunds 50 cents of the annual dues of each of its members who are also associated with the Academy, and the combined refund is awarded at the discretion of our Council to a Wisconsin scientist as a grant-in-aid to assist in a research project of his interest. On the basis of current membership, the 1953 grant was $77.50 and the 1954 grant $88.00. These funds were lumped and divided equally for individual grants of $82.75. At the last meeting of the Council, WILLIAM L. CULBERSON and WARREN WITTRY were named recipients of these grants.

CULBERSON, at the time of his application and appointment for the 1953 research grant, was a graduate student at the University of Wisconsin in the Department of Botany. He has since completed the requirements for a Ph.D. degree and is now associated with the Harvard University Herbarium of Cryptogamic Botany as a National Science Foundation Post-doctoral Fellow. His work for which the grant was awarded concerned a study of the bark-inhabiting cryptogamic vegetation of Wisconsin. This work on the lichens and bryophytes of northern Wisconsin has greatly enhanced our knowledge of these interesting but little known forms of plant life.

WITTRY is Curator of Anthropology for the State Historical Museum at Madison. He has been interested in the study of prehistoric cultures in Wisconsin, especially in the southwestern or driftless area of the state. Some 12 rock shelters were investigated, and one of these near Leland in Sauk County was excavated during the month of August. Many specimens and much valuable data was obtained. The AAAS grant was awarded to help defray some of the personal expenses involved in these field trips.

It is hoped that the technical work of these two men may be published in our Transactions, or that a popular account of their studies may appear in the Review.

# # #

ACKNOWLEDGEMENT for sketches as follows: P.12, from "The University and Conservation of Minerals;" P.22, "Enjoying Birds in Michigan;" P. 23, from "Whirring Wings" (Mo. Cons. Comm.) and "Trees" (National Wildlife Federation).

JUNIOR ACADEMY NEWS

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

SCIENCE CLUB ACTIVITY IN WISCONSIN HIGH SCHOOLS

A survey by the Junior Academy of Science shows a total of 144 Wisconsin science and camera clubs with an estimated membership of 4,112 students. A list, which may be obtained from the Junior Academy state sponsor for the asking, gives information on the club location, meetings, membership, interests and sponsorship.

Many clubs list a diversity of interests so that the total may appear to be greater than above but the main lines of interest are as follows: Photography leads with 52 clubs, general science is next with 30. Conservation is the principal activity of 20 clubs; radio, 16; chemistry, 15; biology, electricity, and electronics, and forestry, 8 each; hobby and physics clubs, 5 each; hunting and fishing, projection, and meteorology and weather clubs, 4 each; 3 nature clubs, 2 astronomy, and one each ornithology and physiology.

While it is true that Milwaukee, Madison, and Kenosha are large centers of club activity, as would be expected, there are also science clubs in many smaller high schools such as Brillion, Freedom, Hillsboro, Manawa, Menomonee Falls, Potosi, Reedsburg, and Withee. As interests of young people change with different groups, and as teachers change positions, the club situation is a constantly shifting one. There are several notable exceptions with an unusually long continuity of club history; all of the following are outstanding science clubs for their continuity, and continued devotion and interest of their club sponsors should be worthy of praise:

Appleton Nature Club	16 years
West Science Club, Green Bay	15 years
Chemistry Club, Mary D.Bradford H.S., Kenosha	33 years
Central Science Club, La Crosse Central H.S.	20 years
Lake Geneva Science Club	21 years
West Science Club, West H.S., Madison	23 years
Science Club, Bay View H.S., Milwaukee	21 years
Biology Club, North Division H.S., Milwaukee	49 years
Future Scientists, Rufus King H.S., Milwaukee	15 years
Phi-Bi-Chem Club, Steuben Jr.H.S., Milwaukee	18 years
Science Club, Horlick H.S., Racine	23 years
Wauwatosa Science Club	15 years
Tesla Marconi Club, West Allis Central H.S.	41 years
West Milwaukee Science Club	15 years
Chemistry Club, Lincoln H.S., Wis. Rapids	25 years

Most of the clubs meet after school or during evenings. Some meet during activity periods. Almost all work on science projects with individual club members. Many have movies, lectures, and field trips to places of science interest. Some operate school forests and wildlife refuges. A number operate radio stations. Indeed there is a state amateur network of both students and teachers, practicing code with each other on regular schedules. A very few sponsor dances and banquets. Whatever their activity, the young people in these clubs are constructively busy and are eagerly taking their early walks along the pathways of science.

- - -

ARTERIOSCLEROSIS IN RABBITS AND MICE

By Tom Werner
Mary D. Bradford High School, Kenosha

I have been working with rabbits and white mice over a period of three years, inducing arteriosclerosis, or hardening of the arteries. The first year of my research was with white mice. This first year was spent primarily to acquaint myself with the laboratory techniques, equipment, and terms necessary to carry on a successful experiment in the field of geriatrics.

Before I began work it was necessary to devise a theory on which to base my experiment. This is the theory I used: We know that with advancing age there is a general slowing down of all body processes and functions, the arteries lose their elasticity. This is a result of demonstrable changes in the elastic tissue of the vessel walls. Associated with the elastic tissue changes, the muscularis tends to atrophy and to undergo fibrous tissue replacement. Accordingly the glands slow down the amount, and perhaps the potency of their secretions. The glands that manufacture the estrogens, or the female hormone also slow down. If my theory is correct, the estrogens control the amount of cholesterol in the lipoprotein molecule.

Cholesterol is a fatlike, monatomical alchol, $C_{27}H_{45}OH$, crystallizing in the form of acicular crystals, and found in all animal fats and oils. This is believed to be the fat deposited in the artery walls causing arteriosclerosis. A lipoprotein molecule is a body in the blood stream which has two main constituents, a protein with a lipin. Included in this lipin is a certain amount of cholesterol. I believe that a definite proportion exists in this molecule, between the protein, the fats, and the cholesterol. This proportion is controlled by the estrogens. If the amount of estrogens in the body decrease, then the amount of cholesterol in the molecule increases proportionally. This increase in the amount of cholesterol is followed by the deposition of cholesterol as intra- and extracellular fat droplets in the intima and media.

This theory is substantiated by the fact that more men than women have arteriosclerosis in varying degrees, during their third or fourth decade of life. And we know for a fact that in the male only a small percentage of estrogens are manufactured to begin with, and with the slowing down of glandular activity, the lipoprotein molecule would be affected sooner in the male than the female. And therefore deposition would begin sooner.

Basically here is the work I am doing. Using a small group of male rabbits, (8 or 10) I divide them into two groups. Both groups get a high cholesterol diet. The diet is prepared in this manner: 5 gms of cholesterol are mixed with ether and then sprayed over 1,000 gms of rabbit pellets. In a period of sixty days rabbits develop lesions, both gross and microscopic, in the aorta and coronary arteries.

One group is given weekly injections of estrogens and testosterone. These injections are prepared in this manner: 1 cc of a solution of 1.0 mg of estradiol benzoate and 2.0 mg of testosterone, plus 19 cc of almond oil are injected intra-muscularly. (Estradiol is a manufactured hormone and three to five times as potent as estrin.) Since the rabbits were all males, I took the precaution (perhaps unnecessary) of giving estrogen and testosterone so there would be no change of gender.

Forty hours after the injections were made (for the best results), 3 cc of blood were taken from each rabbit for serum cholesterol levels. A serum cholesterol level is the milligram % of cholesterol in the blood stream. A healthy rabbit averages 54.9 mg %. The levels were made for me at St. Lukes Hospital in Racine, Wisconsin.

At the end of the first week the serum cholesterol levels of the rabbits without the injections averaged 557.5 mg %. The rabbits receiving the injections of estrogens averaged 376.0 mg %. This difference continued throughout the experiment. (With differences as much as 230.0 mg %, not av.)

This year I am using the same diet. But, for the first eight weeks I will double the amount of estrogens injected. Then double it again for two more weeks, then double it for two more weeks. This should produce enough difference in the serum levels to make a conclusion possible.

# # #

MAKING RAYON

By John E. Harriman
Appleton High School

Ever since man began to wear clothes, he has been searching for materials of which to make them. For thousands of years, the natural fibers, wool, cotton, and flax were used exclusively. The first artificial fabric, rayon, appeared about seventy years ago and it soon gained an importance in the field which has not yet been lost.

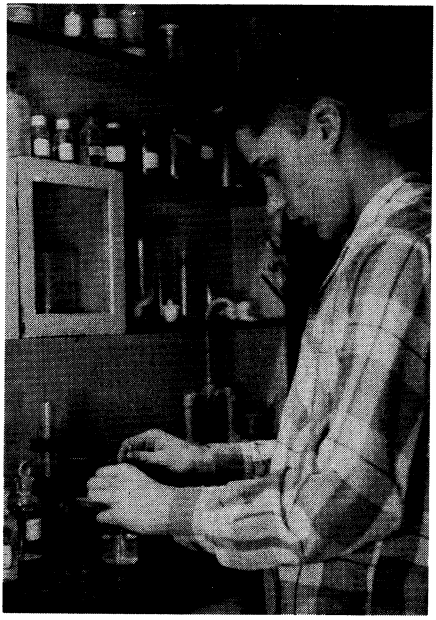
Strictly speaking, rayon isn't a synthetic product. Cellulose as it occurs naturally in cotton and wood pulp, is altered to put it in a more usable form, but the result is still cellulose.

The first of the four ways of making rayon to be discovered was the nitrate process. Cellulose is a carbohydrate polymer represented by the formula $(C_6 H_{10} O_5)_x$. The fact that it has three replaceable hydroxyl groups is usually shown by writing the formula $(C_6 H_7 O_2 (OH)_3)_x$. There are as many as three thousand groups per molecule. When cellulose is treated with a mixture of concentrated nitric and sulfuric acids under the proper conditions the following reaction occurs:

$$[C_6 H_7 O_2 (OH)_3]_x + 2xHNO \xrightarrow{H_2SO_4} [C_6 H_7 O_2 (OH)(ONO_2)_2]_x + 2xHOH$$

The sulfuric acid removes the water formed. The cellulose nitrate formed contains two nitrate groups per unit on the average. The actual number varies from zero to three. It is soluble in a mixture of alcohol and ether. A fiber can be formed by

forcing the solution through a fine opening and allowing it to dry. Although the chemical process is relatively simple (in the many times I tried it, it never failed to work), it is not used commercially because of the high inflammability of the product. A way of reducing the nitrate groups is known but it isn't practical.



A similar method is the acetate process. Acetic acid is used instead of nitric and the following reaction takes place:

$$[C_6H_7O_2(OH)_3]_x + 3xCH_3COOH \longrightarrow [C_6H_7O_2(CCCH_3)_3]_x + 3xHOH$$

Acetic anhydride is added to react with the water, forming more acetic acid. In this case acetone is used as a solvent. Fabrics made of this material burn no more rapidly than cotton. They are usually labeled "acetate".

Today the method receiving the greatest commercial use is the visc se process. When cellulose is treated under the proper conditions with sodium hydroxide and carbon disulfide, the xanthate radical, CSSNa, replaces the hydroxyl groups. Cellulose xanthate dissolves in dilute sodium hydroxide solution forming a thick, orange syrup called viscose. Cellulose is re-precipitated in an acid bath. Most cellophane is made by forcing viscose through a thin slit into dilute acid.

Although I have done all the processes many times in the laboratory, because of the time and uncertainty involved in the others, I chose to demonstrate the cupper-ammonium process. A solution of cupric hydroxide in ammonium hydroxide called "Schweitzer's reagent" will dissolve cellulose which can be re-precipitated in an acid bath. Although an excellent quality of rayon is produced, this process isn't practical commercially any more.

I found it almost impossible to obtain a fine enough opening to produce a fiber so most of my rayon was made into sheets or just "blobs". I had not expected a usable product, however, and I had some valuable experience in chemistry, payment enough for my work.

# # #

JAMES DUANE DOTY, FRONTIER PROMOTER
by Alice E. Smith

JAMES DUANE DOTY - FRONTIER PROMOTER, by ALICE E. SMITH, was published this September by the State Historical Society, 816 State street, Madison. It contains 472 pages and 25 illustrations, and can be purchased from them for $5.00. The following quotation is taken from the jacket of the book.

"Even in the roaring era of Western expansion, an era that stimulated the imagination and enterprise of many another ambitious man, James Duane Doty had few equals. Nature had bestowed upon him her choicest gifts: a superb mind, creative imagination, boundless energy, and great personal magnetism. All these he devoted for half a century to the development of the frontier and the realization of compelling personal ambitions.

"He was still a mere youth when, on a summer's day of 1818, he trudged into the raw little town of Detroit and settled himself in the office of the territorial attorney general to prepare for the practice of law. And he was scarcely twenty-three when he was appointed judge for Western Michigan, a newly created judicial district embracing the vast wilderness expanse between Mackinac and Prairie du Chien, several hundred miles to the southwest.

"His first political post, after nine years of circuit-riding, was that of representative in Michigan's Legislative Council of 1834. In the next two decades he became successively Wisconsin Territory's delegate in Congress, governor of the territory, member of its first constitutional convention, and congressman from the state.

"In the meantime he embarked upon a series of enterprises the sum total of which seems little short of fabulous. He laid out military roads for the federal government, promoted the construction of canals and roads to attract settlers and enhance the value of likely townsites, speculated far and wide in public lands, aided in the establishment of territorial banks, served as land agent for John Jacob Astor and other Eastern capitalists, engineered the selection of Madison as state capital, and handled the funds that were appropriated for a statehouse there.

"The opening of the railroad era in Wisconsin found him still planning internal improvements and still hoping for election to the United States Senate. These ambitions were thwarted by the Panic of 1857, the rise of the Republican Party--which he had too

ABOUT THE AUTHOR. . . Alice E. Smith is one of the foremost, living historians on Western and Wisconsin history. A native of Wisconsin, Miss Smith received her BA and MA degrees from the University of Minnesota in American history. She has served as curator of the Wisconsin Historical Society's nationally-famous manuscript collection, and since 1948, has been head of its research division. She was secretary of the Committee on Studies in American Civilization, a project financed and sponsored jointly by the University of Wisconsin and the Rockefeller Foundation. She is editor of the Dictionary of Wisconsin biography. Author of numerous historical articles and reviews, Miss Smith was honored in June of 1954 with an honorary degree from Northland College, Ashland, Wisconsin.

long neglected to join--and the electorate's vague distrust of his motives.

"He retired to the Grand Loggery, his home on Lake Winnebago, only to be summoned forth for service on a more distant frontier. In 1861 Lincoln appointed him superintendent of Indian affairs in Utah Territory and two years later advanced him to the governorship. There, in the midst of discussions for post-war expansion, he died suddenly in June of 1865.

"No full-length biography of Doty has hitherto been attempted, largely because of the paucity of original sources. Doty himself was too busy a man to pause and set down his memories of the past; the world he lived in had few publication facilities; and his personal records were scattered or destroyed. Only Miss Smith's painstaking research in the correspondence of his contemporaries, in the books and newspapers of the period, and in county, territorial, state, and national archives has enabled her to weld into a meaningful synthesis the diverse aspects of Doty's career. Portrayed as it is against the colorful background of frontier life, it combines authentic history with absorbing narrative."

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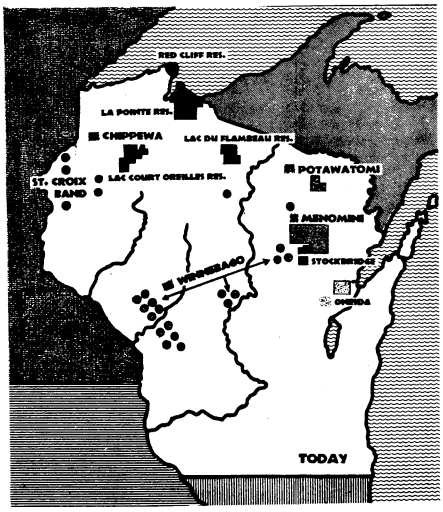
OPERATION WILDLIFE RESEARCH by CYRIL KABAT and RUTH L. HINE, issued recently by the Wisconsin Conservation Department, is a 35-page booklet available free. (Address State Office Building, Madison 1.) The publication is illustrated by cartoon sketches by WADSWORTH C. HINE in a manner which helps explain the WCD wildlife research program.

- - -

THE INDIANS IN WISCONSIN HISTORY is the title of a booklet by the late JOHN M. DOUGLASS recently published by the Milwaukee Public Museum. Paper covered, containing 58 pages, it is No. 6 in their Popular Science Handbook series, available for 60 cents per copy. It is replete with excellent illustrations and contains chapters on Wisconsin's Indians before the coming of the white man and under French rule; the Fox Wars and the fall of New France; the period of British control, and of American settlement, and Wisconsin's Indians today. The accompanying map is from the booklet.



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SEPARATES FROM TRANSACTIONS AVAILABLE FOR SALE

(Entomology and Brule River Surveys)

Many of the very excellent papers which have appeared in the Transactions throughout the years are now available as separates. These will be obtained by mutilation of volumes, a large stock of which are now in storage at the University Memorial Library. Volume 1 cannot be obtained for mutilation, while Volumes 2, 20, and 29 are in short supply. Separates from all other volumes, however, may be obtained singly or in series at a very reasonable price by writing to the Secretary for an estimate. It is our plan to publish in the Review series of titles of papers on specific subjects both scientific and literary as soon as these can be compiled. One such series of specialized papers, on entomological subjects, are listed below. Note the papers by such eminent entomologists as WILLIAM MORTON WHEELER and CHARLES T. VORHIES, the series of nine papers on the anatomy of insects by WILLIAM S. MARSHALL, and the series of seven papers on the taxonomy of the Syrphidae by CHARLES L. FLUKE. Of considerable value, too, is the 330-page paper by WILSON and VICKERY on the Aphididae of the world.

ENTOMOLOGY

P. R. HOY--Insects Injurious to Agriculture. Vol. 1:110-116, (not available as a separate)

WM. M. WHEELER--On the Appendages of the First Abdominal Segment of Embryo Insects. Vol. 8:87-140 (3 pls.)

W. S. MARSHALL and H. SEVERIN-- Some points in the Anatomy of Ranantra Fusca P. Beauv. Vol. 14 (2):487-508 (3 pls.)

W. S. MARSHALL--The Reproductive Organs of the Female Maia Moth, Hemileuca Maia (Drury). Vol. 15(1):1-13 (2 pls.)

S. GRAENICHER--The Relations of the Andrenine Bees to the Entomophilous Flora of Milwaukee County. Vol. 15(1):89-97

C. T. VORHIES--Habits and Anatomy of the Larva of the Caddis-fly, Platyphylax Designatus, Walker. Vol. 15(1):108-123 (2 pls.)

HENRY H.P. SEVERIN and HARRY C.M. SEVERIN--Anatomical and Histological Studies of the Digestive Canal of Cimbex Americana Leach. Vol. 16 (1):38-59 (4 pls.)

HENRY H.P. SEVERIN and HARRY C.M. SEVERIN--Habits of the American Saw-fly, Cimbex Americana Leach, With Observations on its Egg Parasite, Trichogramma Pretiosa Riley. Vol. 16(1):61-76 (2 pls.)

C. T. VORHIES--Studies on the Trichoptera of Wisconsin. Vol. 16 (1):647-738 (10 pls.)

W. S. MARSHALL--On the Anatomy of the Dragonfly, Libellula Quadrimaculata, Linne. Vol. 17(2):755-790 (4 pls.)

H. F. WILSON and R. A. VICKERY--A species List of the Aphididae of the World and Their Recorded Food Plants. Vol. 19(1):25-355

W. S. MARSHALL--The Development of the Frenulum of the Wax Moth, Galleria Mellonella Linn. Vol. 20:199-204 (1 pl.)(separate in short supply)

C. L. FLUKE--Syrphidae of Wisconsin. Vol. 20:215-253 (2 pls.) (separate in short supply)

JOY E. ANDREWS--Some Experiments with the Larva of the Bee-moth, Galleria Mellonella L. Vol. 20:255-261. (separate in short supply)

RUTH W. CHASE--The Length of Life of the Larva of the Wax Moth, Galleria Mellonella L., in its Different Stadia. Vol. 20: 263-267 (separate in short supply)

RUTH CHASE NOLAND--The Anatomy of Troctes Divinatorius Muell. Vol. 21:195-211 (3 pls.)
C. H. CURRAN and C. L. FLUKE--Revision of the Nearctic Species of Helophilus and Allied Genera. Vol. 22:207-281 (3 pls.)
W. S. MARSHALL--The Development of the Compound Eye of the Confused Flour Beetle, Tribolium Confusum Jacq. Vol. 23:611-630 (4 pls)
W. S. MARSHALL--The Hypodermal Glands of the Black Scale, Saissetia Oleae (Bernard). Vol. 24:427-443 (3 pls.)
A. A. GRANOVSKY--Preliminary Studies of the Intercellular Symbionts of Saissetia Oleae (Bernard). Vol. 24:445-456 (3 pls.)
W. S. MARSHALL--The Hypodermal Glands of the Black Scale, Saissetia Oleae (Bernard) Part II. Vol. 25:255-272 (3 pls.)
C. L. FLUKE--Notes on Certain Syrphus Flies Related to Xanthogramma (Diptera Syrphidae) with Descriptions of Two New Species. Vol. 26:289-309 (2 pls.)

C. L. FLUKE--Revision of the Syrphus Flies of America North of Mexico (Diptera, Syrphidae, Syrphus S. L.) Part I. Vol. 28: 63-126 (3 pls.)
A. H. MOECK--A Butterfly Migration in Mexico. Vol. 32:113-122.
C. L. FLUKE and F. M. HULL--Syrphid Flies of the Genus Cheilosia, Subgenus Chilomyia in North America (Part II). Vol. 36:327-347 (1 pl.)
W. S. MARSHALL--The Labral Sense Organs of the Red-legged Grasshopper, Melanoplus Femur-rubrum (DeGeer). Vol. 37:137-148 (1 pl.)
W. S. MARSHALL--The Rectal Glands of Mosquitoes. Vol. 37:149-156
C. L. FLUKE and F. M. HULL--The Cartosyrphus Flies of North America (Syrphidae). Vol. 37:221-264 (3 pls.)
C. L. FLUKE--The Male Genitalia of Syrphus, Epistrophe and Related Genera (Diptera, Syrphidae). Vol. 40:115-148 (10 pls.)
P. A. KNIPPING, B. B. MORGAN and R. J. DICKE--Preliminary List of Some Fleas from Wisconsin. Vol. 40:199-206

C. J. DENNIS--The Membracidae of Wisconsin. Vol. 41:129-152(4 pls.)
R. J. DICKE and J. P. EASTWOOD--The Seasonal Incidence of Blowflies at Madison. Vol. 41:207-218 (1 pl.)
C. J. DENNIS and R. J. DICKE--The Membracidae of the University of Wisconsin Arboretum. Vol. 42:131-142
J. SORENSON and C. L. FLUKE--Stratiomyidae of Wisconsin (Diptera), Vol. 42:149-172 (1 pl.)
R. E. FYE and J. T. MEDLER--Spring Emergence and Floral Hosts of Wisconsin Bumblebees. Vol. 43:75-82
D. A. DEVER--Identification of the Larvae of the More Important Insect Pests of Sour Cherry in Wisconsin. Vol. 43:83-88 (1 pl.)
W. J. WOODMAN and R. J. DICKE--Population Fluctuations of the Mallophagan Parasite Bruelia Vulgata (Kellogg) Upon the Sparrow. Vol. 43:133-136

BRULE RIVER SURVEY

Another series, completed in the last issue of the Transactions, concerns the Brule River Survey. In eleven parts, these papers are as follows:

E. SCHNEBERGER and A. D. HASLER--Part I, Introduction. Vol. 36: 1-6
E. F. BEAN and J. W. THOMSON, Jr.--Part II, Topography and Geology of the Brule River Basin. Vol. 36:7-18
D. J. O'DONNELL--Part III, A History of Fishing in the Brule River. Vol. 36:19-32

N. C. FASSETT--Part IV, Vegetation of the Brule Basin, Past and Present. Vol. 36:33-56 (5 pls., 2 color, 5 maps)
J. W. THOMSON, Jr.--Part V, A Survey of the Larger Aquatic Plants and Bank Flora of the Brule River. Vol. 36:57-76 (4 pls.)
J. H. FISCHTHAL--Part VI, Parasites of Brule River Fishes. Vol. 37:275-278
D. J. O'DONNELL--Part VII, A Four-year Creel Census on the Brule River, Douglas County, Wisconsin. Vol. 37:279-303
J. W. THOMSON, Jr.--Part VIII, An Analysis of the Vegetative Cover of the Brule River (Wisconsin) Watershed. Vol. 37: 305-323 (1 pl.)
RICHARD EVANS--Part IX, Bottom Deposits of the Brule River. Vol. 37:325-335
W. S. CHURCHILL--Part X, The Brook Lamprey in the Brule River. Vol. 37:337-346
D. J. O'DONNELL and WARREN S. CHURCHILL--Part XI, Certain Physical, Chemical, and Biological Aspects of the Brule River, Douglas County, Wisconsin. Vol. 43:201-255 (10 pls.)

# # #

WISCONSIN ACADEMY COUNCIL MEETING

A meeting of the Academy Council was held Saturday, Sept. 18, 1954 at 208 King Hall on the University of Wisconsin campus. The meeting was called to order at 2:00 p.m. by President RALPH N. BUCKSTAFF and was adjourned at 4:45 p.m. There was excellent attendance, with only two members absent, as follows: J. BAIER, E. L. BOLENDER, R. N. BUCKSTAFF, R. J. DICKE, G. H. DOANE, C. L. FLUKE, O. L. KOWALKE, W. C. McKERN, KATHERINE G. NELSON, D. SCHLAFKE, A. W. SCHORGER, H. A. SCHUETTE, F. C. YOUNG, and by invitation, W. E. SCOTT, Editor Wisconsin Academy Review, and J. W. THOMSON, Chairman Junior Academy Sciences Committee.

The applications of new Active members and Library subscriptions were received and accepted by the Council as listed on p.31. Following a discussion of membership promotion, the Council ordered that all new members (not including reinstated members) entering the Academy after August 1 would not be billed for dues during the following year, and would be eligible to receive the current issue of the Transactions. The Council further directed the Secretary to send all of the current year's back issues of the Review to libraries subscribing at any time during that year. The President also was ordered to appoint a Committee to prepare and issue a brochure on the purpose of the Academy and the benefits of membership.

The Academy's publications were discussed and the total cost of issuing the Review was reported as follows:

Part 1	(600 copies)	$ 241.37
Part 2	(700 copies)	258.24
Part 3	(700 copies)	258.94

The Council then set the sale price of the Review at 25 cents per copy to non-members. It was further reported that 1600 copies of Volume 43 of the Transactions (publication date September 15, 1954) was published at a cost of $3,365.00.

Recipients of the AAAS grant-in-aid in the amount of $82.75 were announced. The 1953 grant was awarded to WILLIAM L. CULBERSON, and the 1954 grant to WARREN WITTRY. (See page 32).

Plans to encourage the sale of back issues of the Transactions were discussed, and the Council ordered the Secretary to arrange for any procedure at his discretion. --R. J. Dicke, Secty

INDEX TO SUBJECT TITLES

(All in Vol. 1, the first number indicates issue)

INDEX TO AUTHORS

(All in Vol. 1, the first number indicates issue)

# # # #

Science and The Humanities

There is a current of fashion, especially among more casual students of the humanities, to welcome scientific progress as a usually comfortable though increasingly dangerous contribution to the material welfare of humanity, but to decry its corroding influence on the human spirit. Automatic factories of the future seem, to some, to reduce man to the role of an increasingly dispirited and dull observer, at the mercy of his robots and inevitably losing his ambition, his energy, and his interest in living. I feel that this opinion springs from a lack of proper assessment, not only of the role of science in human affairs, but of the fundamental characteristics of men. In fact, I believe that the evidence is overwhelming that man's material achievements can, and because of his nature will, in the long run contribute greatly to his spiritual welfare, and that without them he could not, in fact, reach the full flowering of his capabilities.--George R. Harrison, Dean of Science, MIT, at Boston Univ. Founders' Day Institute. Quoted from Boston Univ. Graduate Journal, May, 1954.

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A Message from the Vice-President (Science)

The Wisconsin Academy of Sciences, Arts and Letters is one of the oldest of State Academies. While its membership has increased over the years one can observe from a study of the distribution of members that the residents of many areas of the state fail to support the Academy by participation in its affairs. There **must** be teachers, scientists, students and scholars in these areas who could contribute to and benefit by the activities of the Academy.

Surely we are well acquainted with the research work, teaching and other special interests of our colleagues in our own specialized fields. Many of us make annual trips, often to distant regions of this country, to attend one or more professional meetings. But our own Academy is often sadly neglected.

While I can speak only for the Sciences, we must certainly realize the tremendous importance of many investigations carried out locally. These studies cover a wide range of subjects, some of them often peculiar to particular situations in the State of Wisconsin. Don't you think that we should all possess at least an acquaintance with these achievements? The Academy can serve to correct this situation if we properly support it by attending its annual meeting and presenting our research work at its sessions.

If you are convinced of the worthwhile purpose served by the Academy why not recommend it to your colleagues and friends as worthy of their support too by proposing membership? Let us make our Academy truly representative of all the people from all areas of the state.

JOSEPH G. BAIER

Vice-President (Sciences)