Stephen Moulton Babcock. 1931

[Madison, Wisconsin]: [s.n.], 1931

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THE UNIVERSITY OF WISCONSIN
PRESS BULLETIN

The purpose of this Bulletin is to bring to the newspapers of Wisconsin and their readers—the people of the state—pertinent news and information concerning their State University. The University Press Bureau will gladly furnish any special news or feature stories to editors. Address letters to R. H. Foss, editor, Press Bureau, University of Wisconsin.

MADISON, WISCONSIN

Published weekly by the University of Wisconsin

Entered as second class matter Jan. 11, 1909, at the Post office at Madison, Wisconsin, under the act of July 4, 1894.

Vol. 29, No. 32

Pennies of State School Children Aid Babcock Fund

Many Contribute to Fund to Build Memorial to Famous U. W. Scientist

Contributions ranging all the way from a few pennies donated by school children in several rural and city graded schools of the state, to those of several hundred dollars given by large dairy firms both within and outside Wisconsin have been received by the Babcock Statue Fund, it was learned today.

The fund is to be used to build a fitting memorial to the late Dr. Stephen Moulton Babcock, University of Wisconsin scientist who gave to the world his famous discovery, the Babcock milk test, which has saved for farmers and dairymen throughout the world uncounted millions by providing an accurate method of measuring the butterfat content of milk.

More than 200 contributions from individuals and firms in Wisconsin and throughout the nation have been made to the fund during the past two years, according to ~~him~~ Farrington, emeritus professor of dairy husbandry at the State University, ~~who is acting as secretary-treasurer of the fund~~.

In order to bring the erection of the Babcock memorial nearer to realization, Prof. Farrington today issued a final appeal to those who desire to contribute to the fund, to send in their donations immediately.

"I ~~wish to afford~~ a final opportunity to the people of the University community and of the state to aid this project," Prof. Farrington said. The campaign will come to a close within the next few months, and those who want to aid should send in their contributions now. Donations must be entirely voluntary, and those people who really want to contribute to this memorial will have to send it to me, since no high-pressure campaigning of the personal solicitation sort will be used."

Individuals in all walks of life have contributed to the fund thus far, Prof. Farrington said. School children and their teachers in all parts of the state, farmers and dairymen and large dairy firms throughout the nation, 4H club boys and girls, former students of Dr. Babcock and University faculty members are among those who have contributed.

To Editor:—The news in this bulletin is prepared especially for the press, and is released for publication on the date below. Please address exchange copies to Editor, 711 Langdon Street.

February 14, 1934

A LAUGHING SAINT OF SCIENCE

Stephen Moulton Babcock

1843-1931

By Glenn Frank

President of the University of Wisconsin

Expressing the mood of myriads of men and women throughout the world, who have known the boon of his spirit or the beneficence of his science, the University of Wisconsin to-day bares its head and bows its heart before the memory of Stephen Moulton Babcock.

Like the great seminal minds of the Renaissance, he was himself greater than anything he did, and thus, in death, he gives to us, the legatees of his spirit, a goal towards which to point the education and the science of our time.

This merry man of many years was made of the stuff that gives mankind its saints and its martyrs. He was a saint without seriousness and he could have gone to martyrdom as part of the day's work.

For his was a casual greatness!

He pursued the most painstaking research as if he were playing a game. He brought to his tasks that gaiety of spirit that authentic greatness can afford. His spirit never surrendered that incorrigible playfulness that so often marks men of power. His laboratory was likely to ring with laughter at any time, for there was about him that deceptively careless air that creative spirits have as they go about their business.

But there was toughness to the fibre of his mind!

He was a teacher who scorned the tyranny of the text-books, and he did not think it impertinent to doubt the authorities. Each morning he met the universe with a question. His was the creative heresy of an insatiable curiosity. The cleansing winds of the critical spirit swept freely and forever through his mind.

He belongs to the apostolic succession of the great pioneers of research---Pythagoras, Aristotle, Archimedes, Copernicus, Galileo, Harvey, Newton, Lavoisier, Dalton, Faraday,

Helmholtz, Darwin, Pasteur, Mendel, Einstein---for, like them, he was an adventurer into the unknown to whom research was an intellectual passion rather than an institutional ritual, to whom creative thinking was more important than elaborate equipment, and to whom there was no barricaded frontier between pure and applied science.

In an age when scholars all-too-often hasten to publish even before they prove their findings, he was content to let his greatest work speak for itself, for perhaps the most illuminating fact of his career is that he never published so much as a word about his part in the discovery, definition, and defeat of that "hidden hunger" from which man and beast might die while eating their fill.

In an age smitten with the passion for publicity, he forgot himself into immortality!

In the midst of the sickness of an acquisitive society, his spirit remained unsullied even by legitimate personal considerations.

Scholar of a great university!

Servant of a great state!

Shy benefactor of mankind everywhere!

Laughing saint of science!

Being dead he yet speaks!

DR. STEPHEN BABCOCK
UNIVERSITY OF WISCONSIN

Few men have had the impact on the dairy industry comparable to that of Dr. Stephen Babcock, the exacting University of Wisconsin scientist who discovered a test for butterfat content of milk.

Before his death in 1931, Dr. Babcock made dozens of important contributions to the dairy industry. In 1883 he perfected the viscosimeter to determine the character of oils and other fluids as to the presence of adulterants, and devised a gravimetric method of analyzing milk. Two years later he uncovered a method of determining the size and number of fat globules in milk, and in 1896, a method of separating casein from milk. In 1899 he developed the Wisconsin curd test, used in cheesemaking, to detect the presence of undesirable types of bacteria.

Dr. Babcock continued the pace of discovery until retiring as emeritus professor at the University in 1913. From 1901 until that year he served as assistant director of the Wisconsin Experiment Station. He had joined the UW faculty in 1888.

Noted authorities have often described his butterfat test as the foundation on which the modern dairy industry and program of education has been built. In no small measure Wisconsin's agricultural stature today, so largely dependent upon dairy activities, is attributable to his findings.

Today a handsome dairy building, known as Babcock Hall, located at the corner of Babcock and Linden Drives, serves as another reminder on the Wisconsin campus of the quiet man who chose service to his fellowmen rather than fame and fortune. He refused to patent his inventions, saying what he learned was for the benefit of all mankind.

Dr. Babcock was born in Bridgewater, N. Y., in 1843 and was educated at Tufts College, Rensselaer Polytechnic Institute, Cornell University, and the University of Gottingen, Germany. After teaching briefly at Cornell he was called as chemist to the New York Agricultural Experiment Station at Geneva. Forty-three productive, fruitful years were spent at Wisconsin.

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THE BABCOCK STATUE FUND
MADISON, WISCONSIN

E. H. FARRINGTON, *Sec'y-Treas.*
Professor Emeritus Wisconsin Dairy School

Feb. 13 '34

Mr. R. H. Foss, Editor
University Press Bulletin
Dear Mr. Foss;-

I have just read your statement in regard to the Babcock Statue Fund in the press bulletin of Feb. 14th. I think it is a good introduction to the second notice which I suggest that you send out very soon.

In the next notice please make plain that the plans have been changed from a Statue to a Bronze Tablet to be designed by Lorado Taft.

That the expenses of printing and publicity of this project have been donated and the dairy press has been very liberal in helping along this good cause

And I think it will be a good plan to mention again that contributions from admirers of Dr. Babcock and his work should be sent to me very soon without personal solicitation in order that the memorial may be completed this year.

I don't know as you will want to publish the following but for my own amusement I have worked out the following figures from the contributions received to date.

5	per cent of the contributors are	school children
6	" " " " "	4 H clubs
8	" " " " "	Dairy Machinery Dealers
12	" " " " "	Creamery men
14	" " " " "	City Milk men
20	" " " " "	Professors
35	" " " " "	Students of former years
100		

These figures are not percentages of the Funds but of the number of contributors.

Very Truly Yours,

E. H. Farrington

THE BABCOCK STATUE FUND

MADISON, WISCONSIN

E. H. FARRINGTON, *Sec'y-Treas.*
Professor Emeritus Wisconsin Dairy School

January, 1934

Two years ago, a proposal to honor the memory of Stephen Moulton Babcock by erecting a statue of the famed inventor of the Babcock Test was announced. Since then, efforts to raise the Babcock Statue Fund have been actively pursued.

The dairy-press, including such widely-read publications as HOARD'S DAIRYMAN and the NATIONAL BUTTER AND CHEESE JOURNAL, has contributed generously of space and comment to publicize the project and it has been brought to the attention of dairymen and college men in many other ways. Inasmuch as all publicity and every other expenditure of time or money in raising the Fund has been donated, every cent of the money raised is available for the memorial itself.

Contributions have ranged from a few cents given by school children to substantial sums contributed by commercial organizations, and number approximately two hundred. "Hard Times", undoubtedly, explains why the response has fallen far short of the goal originally set.

Now, in order to bring the plan nearer realization, a Bronze Tablet, by Lorado Taft, the eminent sculptor, is suggested instead of the statue originally proposed. A substantial sum will be required for an appropriate Tablet and this final appeal for funds is now made.

This memorial to Dr. Babcock should not be delayed any longer and we trust you will be inclined to help bring this project to its final conclusion by sending in your contribution.

Sincerely,

E. H. Farrington

Sec'y-Treas. Babcock Statue Fund

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October 7, 1931 MADISON, WISCONSIN Volume 25, No. 14

U. W. Fosters Air Training for Pilots In State at Large

Preparation for Federal License Tests is Recent Extension Division Announcement

The instructional needs of the man who wants to pilot a plane are again supplied this fall by the University of Wisconsin. For the fourth year the University Extension division is teaching aviation, from its elementary principles down to the deeper knowledge required by Uncle Sam for qualifying for a transport pilot's license.

Prof. C. D. Case, former Navy flyer, in charge of aeronautics work, is conducting two courses by the correspondence method.

For the "Airminded"

This instruction is intended for those preparing to take up aviation or aeronautics design as a profession, and for other "airminded" persons who are interested in acquiring sound knowledge of aeronautics facts and principles. It is offered to anyone with two or three years or more of high school training.

The course in Elementary Aeronautics is based on a standard text, "The Airplane and Its Engine," and 24 lessons, and is designed to help students through the first four subjects in the government's examination for transport license. The course in Meteorology and Navigation, in 16 assignments, has been found most popular for those actually engaged in flying. According to Professor Case, this course has proved so thorough that practically all students have succeeded in passing sample examinations similar to those given by the Department of Commerce.

Few Ground Schools

Both courses are especially adapted for airminded men and women in sections of the state where there is little demand for even a temporary ground school. A survey by the Extension division revealed a lack of ground school facilities in the state and an increasing demand for a course of instructions which would prepare for the written examinations for pilot's licenses.

The aeronautics instruction given by the Extension division also includes regular classes in selected cities, which are available to students in the surrounding area.

Represents Wisconsin at Phi Beta Kappa Meet

Dr. Willard G. Bleyer, director of the School of Journalism of the University of Wisconsin, who for the last two years has been president of the Wisconsin Alpha chapter of Phi Beta Kappa, represented that chapter at the seventeenth National council of the United Chapters of Phi Beta Kappa at the triennial convention held at Brown University, Providence, September 9 to 11.

Dean Guy Stanton Ford, a graduate of the University of Wisconsin in the class of 1895, and for the past 18 years professor of history and head of the graduate school of the University of Minnesota, was elected one of the new senators of the United Chapters. Dr. Edward A. Birge, emeritus president of the University of Wisconsin, who was president of the United Chapters from 1919 to

American Life Drama Depicted in Bulletin

The drama of American life as seen in eight separate provincial sections of the country by numerous playwrights is portrayed in a recent bulletin prepared by Miss Ethel Theodora Rockwell, chief of the bureau of dramatic activities, of the University of Wisconsin.

The new bulletin, which is aimed to be of special use to women's clubs, drama groups, rural organizations, high schools, and church groups in Wisconsin and other states, may be obtained at a nominal charge. Entitled "American Life as Represented in Native One-Act Plays", the bulletin contains an outline of meetings for guided study, a bibliography of play collections used in the bulletin and for independent study, along with detailed outlines of each of 16 meetings and brief sketches of the characteristics of eight different sections of the country.

Paint American Life

Pointing out that the Little Theatre movement in this country, from which many plays have come, has painted American life with symphonic colors, the bulletin gives to the various areas described the following colors: New England, gray-blue; Middle Atlantic states, flaming mingled shades of red and orange; Southeastern states, violet; Gulf states, purple; middle Northwestern, green; Prairie states, bronzed orange hue; Rocky Mountain area, blue; Pacific coast states, golden yellow.

The bulletin also contains suggestions for public performances, and extra studies of plays representing negro and immigrant life, and American plays of fantasy.

Designed as a part of the guided study outlines offered to citizens of the state by the University Extension division, the bulletin states that in this way is established a very close practical connection between any group of citizens in any part of the state, organized for serious purposes, and the University.

Develops Close Kinship

"Our harlequinade has led us from New England's stormy seacoast through the populous cities of the Middle Atlantic states, into the awakening South; and from the industrial middle west across the fertile prairies, over the lofty mountains, to the Pacific Eldorado," the bulletin concludes, thus describing its purpose. "We have gained much from this sojourn with our fellow countrymen in sympathetic understanding and cooperative friendship. The experience has given us a feeling of closer kinship and has developed a finer patriotism by creating a desire to work together for a finer and greater America."

Prof. F. A. Aust, department of horticulture, University of Wisconsin, will conduct a lecture course in landscape design at Superior and Eau Claire, beginning on Oct. 12 and 13, respectively. The group will meet once a week in each city for six weeks. Each class was organized by the local Garden club in cooperation with the University Extension division.

Ask People's Aid in Raising Funds for Babcock Statue

Secretary–Treasurer Sends Plea to Badger Citizens to Help Raise $30,000

A plea to the people of Wisconsin in particular and of the United States in general for aid in supporting the Babcock Statue Fund, with which will be erected a memorial to Dr. Stephen Moulton Babcock and his unselfish devotion to high ideals, was made this week by E. H. Farrington, emeritus professor of dairy husbandry at the University of Wisconsin, and secretary–treasurer of the fund drive.

Although satisfactory progress in obtaining donations to the fund has thus far been made, Prof. Farrington explained that Wisconsin's citizens must give their whole-hearted support to the project if it is to be entirely successful. It is proposed to raise $30,000 for the fund, to be used entirely in erecting a statue to Prof. Babcock, who so unselfishly gave his discovery of the Babcock milk test to the world.

The following statement was made this week by Prof. Farrington in regard to the Babcock Statue Fund:

"I suppose you have all heard of the man on the sinking ship to whom the passengers came and asked him to pray for help. He replied that he could not pray out loud, but the frantic passengers cried 'Do something religious' and the man said I did 'I took up a collection'."

"We have all, at some time, been in the position of the ship passengers and if the cause has been a desperate one we have contributed to it although not to the extent that ship wrecked passengers will contribute if they think by so doing their lives will be saved."

"After many years of passenger service and of contributions to many good causes I find myself now in the position of the man "passing the hat" and while the cause I represent is not a desperate one it has received nearly universal approval although some minds are not fully in accord with the Babcock Statue idea. I have been told that a tablet in some building would be more appropriate and others suggest they will have nothing to do with the Statue Fund but will contribute to a research project on the value of Milk and Dairy Products to the human family."

"There are always some objectors to every public cause. If the cause is a bad one the objectors will be in the majority but with a good cause the majority in favor of it will be so large that the objectors can not stop its progress. They may hinder it somewhat but in the long run the good cause is bound to succeed."

"Those of us who have had a life long acquaintance with Dr. Babcock were possibly a little surprised to find that he was heartily in favor of the Babcock Statue Fund. He seemed to be interested in it not because it was to be a Statue of Babcock but because it would represent to this and to future generations the standard of unselfish devotion to high ideals."

"We are told that 'the world is full of a number of things' but none of them deserve more prominent mention or perpetual preservation than the life and work of Stephen Moulton Babcock. Contributions to the Babcock Statue Fund are in order and may be sent to:—E. H. Farrington, secretary–treasurer

Draft Teams Pull Hard But Fail to Set New Mark at County Fairs

Owners of draft horses again displayed keen competition for honors in the horse pulling contests held at the Wisconsin county fairs this year, according to the Department of Agricultural Engineering, at the Wisconsin college of agriculture, in charge of the contests.

The heaviest weight recorded as pulled was 2912½ pounds in the light weight class for teams weighing less than 3000 pounds. Had this pull been maintained for the full 27½ feet as required by the contest rules, a new state record for that class would have been made, declared E. R. Jones of the engineering department. The present state record for that class is 2900 pounds and is held by E. Foiles, Chippewa county.

Pull 3100 Pounds

In the heavy weight class for teams weighing over 3000 pounds, the heaviest pull this year was 3100 pounds made by a team owned by Godfrey Nelson, St. Croix county. The present state record for this class is 3225 pounds and is held by H. S. Keliher, Bayfield county. The World Heavy Class championship pull is 3575 pounds and is held by a Michigan team weighing 3890 pounds.

A tractive pull of 2000 pounds is explained by Jones as being equal to lifting 2000 pounds straight up out of a well, or equal to pulling four 14-inch plows 6 inches deep in clay loam, or is equal to ten horse power when extended for 27.5 feet in ten seconds.

Machine Records Pulls

The pull made by the teams in the contest was recorded by a machine called a dynamometer constructed and operated by the department of agricultural engineering at the University.

The owners of the winning teams in the heavyweight class at each of the county contests this year were as follows:

Glen Devore, **Langlade county**; L. D. Smith Dock company, **Door county**; E. A. Lawler, **Brown**; Frank Diemer, **Outagamie**; Henry Baulanger, **Kewaunee**; Joseph Socha, **Racine**; Lutz company, **Winnebago**; Godfrey Nelson, Glenwood City and New Richmond in **St. Croix county**; P. F. Zeemer, **Polk**; Oscar Buttke, Wausau and Ignatz Lang, Athens in **Marathon county**; Ed Gilbertson, **Lincoln county**; Perry McMahon, **Burnett**; Vern Cuturia, **Pierce**; and Richard Kuse, **Wood.**

Lightweight Team Owners

Winning team owners in the lightweight class at each of the county contests were:

Voe Babler, **Langlade**; Henry Strikert, **Door**; Chris Roepcke, **Brown**; Ruben Kluess, **Outagamie**; Lorenz Krause, **Kewaunee**; Art Sornson, **Racine**; Paul Jones, **Winnebago**; Adrey Canedy, Glenwood City and Vern Cuturia, New Richmond, both in **St. Croix county**; Vern Cuturia, **Polk**; Anton Knitter, Wausau and Art Ewan, Athens, both in **Marathon county**; Fred Hoff, **Lincoln county**; Ed Stone, **Burnett**; Vern Cuturia, **Pierce**; and Knute Johnrude, **Wood county.**

The owner of the winning team in the middleweight class at the **Wood county** contests was Art Ewan.

Edits Farm News for

State 4-H Champs, Winners in 1931 Contests Selected

Some Leaders Will Represent Wisconsin at Future National Contests

State 4-H champions and winners in their respective state contests have been selected and some will represent Wisconsin at other national contests to follow, according to an announcement by V. V. Varney, assistant state club leader.

In the state health contest Lillian Heller, **Grant county**, was chosen as the champion health girl, and Gerold Felland, **Juneau county** was chosen as the champion health boy. They will represent Wisconsin in the national health contest to be held at the National club congress to be held in Chicago, early in December.

The winning demonstration teams in the home economics projects were: clothing, **Door county**; dairy foods, **Langlade county**; baking, **Racine county**; and home furnishings, **Milwaukee county.**

Demonstration Teams

Thirty-seven different demonstration teams entered the agricultural projects contests at the state fair with the winnings in these classes as follows: farm crops, **Marquette county**, 1st, and **LaFayette county**, 2nd; garden, **Sawyer county** 1st, and **Kenosha county** 2nd; potatoes, **Marinette county**, 1st, and **Price county**, 2nd; dairy, **Fond du Lac county**, 1st and **Walworth county**, 2nd; forestry, **Marinette county**, 1st, and **Ashland county**, 2nd; home grounds beautification, **Milwaukee county**, 1st and **Pierce county**, 2nd, and **LaCrosse county**, 3rd.

The winners in the Forestry demonstration contest will receive a trip to the National Outdoor Exposition, Chicago in 1932 and the winner of the dairy demonstration contest will receive a trip to the National Dairy Show at St. Louis this fall.

Dairy Cattle Judging

In the dairy cattle judging contest, in which 26 teams took part, the first five placings were won in order of placing by **Jefferson, Dane, Wood, Waukesha and Walworth** counties. The five high individuals judging all breeds were: Frank Wampler, **Adams county**; Elsie Onsrud and Keith Sutliff, **Dane County**; Ralph Heitz, **Jefferson county**; and Richard Hurtgen, **Waukesha county.**

In the crops judging and identification contest, Melvin Rominsjy, **Ashland county**, was high scoring individual. The high scoring individuals in the several classes of grain were: oats, Gerhard Boss, **Winnebago county**; barley, Leo Sorenson, **Marinette county**; potato, Arthus Lamon, **Pierce county**; corn and red clover, Melvin Rominsky, **Ashland county** In identification work, Lawrence Di **Wood county**, won first.

High individual honors in economics demonstration classes won by **Marquette, Waukesh Chippewa counties.**

Babcock House Home for S

Through special arr the Wisconsin college twenty-four men stu rooming in the Bab residence of the lat

THE BABCOCK STATUE FUND

MADISON, WISCONSIN

E. H. FARRINGTON, *Sec'y-Treas.*
Professor Emeritus Wisconsin Dairy School

afford a final opportunity to people of University community and state to aid this project. No general canvas, but those who want to aid should send their cont. now.

January, 1934

Two years ago, a proposal to honor the memory of Stephen Moulton Babcock by erecting a statue of the famed inventor of the Babcock Test was announced. Since then, efforts to raise the Babcock Statue Fund have been actively pursued.

Campaign will come to a close in the next few months.

The dairy-press, including such widely-read publications as HOARD'S DAIRYMAN and the NATIONAL BUTTER AND CHEESE JOURNAL, has contributed generously of space and comment to publicize the project and it has been brought to the attention of dairymen and college men in many other ways. Inasmuch as all publicity and every other expenditure of time or money in raising the Fund has been donated, every cent of the money raised is available for the memorial itself.

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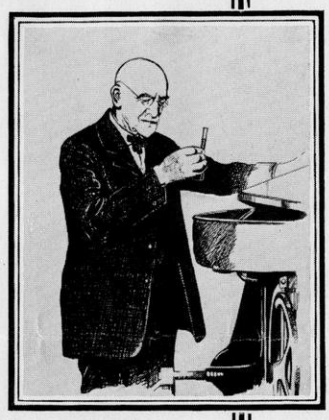
Sincerely,

E. H. Farrington

Sec'y-Treas. Babcock Statue Fund

If people really want to contribute, they will have to send it in — Donations must be entirely voluntary — no high-pressure campaigning will be used.



THE BABCOCK STATUE FUND

MADISON, WISCONSIN

It was in 1890 . . .

over forty years ago . . . that the Babcock Milk Test was given to the world, and the profound influence of this discovery on the progress of the Dairy Industry is known to every producer and manufacturer of dairy products.

Thanks to the unselfish generosity of Professor Stephen Moulton Babcock, who gave his invention to the public, dairymen everywhere have freely received the full benefit of the Babcock Milk Test from the beginning. Now, the suggestion is made that, in recognition of this generosity, a fitting statue of Doctor Babcock be erected, and it is felt that a fund of approximately $30,000.00 should be raised to insure a statue and setting worthy of the purpose and the donors.

Among the many groups which have been benefitted by Dr. Babcock's invention are:

Cow Owners and Milkers
Manufacturers of Butter, Cheese, Ice-Cream and other Dairy Products
City Milk Distributors
Cattle Breeders' Associations
City, State and National Dairy Inspectors and Officials
Agricultural Colleges and Dairy Schools
The Members of Four H Clubs
The Dairy and Agricultural Press

It is confidently expected, therefore, that contributions, no matter how small, will be received from everyone interested in the Dairy Industry. All contributions should be made payable to the "BABCOCK STATUE FUND" and be mailed to the University Avenue National Bank, Madison, Wisconsin, or to:

PROF. E. H. FARRINGTON, *Treas.*
Babcock Statue Fund
Madison, Wisconsin

An acknowledgment will be sent to *each* contributor, and reports will be furnished from time to time to the dairy press.

Here is an opportunity for YOU to join in an enduring tribute to a great dairy scientist through whose successful efforts to produce a practical butterfat test millions of dollars have been returned to the Dairy Industry. I feel sure that we can count on an early response from you.

Sincerely yours,

E. H. Farrington

Sec'y.-Treas. Babcock Statue Fund.

May 2, 1957

Mr. John V. Dodge
Encyclopaedia Britannica
425 N. Michigan Avenue
Chicago 11, Illinois

Dear Mr. Dodge:

President Fred has turned your letter of April 24 over to me, since it poses a number of problems which normally are handled by this office. The article on Stephen M. Babcock was drafted by this office from original and uncopyrighted sources, rechecked by a number of people who knew Babcock personally, and finally reworked by the president and submitted to you for publication. His acknowledgement of the receipt of your $6.50 and his endorsement of it to the University's funds can be considered transfer of full property rights to you.

The president has no objection to use of his name with the article in your encyclopaedia. He does, as you might realize from the above, have reservations about claiming sole authorship. And the use of his name and University connection in advertising would be a violation of a long-standing policy of this institution. In brief, the policy denies use of the University's name in connection with the advertising or promotion of commercial goods, products, equipment, or services.

Within the past year, the Wisconsin attorney general has taken action against a firm which violated this policy.

We are anxious, of course, to cooperate with you in the publication of the Babcock article and hope that some way can be found, other than those suggested thus far, to enable publication.

Sincerely,

Robert Taylor
Director

RT:mo

Bak 7

ENCYCLOPÆDIA BRITANNICA
425 N. MICHIGAN AVENUE • CHICAGO 11, ILLINOIS

OFFICE OF
THE EDITOR

April
24
1957

Dr. Edwin B. Fred, President
The University of Wisconsin
Madison 6, Wisconsin

Dear Dr. Fred:

Thank you for your letter of April 18. We note that our check in the amount of $6.50 in payment for the article on Stephen M. Babcock has been turned over to the Regents of the Universityof Wisconsin. We would, however, like to have your signature appear on this article. We are therefore enclosing another form of copyright release which does not specify payment for this article and shall appreciate your signing and returning to us if this is agreeable to you.

We shall also appreciate your returning the Description form which was sent to you with our letter of April 12.

Sincerely yours,

J. V. Dodge

John V. Dodge
Managing Editor

JVD:rt

Biog. Agr.

REP
(Printing)

Date_____

I, Dr. Edwin B. Fred

of Madison 6, Wisconsin

being the author of a certain original chapter or article entitled

BABCOCK, STEPHEN M.

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_____

Witness:

Printed in U.S.A. EB-838

Bronze Plaque, in Memory of Dr. Babcock, to Be Presented to State University Oct. 22

2 col.
14 pt.
Bookman
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A bronze plaque, dedicated to the memory of the late Dr. Stephen Moulton Babcock, internationally famous University of Wisconsin scientist, will be presented to the State University at a dinner to be held in the Memorial Union building on the University campus October 22.

Preparations for the dinner and the dedication program following are in the hands of a committee headed by Edwin G. Hastings, professor of agricultural bacteriology at the University. Included among the many who are expected to attend the event will be some of the state's foremost personages.

Dr. Babcock, who died three years ago at his home in Madison, was renowned throughout the world for his invention of the Babcock milk test. This test enabled dairymen to determine the butterfat content of milk, and thus to determine accurately the quality of their product.

— Taft Sculptored Plaque —

The bronze plaque to be presented to the State University is the work of Lorado Taft, world known sculptor, who will be present at the dinner. The presentation will be made by A.H. Marschall, Madison, and the memorial gift will be received for the University by Pres. Glenn Frank.

Mrs. E.H. Farrington, widow of the late Prof. Farrington, who headed the committee which raised funds by popular contribution for the purchase of the plaque, will unveil the memorial. Dr. Harry L. Russell, director of the Wisconsin Alumni Research foundation and former dean of the agricultural college, will preside at the program following the dinner. Edwin B. Hart, professor of agricultural chemistry, will be the only other speaker.

Dr. Babcock developed the milk test which bears his name in 1890, and it is now used throughout the world to measure the butterfat content of milk. He refused to accept anything for his invention, and on his death, he bequeathed a large part of his estate to the University.

— Many Give to Fund —

Contributions ranging all the way from a few pennies donated by school children in several rural and city graded schools of the state, to those of several hundred dollars given by large dairy firms both within and outside Wisconsin, have been received by those in charge of the Babcock memorial fund.

More than 200 contributions from individuals and firms in Wisconsin and throughout the nation have been made to the fund during the past several years. Individuals in all walks of life have contributed to the fund. School children and their teachers in all parts of Wisconsin, farmers and dairymen and large dairy firms throughout the nation, 4H club boys and girls, former students of Dr. Babcock and University faculty members are among those who have contributed.

A bronze plaque will be dedicated to the memory of the late Dr. Stephen Moulton Babcock, internationally famous ~~Wisconsin~~ University of Wisconsin scientist, at a dinner to be held

U. W. NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

5/14/49

RELEASE: On regent action Saturday, May 14, 1949

Madison, Wis.--The University of Wisconsin Board of Regents Saturday honored a great name in University history when it named the new dairy industry building Babcock hall--in honor of the late Stephen Moulton Babcock.

The regents acted upon the recommendation from the College of Agriculture faculty asking that Dr. Babcock be honored for "his work in bringing science to the service of the dairy industry."

Babcock, early agricultural chemist at the University, won world renown for the butterfat test which bears his name. It made possible the improvement of dairy herds through selective breeding, and also permitted the efficient marketing and handling of large quantities of milk. Most dairy leaders feel that the Babcock test made commercial dairying possible.

Babcock and his co-workers are also credited with improvements in cheese-curing methods and with early studies in livestock feeding which laid a foundation for present knowledge of human and animal nutrition.

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ad one--dairy building

Excavation for the dairy building, to be located between the Horticulture building and Stock Pavilion on the agricultural campus, got under way early this week. J. H. Findorff and Son, Madison contractors, have the general construction contract for the building, which will cost two and a half million dollars when completed and equipped.

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Special to Press Associations For Immediate Release

Madison, --The Babcock Fellowship at the University of Wisconsin has been awarded to William G. Hoesktra, of Golden, Colo., for research during the second semester of the 1954-55 school year, according to C. A. Elvehjem, dean of the university graduate school.

Hoesktra, whose field is biochemistry, will check on the skin reaction of animals to different petroleum oils. His findings will be used to help develop insect sprays that can be used on animals without danger of harmful effects.

Swine parakeratosis, a mange-like disease found on the skin of pigs that lowers their growth rate, will also be investigated by Hoesktra. This disease is thought to be caused by, or due to the lack of, some nutritional factor.

The fellowship, an annual award commemorating the work of Stephen Moulton Babcock, was set up to stimulate research in animal nutrition and dairy chemistry.

# # #

10/16/54

For Immediate Release

Madison, --The house that Stephen Moulton Babcock willed to the University of Wisconsin is about to be torn down. But the low-cost student housing unit it made possible will be in operation just the same.

Historic Babcock House, home of the pioneer professor of agricultural chemistry who was a campus and national figure for more than 40 years, has been a student cooperative house since 1931.

At Dr. Babcock's death his estate went to the University for books, scholarships, and other student aids.

That's when his Lake Street home was converted into a moderately priced living unit for 20 agricultural students.

To underwrite the venture, 11 University of Wisconsin faculty members guaranteed to cover possible losses from its operation.

They included former dean Chris L. Christensen, Ira L. Baldwin, E. J. Graul, A. J. Haas, James G. Halpin, E. G. Hastings, K. L. Hatch, George C. Humphrey, John A. James, E. R. Jones, and George Wehrwein.

Students, by doing much of their own work, were able to keep board and room expense at about $185 a year for the first few years. Those rates enabled many farm boys to come to college who otherwise could not have afforded an education during depression days, Haas recalls.

Last year, when the old frame Babcock home was declared too costly for upkeep, Haas got together with other friends of Babcock House and found a new home for the group at 1021 Clymer Place.

Result: a Babcock memorial that is outlasting the building that made it possible.

# # #

U. W. NEWS

FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

6/14/54

RELEASE: Immediately

MADISON, Wis.--The life and accomplishments of a famous Wisconsin biochemist--Edwin Bret Hart--will receive recognition by some of the nation's outstanding scientists who were his students at the annual meeting of the Institute of Food Technologists to be held in Los Angeles June 29.

At the meeting a panel of five scientists and former students of Hart will speak on his work and the name of the well-known Babcock Award will be officially changed to bear the names of both Hart and of Stephen Moulton Babcock, Wisconsin scientists who devised the butterfat test for milk and who conducted pioneer investigations in the field of biochemistry.

Former students of Prof. Hart who will take part in the program are H. T. Scott of the Wisconsin Alumni Research Foundation; Conrad A. Elvehjem, chairman of the University of Wisconsin biochemistry department and dean of the UW Graduate School; S. Lepkovsky of the University of California; E. M. Nelson of the Food and Drug Administration, Washington, D. C.; and Prof. K. G. Weckel of the UW department of dairy and food industries. L. E. Clifcorn of the Continental Can Company, Chicago, will serve as chairman of the panel.

The award which will bear the names of both Babcock and Hart has been given annually by the Institute of Food Technologists to a scientist in recognition of outstanding work in the field of food technology.

Prof. Hart died in 1953. He had retired from the chairmanship of the UW department of biochemistry in 1944 after 38 years of teaching and research. He is

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credited with the development of the science of nutrition, and it was under his direction that vitamin A was discovered and its function established. He also helped unfold knowledge of the B vitamins.

Speakers at the ceremony and their topics will be: Scott -- "Edwin Bret Hart--His Life and Memories of Him"; Dean Elvehjem -- "Thirty-Two Years Association With E. B. Hart"; Lepkovsky -- "Contributions of E. B. Hart to Animal Nutrition"; Nelson -- "The Impact of E. B. Hart's Contributions on Human Nutrition"; and Weckel -- "E. B. Hart's Contribution to Food Technology."

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U. W. NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

6/29/54 RELEASE: Immediately

LOS ANGELES, Calif.--Tribute to a former University of Wisconsin scientist was expressed Tuesday (June 29) by six of the nation's leading biochemists at the annual meeting of the Institute of Food Technologists held in Los Angeles.

The former Wisconsin scientist is Edwin Bret Hart who died in 1953 after many years of teaching and research at Wisconsin.

The occasion of the memorial panel was the official re-naming of the institute's Babcock Award to the Babcock-Hart Award. This award is given annually to a scientist in recognition of outstanding work in the field of nutrition and food technology and is one of the most coveted awards for work in this field.

The award was originally named in honor of Stephen Moulton Babcock, the Wisconsin scientist who devised the butterfat test and pioneer work in biochemistry. This year's winner of the award is Dr. Edwin John Cameron, director of the Washington research laboratory of the National Canners Association, Washington, D. C.

Speakers at the Hart memorial ceremony were all former students of the Wisconsin scientist and included Conrad A. Elvehjem, chairman of the UW biochemistry department and dean of the Wisconsin Graduate School; H. T. Scott of the Wisconsin Alumni Research Foundation; S. Lepkovsky of the University of California; E. M. Nelson of the Food and Drug Administration; and Prof. K. G. Weckel of the UW department of food and drug industries. L. E. Clifcorn of the Continental Can Co., Chicago, was panel chairman.

Scott praised Hart's teaching, his administrative abilities, and his scientific work, saying that "one thing that stands out in all his activities is his sense of the practical. His teachings have never dealth with vague theories

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or philosophies. He dealt directly with established facts and segregated them clearly from the field of the unknown."

Scott added that Hart had the rare ability to make a complicated subject seem simple and interesting and he always emphasized the practical application of the subjects he taught in order that "the world might be a better place to live."

Nelson reviewed Hart's scientific accomplishments, pointing out that "it is difficult to apply any accurate measure of the impact on human nutrition to his personal contributions, and to the many discoveries to which his department is credited.

"Twice a day," Nelson continued, "once in the morning, once in the afternoon, Prof. Hart made a trip through the building. On these tours he contacted the members of his staff and all of the graduate students, noted progress, made suggestions or criticisms in a manner he thought best suited to stimulate enthusiasm. In this way he contributed to all of the solutions of all of the problems under investigation."

Nelson said that Hart's contribution to mankind is threefold: to the science of nutrition, to his students through his teaching, and through "the establishment of a well-organized and active department which will continue probing into the unknown in the science of nutrition."

Dean Elvehjem recalled Hart's enthusiasm for work, and said that "the most significant aspect of all his research was the fact that after he had started work on a given problem he would not deviate until final results were obtained."

Hart was always in close contact with his students, and "those of us who had the privilege of working closely with Prof. Hart will agree that our most interesting sessions were those on a Sunday morning or the morning of a holiday," Elvehjem said. "He was always in the laboratory on these occasions and it was then that there were no limitations on our discussions. He was exceedingly well-read and could discuss any of the present day problems."

Dean Elvehjem continued that "few teachers have so vividly impressed so many students in the field of biochemistry. I cannot overemphasize how deeply grateful I am for having been one of those students."

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U. W. NEWS FROM THE UNIVERSITY OF WISCONSIN NEWS SERVICE, MADISON 6, WISCONSIN

11/20/62 jfn RELEASE: Immediately

MADISON--Pupils in more than 20,000 U.S. schools are hearing this week of the research discoveries of three famous University of Wisconsin scientists, Stephen Babcock, Karl Paul Link, and Harry Steenbock.

Pictures of the three Wisconsin scientists appear in the Nov. 19 issue of News Map of the Week, published by a Chicago firm as a visual aid for schoolrooms. The issue features accomplishments of the nation's Land-Grant universities, including Wisconsin. The 100th anniversary of the Morrill Land-Grant Act is being observed this year.

Dr. Babcock's dozens of important contributions to the dairy industry included a test for butterfat content of milk. Dr. Link's discoveries include Dicumarol, first of the synthetic anti-coagulants; Warfarin, leading rodent poison; and Plasmylac for treatment of calf scours. Dr. Steenbock's contributions include irradiation of food and pharmaceuticals with Vitamin D, helping conquer rickets.

The map shows laboratory pictures of the three Wisconsin scientists and two others from Land-Grant institutions, Dr. Selman Waksman, of California and Rutgers, who won the Nobel Prize for his discovery of streptomycin, and Prof. Joseph Tykociner, who made the first public demonstration of sound-on-film at the University of Illinois in 1922.

Sixty per cent of living U.S. Nobel Prize winners earned degrees at Land-Grant institutions, the publication points out.

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BABCOCK & STEENBOCK

The University of Wisconsin's world fame in research developments in the field of nutrition grew from the work of two pioneers in the field: Stephen Babcock, and Harry Steenbock.

The two, listed among the world's great "Hunger Fighters," have been followed by a number of Wisconsin scientists, who have opened new vistas in the important field of food science.

Babcock's two great contributions to the field were:

1. The discovery of a simple butter-fat test for milk which has standardized the most important food in the human diet.

2. The discovery that there is more in food than meets theeye... that a mysterious "something" makes food nutritious, and that the "something" is in addition to the minerals, proteins, fats, sugars, starches and such which the chemist can find in food.

Steenbock carried this second discovery further. He worked with the unknown "something" which makes some foods better than others. And he found that part of the "something" comes from the sun...Vitamin D. His great discovery was that this property of the sun could be imparted to cereals, oils, milk, and medicinal products by "Irradiation," the subjecting of edible substances to ultra-violet rays.

Both Babcock and Steenbock gave their discoveries to the world. Babcock, whose butter fat process was a relatively simple one, a test in itself, dedicated the discovery directly to the public. Because Steenbock's process was an intricate one, the value of which could only be determined by exhaustive and continual scientific testing, his discovery was dedicated to public use through the formation of a non-profit organization, The Wisconsin Alumni Research Foundation, which operates testing laboratories, and gives its proceeds to the University of Wisconsin to finance further basic scientific research.

In the 23 years which the Foundation has operated, it has given the University almost four million dollars, completely without strings. The Foundation asks no control over the research it supports, and the University has no control over the operation of the Foundation. The Foundation has accepted a number of other discoveries from University faculty members and these too, it seeks to make useful to the public.

Steenbock thus has been twice repaid for his discovery and his social consciousness in dedicating it to the public through the Foundation:

1. He has benefited his University by returning most of the interest on its distribution to research work at the University.

2. He has benefited the world by reducing rickets from the scourge of childhood, which it was when Steenbock made his discovery, to a point where it is a rare malady, now that the world has the full benefits of his findings.

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The Two Old Men

One of the strong characteristics of Dr. Babcock of milk tester fame is his wonderful memory. He can tell more stories about men and measures connected with the early history of dairying and dairy education than any one with whom I have ever become acquainted.

The Doctor is now past 87 years old and I am past 70 but we have been associated in the dairy game for near 40 years and almost every time I see him which is at least once a week, he tells me some new story. We are both on the retired list but eat well and sleep well and attend basket ball games in winter and base ball games in summer. We also each have an office at the college where we work hard on some problem which we think is not yet solved.

Yesterday the Doctor told me this story. He said that this financial depression we are now having is just like the one they had after the Civil war and at that time he lived on a dairy farm in the state of New York. They were sending the milk from the farm to a cheese factory and were paid by check on a bank near the Remington Arms works in a rather small town.

This was some years after the Civil war closed and money was scarce with many failures of banks and of business firms. The Remington Arms Company was especially hard hit because the war was over and they could sell no more rifles or at least the sales were much reduced.

It so happened that when the Doctor took his "cheese checks" as he called them to the bank the man at the window told him after some deliberation that they did not have the money as the bank was in financial difficulties but they could give him an order on the Remington Arms Company and they might be able to cash the checks for him.

Well, he took the checks over to the Remington Company and they too after some hesitation told him they did not have the money but they could give him the full value of the checks in rifles and ammunition. This kind of stumped the Doctor but he was young and a good sport so he said "well, that is better than nothing", so he took three of the best rifles the company made and a large supply of ammunition.

Here's where the Doctor begins to laugh. He said he took the arsenal home and he and his brother had more fun all summer shooting at a target on the farm than they had milking cows. After he got through laughing he said if they had kept those checks for a year or so they could have been paid the money as the hard times got better and the banks paid their bills and have been doing so ever since.

Here's Another One

When Dr. Babcock came to Wisconsin as professor of agricultural chemistry he was engaged to take the place of Dr. Armsby who was leaving for a position in another college. The salary of the position was provided for in the budget of the college for the entire year but Dr. Armsby left in July and Dr. Babcock came in January following.

This left a period of about six months when the salary was not paid to anyone and in order to save it for the agricultural college the Doctor requested the administration to let them have it for buying books, which they did, and this was the beginning of the agricultural college library which is now a large affair with many thousands of books and papers.

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Dr. Babcock has always been more than generous not only with his small salary but with his sound judgment and practical ideas. I doubt if you can name a man who has been the means of putting more cash into the pockets of the dairymen and the dairy manufacturers than he has.

The Babcock Statue Fund is going to pay for a statue to him and your contribution, small or large, will show your desire to share in this movement.

E. H. Farrington, Treasurer,
Babcock Statue Fund.

THIS IS THE AMAZING INVENTION OF PROFESSOR BABCOCK WHICH SEPARATED THE CREAM FROM THE MILK

File
Stephen Moulton Babcock

"The Test Is Not Patented!"

THE STORY OF A MAN WHO GAVE HIS DISCOVERY TO THE WORLD WITH NO PROFIT TO HIMSELF

RUN a red circle around the date March 26 on your school calendar. Try to listen in on that Monday to WHA's "Radio Almanac" at 1:30 p. m. to program number 25 called *He Eliminated Boarders*. Eliminate means to cut out. WHA feels its almanac tales would not be complete without a Wisconsin story.

They have chosen to broadcast a story of one of our famed scientists STEPHEN MOULTON BABCOCK. After listening, how many of Stephen Babcock's discoveries can you name? Have you been through a dairy plant and watched the butterfat test? Can you tell your classmates about it? Are you curious—what is a "boarder" cow? Let's find out!

Did you ever stop to think from where everything we have comes? The foods we eat, the clothes we wear, the houses we live in, the cars we ride in? Farmers grow things. Workers make things. That's industry.

A worthy Badger who changed our industry of dairying very much was the kindly Stephen Moulton Babcock, pictured on our cover this month. This picture of Dr. Babcock milking the cow was taken in May 1928. His middle name is unusual, isn't it? A Jane Maria Babcock, born in 1825, married Joseph Moulton. We presume that is where Stephen got his middle name. As a little boy he was very curious. When he grew to be a man he studied and studied in his laboratory. He loved it. He came from New York state, where he was born in 1843, to teach on the campus of our own great University, 1888. Thus he grew to be a celebrated scientist in the College of Agriculture with another worthy Badger, William A. Henry. Mr. Henry was a fine dean of the college.

You have heard of vitamins, have you not? Mr. Babcock became a trail blazer in studying vitamins. He was a pioneer who started searchers. He never guessed. But most important of all his work was his test for butterfat in milk. This test showed which cows were "boarders" in the herd. The tester recorded the exact amount of cream in any cow's milk. A cow without much cream in its milk was a what? Three guesses!

Poor cows in a herd ate up the profit from the good ones. The quantity and quality of the milk of each cow, if tested, showed the worth of the cow.

Why did Mr. Babcock work and work? The story is well-told by editor Frank B. Swingle, in *The Wisconsin Agriculturist and Farmer,* August 6, 1949, page 12. "We kept a few cows, 60 years ago. The cows didn't keep us, as they do today.

"There was a small creamery, three miles from the farm at 'Porter's Station' [*Rock County*] on the railroad line, started some years before. Cream from the home farm went to this creamery.

"Porter's son came every other day to collect cream. Milk was kept in small 'shot-gun' cans with tiny windows that showed the cream. Payment was made according to the number of inches of cream collected.

Making Wagons

By JUNE CONFORTI AND MARIE RUFFALO *grade 6*

"Enclosed find a copy of the article I wrote for our newspaper. I called Mr. Don Fina by phone and interviewed him. He gave me the following information and I wrote it up without any help from my teacher.

"I am enclosing his letter which he wrote to our history club, the *Conrad Shearer* chapter. *Will you please read and return to me?*

"June wrote up the history of our Bain School and Mr. Edward Bain after whom our school was named. She had to spend an hour of research work in our Public Library because the library does not permit such records to leave the building.

"We have learned so many things since we organized our history club.

"The girls are making a file to file our letters and material. Things are coming in so fast we felt the need of a file.

"We earned $1.00 by selling the most tickets for our card party. We will earn 50¢ more and buy our own letterheads and envelopes. I'll send you one when I go after it. We ordered it ourselves. We had to go down and pick it out ourselves.

"By the way our principal's name is Mr. Nick Magaro. Our teacher is Miss Alice Akey.

"We are sorry we neglected mentioning Mr. Magaro before. Could you please write him a little note of appreciation? He is going to help us with our newspaper.

"Thank you so much for making it possible for us to have fun and experience in contacting the people of our town."

Your friend, GORDON BEDROSIAN
Vice president—Bain School, Kenosha

EDWARD BAIN WAS ENGAGED IN making wagons in Kenosha for over forty years. Mr. Bain was a native of Kinderhook, Columbia County, New York, and was born March 9, 1823. His parents' names were Bastian and Moyca. The last name was formerly spelled *Macben.* Edward spent a year at Kinderhook Academy and the same amount of time at an academy at Lenox, Massachusetts.

When he was fifteen years old he commenced the business of his life. He was an assistant in a hardware store. He then decided to try his luck in the West. He visited a friend in Southport [*Kenosha today*] and thought it a good place to open a business. After returning to New York he bought some hardware stock and brought it to the new region in 1844.

For twenty years he brought in stock for his business. His brother Lewis helped him. In 1852 he purchased the Mitchell and Quarles Wagon Shop in Kenosha. He made more and better wagons all the time. Mr. Bain was the main one in the promotion of the business until his death.

Mr. Bain was married in Kenosha on September 20, 1847 to Miss Harriet Brockett. They had one son and two daughters, no longer living. Mrs. Bain was an active member of the First Congregational Church.

In politics Mr. Bain was a Democrat. He was a director of the First National Bank. Although Mrs. Bain survived until 1917, Mr. Bain died in Pasadena, California, December 18, 1898.

The Bain School, which we attend, is named for Edward Bain. The land was purchased from the Bain estate in 1905. Our school opened September 9, 1907.

Can You Name These Badgers?

Father of modern dairying
Builder of Wisconsin's oldest house
A man who lived under three flags
The jackknife judge
The man who thought he was a king
Wisconsin's first millionaire
The father of our weather bureau
The spirit of the middle border
The master of the greatest show on earth
Man who gave barley a college education
The man who carved religion in stone
The leader of vocational schooling

"There was not a business-like plan for operating a dairy or a buttermaking plant. Our cream checks were small because our cows showed neither high yields nor high cream records.

"Yes, the creamery firm went broke. So grandmother went back to making dairy butter, packed in wooden pails, for certain Chicago patrons who liked her product. Grandmother really made 'gilt-edge' butter . . . .

"The home farm program was carried on much the same till 1890 or '91 . . . then we began to study dairy farming seriously.

"A creamery was built in the nearby village. It was a wonder to the boys to see the cream separated from milk by a machine. . . . No longer did we sell cream by the inch. We were paid exactly what the Babcock test allowed."

Careful work and "sticking-to-it" made Dr. Babcock celebrated. Once he said, "No test is going out with my name on it unless it is perfect." Let's remember that, dear boys and girls, guard your good name. Never let it be connected with something shoddy or only half-done. Stick to it!

Mr. Babcock worked weeks on his testing. Suddenly one glorious day he cried out to William Henry "Well, I have it at last". Then he gave his invention free to the world, for his test was not patented. "Patented" means protected—to ask our government for the right to have his invention protected. Because he did not seek a patent, his testing machine was copied by all. But he had shown the way! Truly a worthy Badger!

Why was Stephen M. Babcock so worthy? Well, because he made peoples' lives better. His tester made better creameries. Better creameries made Wisconsin produce more milk and butter. Better milk and butter made better markets. Better markets made better dairy farms, silos, good herds. He helped to steer our state into a big industry.

In 1899 the legislature of Wisconsin gave Dr. Babcock a medal, from a grateful people. Upon it these words were engraved,

Courtesy of WISCONSIN ALUMNUS, March, 1950

"Recognizing the great value to the people of this state and to the whole world of the inventions and discoveries of Professor Stephen Moulton Babcock of the University of Wisconsin, and his unselfish dedication of these inventions to the public service, the State of Wisconsin presents to Professor Babcock, this Medal."

Many many more honors came to the great man. Would boys and girls have liked Dr. Babcock? Oh! yes! he was such a jolly man —liked to root for the home baseball team. He loved Christy Mathewson. You boys know who he was, don't you? It is easy, too, to like a modest man. What does modest mean? Well, it means not to show off.

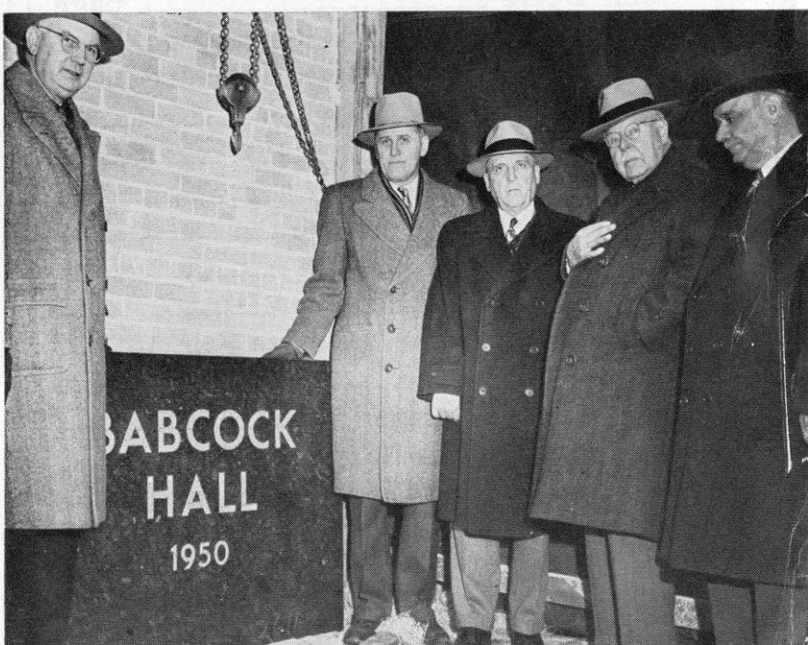
Funds were obtained by contributions of the 4-H Clubs and grade school children. Dairy firms throughout the world added to the fund. A portrait plaque by Lorado Taft, was mounted at the entrance of Agricultural Hall. Some day you can read the inscription:

"Erected by the admirers of Stephen Moulton Babcock, inventor of the Babcock test, discoverer of many other useful applications of science to practice, all freely given to the world."

Half the income from his estate was left to buy rare and unusual books for students in the College of Agriculture. That was thoughtful, wasn't it?

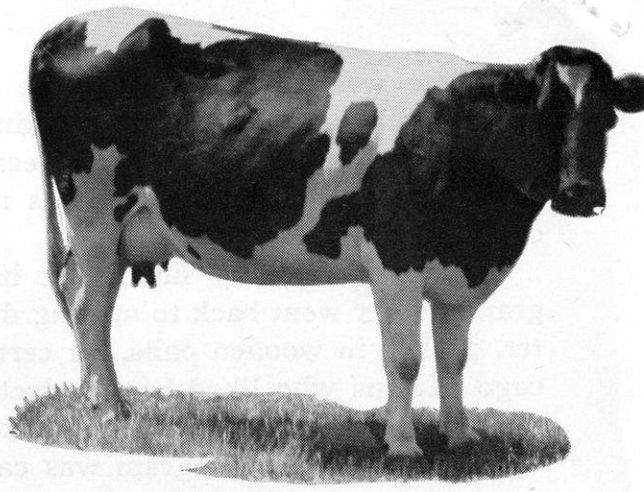
Mr. Stephen M. Babcock made a will before his death in 1931. He gave some of his letters and papers to our State Historical Society collection. There were 13 boxes. Even

LAYING THE CORNERSTONE OF BABCOCK HALL
H. C. Jackson. R. K. Froker, President E. B. Fred, H. L. Russell, A. Matt Werner



his cute little notebook, in which he kept track of his school expenses in Germany, is here. He studied there at the University of Göttingen, 1877–79. Can you see how these papers will be poured over by biographers? Remember we learned in December BADGER HISTORY, page 11, how the historian Alice E. Smith has looked at hundreds of papers about James Duane Doty in order to write his biography? Scholars study the careful Babcock papers.

Our Miss Alice Smith knew Dr. Babcock. From her apartment window she could look



right down in his hollyhock garden. Dr. Babcock loved hollyhocks!

Yes, a most worthy Badger!

Helps in Reading about Stephen M. Babcock

The Country Gentleman Magazine, March 1928. "Babcock finds the hidden hunger; he and his cows open up a new world" by Paul H. De Kruif.

The *Madison Democrat,* May 12, 1912. "The 'coming of age' of the Babcock test."

Wisconsin, University of, College of Agriculture, 1929. "Stephen Moulton Babcock, inventor of the Babcock test."

Successful Farming, Meredith Publishing Company, Des Moines, Iowa, 1930. "The ten master minds of dairying."

Wisconsin Alumni Research Foundation, 1943. "Stephen Moulton Babcock, man of science."

State Historical Society, Madison, 1950. *It Happened Here: Stories of Wisconsin.* pages 204–206.

More about Industries

The centennial issue of *WISCONSIN AGRICULTURIST AND FARMER* of August 6, 1949 has some more helps on industries for your Wisconsin scrapbook:

Down (Work puzzle on page 29!)

1 Charles King 2 Lyman Draper 3 Billy Mitchell 4 Claude Allouez 5 Daniel Whitney 6 Gile 7 *Why Wisconsin* 9 James Duane Doty 12 Al Ringling 15 Eden 17 Horlicks 18 Increase Lapham 20 George W. Peck 21 Appleton 23 *Old World Wisconsin* 24 Ripon 25 ancestor 26 Ransom A. Moore 28 William Henry 34 Major William Whistler

Across

1 Cal Peters 3 Bad Axe 6 George E. Watson 8 Illinois 9 John Muir 10 Juliette Low 11 Layton 13 Maureen Daly 14 Eben Rexford 15 Edna Ferber 16 Yellow Thunder 17 hid 19 Ole Bull 20 Pattison 22 Northwest Territory 24 Ransom A. Moore 27 Ephraim 29 Robert M. La Follette, Sr. 30 Navarino 31 Daniel Phelps 32 pro 33 Juliette Kinzie 35 War 36 Bill Nye

University of Wisconsin News Bureau Release Sunday Oct. 21 and after:

Madison, Wis. (Special)-- Several hundred people, among them some of the state's foremost personages, will gather at the ~~xxxx~~ Memorial Union on the State University campus Monday night at 6:15 for the unveiling and presentation of a bronze plaque of Dr. Stephen Moulton Babcock, famous Wisconsin ~~xxixxtixx~~x scientist, to the University of Wisconsin.

The plaque will be unveiled and presented to the University at a dedication program following a dinner. Preparations for the program have been made by a committee headed by Prof. E.G. Hastings, of the agricultural bacteriology department of the University.

Dr. Babcock, who died three years ago at his home in Madison, was renowned throughout the world for his invention of the Babcock milk test. This test enabled dairymen to determine the butterfat content of milk, and thus to determine accurately the quality of their product.

The bronze plaque to be presented to the State University is the work of Lorado Taft, world known sculptor, who will be present at the dinner. The presentation will be made by A.J. Marschall, Madison, and the memorial gift will be received for the University by Pres. Glenn Frank.

Mrs. E.H. Farrington, widow of the late Prof. Farrington, who headed the committee which raised funds by popular contribution for the purchase of the plaque, will unveil the memorial. Dr. Harry L. Russell, director of the Wisconsin Alumni Research foundation and former dean of the agricultural college, will

preside at the program following the dinner. Edwin B. Hart, professor of agricultural chemistry, will be the only other speaker.

Dr. Babcock developed the milk test which bears his name in 1890, and it is now used throught the world to measure the butterfat content of milk. He refused to accept anything for his invention, and on his death, he bequeathed a large part of his estate to the University.

Contributions ranging all the way from a few pennies donated by school children in several rural and city graded schools of the state, to those of several hundred dollars given by large dairy firms both within and outside Wisconsin, have been received by those in charge of the Babcock memorial fund.

More than 200 contributions from individuals and firms in Wisconsin and throughout the nation have been made to the fund during the past several years. Individuals in all walks of life have contributed to the fund. School children and their teachers in all parts of Wisconsin, farmers and dairymen and large dairy firms throughout the nation, 4H club boys and girls, former students of Dr. Babcock, and University faculty members are among those who have contributed.

Doctor Babcock's Last Experiment

I saw Dr. Babcock nearly every day of that week of excessively high temperatures that were finally too much for his 87 years. The day before he went to his reward I took him for a short ride into the country. He did not have an ache or a pain but seemed to be in his normal health and usual good spirits.

After about two days of the 98 temperatures his mind began to work on an experiment to cool his house or at least one or two rooms in it. In recent years he has been heating his house by burning gas in his hot air furnace. This was satisfactory except for one time last winter when a wter pipe leaked in his cellar and by flooding it nearly put out the pilot light of his gas furnace. On that occassion he happened to hear the water running and got it shut off before "he was blown through the roof" as he expressed it. He made many jokes over this narrow escape saying that he had alwaays wanted to visit the volcano at Hawaii but now he didn't have to as he had a volcano of his own.

His last experiment was an attempt to cool his house by placing one of these household refrigerators run by electricity, in his hot air furnace in the cellar and then by connecting an electric fan and blowing air over the frigid part of the refrigerator into the hot air pipes of the furnace, he would thus cool the living room of his home. He said he knew the idea was practical and if the General Electric or some other company couldn't do it he would do it himself.

I believe he would have worked out a practical application of his house cooling plan if he had lived through the hot summer and he probably would have given the public the benefit of his brains just as he did his practical Milk Test.

The generosity of Dr. Babcock in giving his many contributions to science and practise, deserve recognition and the Babcock Statue Fund is suggested as a token of appreciation from those of his generation who contribute to it and as an incentive to future generations to stimulate them to furthergood deeds.

Contributions to the Babcock Statue Fund are in order and may be sent to.

E. H. Farrington
Secretary- Treasurer

News and Features

Agricultural and Consumer Press Service
440 Henry Mall
Madison WI 53706 (608) 262-1461

College of Agricultural and Life Sciences
University of Wisconsin-Madison

rec. October 7, 1998

For Immediate Release
For More Information:
Hector DeLuca (608) 262-1620

BIOCHEMISTRY PROVIDES THE FOUNDATION FOR AGRICULTURAL AND LIFE SCIENCES

On Oct. 15, the University of Wisconsin-Madison Department of Biochemistry will dedicate its new campus home.

The 200,000-square-foot building has the modern laboratories and equipment that faculty members need to advance knowledge in today's key research areas, says Hector DeLuca, chairman of the Department of Biochemistry. More than half of the building's $35.6-million price tag was paid by patent royalties from DeLuca's vitamin D discoveries.

The dedication ceremony for the new building will take place at 3 p.m. on Thursday, Oct. 15. Invited speakers include Gov. Tommy Thompson, UW-Madison Chancellor David Ward, Elton Aberle, Dean of the College of Agricultural and Life Sciences, biochemistry professors Hector DeLuca and Michael Cox, Arthur C. Nielsen Jr., president of the board of the Wisconsin Alumni Research Foundation, and former WARF director Howard Bremer.

According to Deluca, modern biochemistry focuses on developmental biology, protein structure and function, molecular genetics, nutrition, metabolism, and enzymology. Although some of these topics may seem removed from the agriculture's front lines, progress in these areas may well lead to new ways farmers can reduce both their costs and environmental impacts, while producing healthier crops and livestock in the next century.

-more-

For example, DeLuca and cooperators have found a way to reduce the amount of phosphorus — an important water pollutant — in manure. A study with chickens showed that including the active form of vitamin D in poultry diets reduced phosphorus content of the manure by one-half. DeLuca says the vitamin D compound increases the birds' ability to absorb phosphorus from feed and eliminates the need for phosphorus supplements.

Here are more examples of current projects expected to have an impact on agriculture:

- Research on the genes that tell plants when to drop their leaves. Biochemists are experimenting with plants that have a synthetic gene that appears to make the plants grow larger and produce more flowers.
- Studies of how the bacteria that live in nodules on the roots of plants such as alfalfa and soybeans can fix nitrogen from the air. Controlling this process in crops could reduce farm fertilizer budgets, increase crop productivity and protect water from excessive nitrogen.
- Research on the genetic instructions in viruses that cause them to infect and sicken animals and people. Altering these instructions can lead to new ways to protect human and animal health.
- Studies of certain bacterial enzymes that allow the microbes to break down organic chemicals that pollute groundwater. Advances in this area will lead to new ways to clean up pollution.
- Research on the molecular structure of brazzein, a molecule 2,000 times sweeter than sugar. This study could lead to crops containing the natural sweetener.

Such work will continue a long history of biochemistry discoveries that have benefited Wisconsin agriculture, beginning in 1890 with the Babcock butterfat test. The test quickly became the gold standard for evaluating milk quality and the foundation upon which the dairy food industry was built.

Many department discoveries are best known for curing human ills. But earlier research usually emerged from farm problems and the findings made an enormous impact on animal health, growth and reproduction.

UW-Madison biochemists showed that salt was essential for dairy cows, discovered vitamin A and the B-vitamin complex while studying animal nutrition, found effective treatments for poultry with weak legs, discovered that both copper and iron were needed to cure anemia in piglets and people, showed that iodine could prevent hair loss and goiter in calves and humans, and that cobalt, manganese, zinc and selenium were essential for healthy diets.

Problems with a "bleeding disease" in cattle that ate sweet clover sent Karl Paul Link and his colleagues in search of the compound responsible. Their discoveries produced the most widely used killer of rats and mice in the world, and an important medicine to prevent unwanted blood clots.

Research on urea as a nitrogen source for cattle focused scientific attention on ruminant fermentation and led to studies on better rations that continue today in dairy science.

Biochemists Henry Lardy and Paul Phillips worked out an egg-yolk based "extender" that kept semen samples alive for several days. That discovery led to wider use of artificial insemination and rapid improvement of Wisconsin dairy herds.

The dedication also marks a change of address for the department. After 86 years on Henry Mall, it has moved around the corner to a new address on Babcock Drive. One of the College's six original departments, the department's past and current addresses honor two UW-Madison legends. William Henry was the first College dean and biochemist Stephen Babcock was the first faculty member Henry hired.

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biochemistry and agriculture 10/98
Writer: George Gallepp 262-3636

Press releases from the College of Agricultural and Life Sciences are available on the Web at
http://www.cals.wisc.edu/media/news_by_month.html

150 YEARS

UNIVERSITY OF WISCONSIN • SINCE 1848

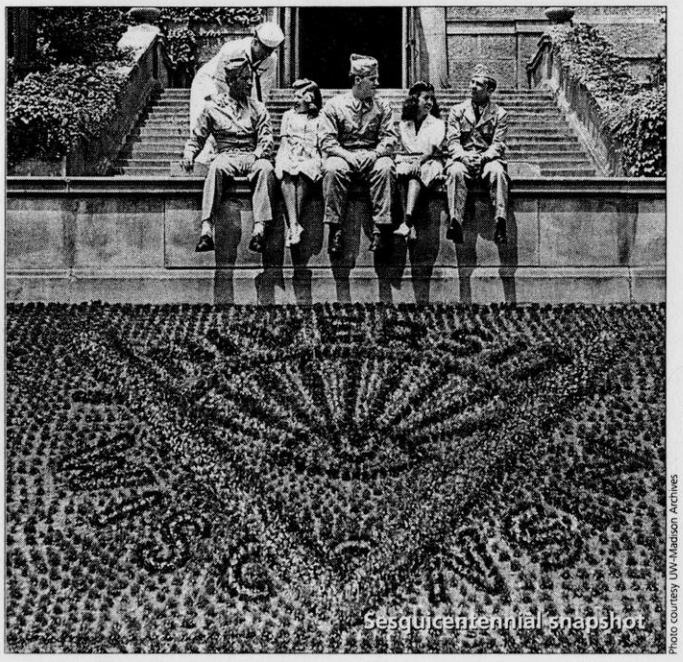


Photo courtesy UW-Madison Archives

Sesquicentennial snapshot

World War II GIs and their female friends relaxed in front of Lathrop Hall. At home, the war touched nearly 13,000 UW alumni and students who donned uniforms to fight, causing enrollment to drop by half, and at least 150 faculty who worked on problems of national defense. Three UW-Madison scientists worked in a secret effort to build the atomic bomb. And when World War II brought an acute need for antibiotics and blood plasma, a team from the UW botany, bacteriology and biochemistry departments raced to assist. The team found a strain of penicillin culture that would permit the mass production of antibiotics — although the discovery came too late for the war. But, by 1946, the cultures discovered here were saving lives around the world. At the same time, chemist J.W. Williams used a high-powered ultracentrifuge to separate proteins from blood plasma, a technology that is still used today to produce life-saving plasma. Two campus buildings — Memorial Library, dedicated to those who served in World War II and the wars that followed, and Memorial Union, to those who served in World War I — stand as enduring landmarks.

After World War II, enrollment and the UW operating budget tripled, the size of the faculty nearly doubled, and the biggest building boom in campus history to that point kicked in. On Wednesday, Feb.10, E. David Cronon, professor emeritus of history and former dean of College of Letters and Science, will describe the post-war years in a lecture, "The University's Finest Hour: Handling the GI Invasion after World War II," at 7:30 p.m., Music Hall Theater.

FLASHBACK

HISTORICAL HIGHLIGHT

If you had been a cutting-edge scientist in the latter days of the 19th century, you were probably a geologist. The study of the Earth's formations consumed universities, and in this university's case, helped shape a legacy. Geology explained the unique physical makeup of our state, and it produced two scientists who would become UW presidents: **Thomas C. Chamberlin**, former head of Wisconsin's geological survey and UW president from 1887 to 1892, and **Charles R. Van Hise**, who graduated from the department and served on its faculty before becoming president in 1903. The two helped bring university research to the public's benefit.

PEOPLE IN OUR PAST

In 1889, when civil engineer **C.D. Marx** took to the road to teach Racine factory workers the finer points of mechanics, a UW tradition of exporting training to the workplace began. UW engineers left the classroom in the early 1900s to help factories clean the smoke-filled Lake Michigan shoreline air, and thousands of GIs took advantage of UW correspondence courses during the two world wars. Today, UW offers about 400 professionally focused courses in engineering alone, and similar training in fields such as agriculture and education enriches the careers of thousands.

In 1890, **Stephen Babcock** devised a simple, foolproof method to test the butterfat content of milk. The test allowed merchants to pay farmers based on butterfat rather than weight, ending the days of watered-down milk. Accomplished at a time when farmers were adopting dairying as a "cash crop," Babcock's invention, according to former Gov. W.D. Hoard, "made more dairymen honest than the Bible."

CAMPUS MEMORIES

"Professor **Dan Wikler** in the philosophy department was such a great lecturer! I signed up for his class, "Contemporary Moral Issues", not having any idea what to expect. We spent the semester covering all facets of "hot" issues like abortion, living wills, and terrorism. The genius of his teaching was that never once could we discern on what side of an issue professor Wikler stood. He was so adept at presenting all arguments that his personal beliefs were always a mystery. His lectures were so interesting that the class was always full, despite the fact that it was an early morning extended lecture. He was fabulous at getting students to think for themselves.

"Also impressive was professor **(Richard) Sewell**, who taught my Civil War class. He's probably retired by now, but he had more incredible stories and anecdotes about the Civil War ... you were convinced that he was actually there! History lectures can be incredibly dry, but his were just fascinating.

— Karyn Roelke, BA '90

To offer your own memory, visit: http://www.uw150.wisc.edu/memories/

TO GET INVOLVED

The Wisconsin Alumni Association is working with UW-Madison Archives to collect campus memorabilia of historical interest and value. If you have something of interest, please contact WAA, 650 North Lake St., Madison, WI 53706-1476; call 262-2551; or e-mail: waa@badger.alumni.wisc.edu

From Edison to the environment

Sesquicentennial events and exhibits continue through February and March

February

11 Thursday

EDISON DAY

A full-day celebration of student creativity and inventions, including the Schoffs Prize for Creativity Competition. The historic Edison Generator will be fired up in the afternoon with a reception following. 1600 Engineering Hall, 9 a.m.-1 p.m.

FUTURE OF JOURNALISM SYMPOSIUM

Moderated by American Journalism Review editor Rem Rieder. Wisconsin Union Theater, 10 a.m.-noon; 1-3 p.m.

12 Friday

THE STUDENT ATHLETE IN THE 21ST CENTURY

Panel discussion of issues facing student athletes in the future. Featuring current coaches and student athletes. Audience participation welcomed. Check TITU, Union South, 11:30 a.m.-1 p.m.

THE FUTURE OF STORYTELLING

Harold Scheub, African Languages and Literature. State Historical Society Theater, 1:30-2:30 p.m.

15 Monday

25TH ANNIVERSARY NEUROSCIENCE SEMINAR

"From Retina to Cortex: Exploring the Neural Architecture of Vision." Torsten Wiesel, nobel laureate and past president of The Rockefeller University. Genetics/Biotechnology Auditorium, 4 p.m. A reception follows in the Genetics/Biotechnology Atrium.

16 Tuesday

WHYS AND WOWS

UW-Madison faculty and staff give talks about their research at the Milwaukee Public Museum, 10 a.m.-2 p.m. For groups that pre-register, $2 students; free for teachers, aides. At the door: $3.50 children, $4.50 seniors, $5.50 adults. To register, call (414) 278-2714.

LANDSCAPE FOR LEARNING DISCUSSION SERIES

"Cultures of the Past." Robert Birmingham and Jack Holzhueter, State Historical Society of Wisconsin. Union South (TITU), noon.

23 Tuesday

ROUNDTABLE

"The Biennial Budget." Mark Bugher, state administration secretary. Tripp Commons, Memorial Union, 11:45 a.m.

LANDSCAPE FOR LEARNING DISCUSSION SERIES

"Origins and Growth of the Campus." Arnold Alanen, landscape architecture, Eric Olmanson, geography, Michael Rawson, history and Philip Wand, State Laboratory of Hygiene. Union South (TITU), noon.

March

2 Tuesday

LANDSCAPE FOR LEARNING DISCUSSION SERIES

"The Land, the Lake, Campus Life and Lore." Frank Cook, UW Archives; Arthur Hove, Chancellor's Office (Emeritus) and Barry Teicher, UW Oral History Project. Union South (TITU), noon.

LANDSCAPE FOR LEARNING DISCUSSION SERIES

"The Campus as Classroom and Laboratory." David Eagan, Institute for Environmental Studies; Evelyn Howell, Department of Landscape Architecture and Ann McLain, Center for Limnology. Union South (TITU), noon.

27 Saturday

DEPARTMENT OF HEBREW AND SEMITIC STUDIES SEMINAR

"The Formation of Jewish National Identity: The Role of Hebrew Literature." Also on March 28.

Exhibits

ART FACULTY EXHIBITION

Elvehjem Museum of Art. Through March 21.

GALLERY OF DESIGN

"State of the Art: Works by UW Textile Faculty." Works exemplify energy and diversity of textile faculty within the UW System. Gallery of Design, 1300 Linden Drive. Through Feb. 25. ■

Web site is guide to sesquicentennial

The university's sesquicentennial web site — www.uw150.wisc.edu — will keep you in touch with all the hoopla of the sesquicentennial.

The site is a one-stop shop for everything sesquicentennial, from details about major events to the entry form for the Babcock Hall invent-a-sesquicentennial-ice-cream flavor contest.

The site is continuously changing. Every time a user comes back to the main page, he or she is greeted with a randomly selected archival photo and piece of campus trivia.

The site's resources include:

- **Sesquicentennial events calendar**
  A log of sesquicentennial events.
- **Photo gallery**
  A series of photos from UW Archives depicting scenes of student life, the evolution of the physical campus and prominent individuals who have left their mark on the university.
- **150 Ways**
  Brief examples of 150 ways the university has made its impact on Wisconsin and the world.
- **Share the Memories**
  Anecdotes from alumni about faculty. Visitors can submit a memory of their own.
- **Digital Postcards**
  Users can choose from a collection of campus scenes and compose an electronic postcard to send to a friend. Include an audio track for one of the UW Marching Band's popular tunes.

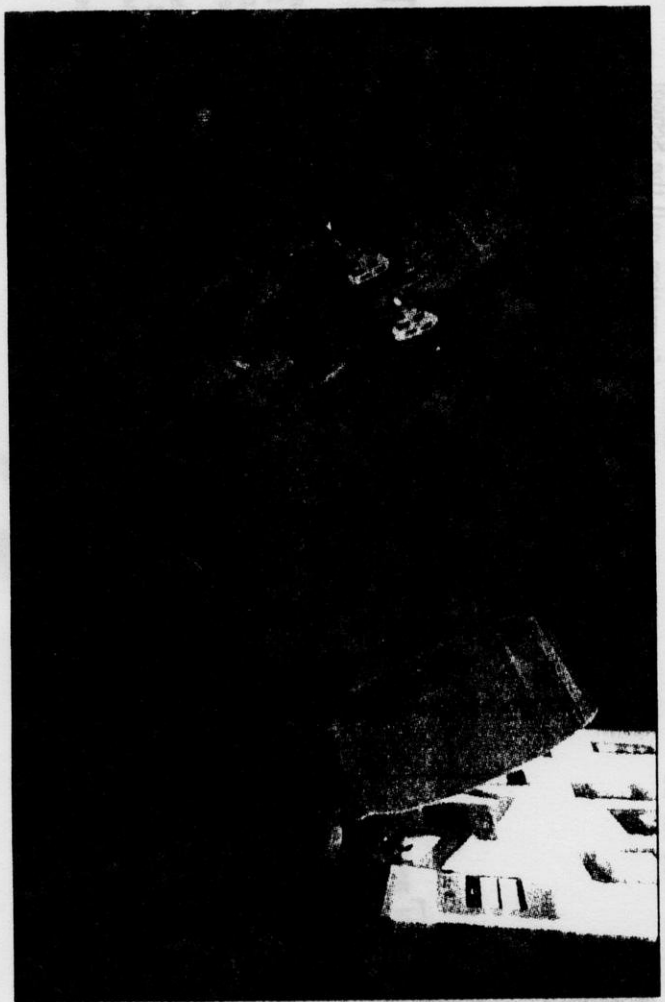
For more information about the site, contact Nick Weaver at 263-9141 or by e-mail: jnweaver@facstaff.wisc.edu. ■

Wisconsin Ideas

UNIVERSITY OF WISCONSIN MADISON 150 YEARS

What UW researchers have in store for your health, environment, job and family

2-4-97 By Gwen Carleton ■ The Capital Times



HENRY A. KOSHOLLEK/THE CAPITAL TIMES

UW researcher Hector DeLuca, who has more than 100 active patents, prepares slides for a lecture abroad. Says DeLuca: "UW inventions help the people and economic base of the state. Things have begun happening faster and faster."

Stephen Babcock transformed Wisconsin's dairy industry with his butterfat test.

Harry Steenbock helped wipe out rickets in America.

Thomas Brock discovered the organism that founded the modern biotechnology industry.

And all that was before University of Wisconsin researchers paid much attention to the commercial value of their work.

For 150 years, UW laboratories have had a major impact on local lives. The tradition dates back to the university's earliest days: to the Wisconsin Idea, which encouraged researchers to view "the boundaries of the university as the boundaries of the state," and to an emphasis on extension work that blended theoretical and applied science for the public's benefit.

Back then, commercialization of academic research was considered inappropriate — when it was considered at all. Babcock gave away his revolutionary butterfat test to the farmers of Wisconsin in 1890. Steenbock had to fight to get his vitamin D discovery patented to the university. As late as 1966, Brock gave his discovery of the Thermus aquaticus bacterium to the public, allowing others to earn millions from its applications in DNA fingerprinting, medical diagnosis and elsewhere.

Today, as UW-Madison celebrates its Sesquicentennial, all that has changed. The Wisconsin Alumni Research Foundation, which manages patents and licensing agreements on UW inventions, now keeps a close eye on promising developments campuswide. Researchers who patent through WARF keep 20 percent of gross royalties, with WARF distributing the rest throughout the Graduate School. Or researchers can pursue patents on their own, an option enjoyed by few other university scientists in the world.

The result is a university atmosphere that is savvy to real-world research needs, and able to capitalize on them quickly.

"UW inventions help the people and the economic base of the state," said Hector DeLuca, a former student of Steenbock's who holds more than 100 active patents on vitamin D derivatives.

"Things have begun happening faster and faster."

■CONCERT from page 1

first, with the rest of the marching band flooding in from all directions. The lights turned red as the crowd enjoyed an assortment of university fight songs, including "On Wisconsin" and "The Budweiser Song." During the campus favorites, audience members participated by dancing in the aisles.

The UW Jazz Ensemble followed, featuring the much-anticipated Duke Ellington piece, the "U Wisc Suite."

Ellington composed the suite during a week-long visit to the UW in 1972. Sunday's performance was only the third time Ellington's suite has been performed in Madison, according to Joan Wildman, a professor of music and chairperson of the School of Music's Jazz Studies Area. Wildman described "The U Wisc Suite" as having three very different movements.

"One of them includes a polka," Wildman said. "It's a jazzy polka, but it's a clearly recognizable polka."

Wrapping up the event, the UW Symphony Orchestra performed Tchaikovsky's "1812 Overture." The musicians weren't the only ones dynamic in style — the song came equipped with blinding firecrackers to emulate the atmosphere of battle.

"I think it's fair to say they're smoking," Schaffer exclaimed afterwards.

Freshman Erin Blicharz agreed with Schaffer's description.

"It was great how the crowd got into it — the fireworks were impressive," she said.

Michael Paré, facilities manager for the school of music, worked with RES Pyrotechnics of Minneapolis to achieve the enhancing and safe sound effects. UW put a tremendous amount of work into making sure all explosions were at a reasonable sound level, Paré said.

For the concert's finale, the UW Marching Band joined the orchestra and the audience for a "Happy Birthday" rendition of "Varsity."

UW plans sesquicentennial celebration

msn Times Feb. 5 1999

The University of Wisconsin-Madison will display an array of teaching and learning initiatives and highlight undergraduate research Wednesday, Feb. 10 during the campus sesquicentennial celebration.

The Teaching and Learning Showcase and the Undergraduate Research Symposium will be held concurrently in the Memorial Union's Great Hall, 10 a.m. - 3 p.m. The events, which are open to the public, will highlight advancements in the core missions of the university and possible future directions. Chancellor David Ward will begin the events with an address at 10 a.m.

Free shuttle rides for UW concert

WSJ - 2-6-99

Colorfully decorated buses will provide free shuttle rides Sunday between Camp Randall Stadium and the Kohl Center for UW-Madison's sesquicentennial concert.

Shuttles will begin picking up concert-goers at Camp Randall at 11 a.m. The first stop is on Monroe Street across from the fire station and the second is in Lot 17 near the McClain Center entrance. Riders will be dropped off and picked up in front of the Kohl Center on West Dayton Street.

The concert, which begins at 1 p.m., will reflect musical trends throughout the university's 150 years. Tickets are $5 for general admission, $3 for students 13 through college-age, and $2 for children 12 and younger. For more information, call the School of Music at 263-1900.

Free buses for Kohl Center concert

CT 2-6-99

Specially decorated buses will shuttle passengers between Camp Randall parking lots and the Kohl Center for the UW Sesquicentennial Anniversary Concert on Sunday.

The rides will be free for the occasion.

Shuttles will begin picking up concertgoers at Camp Randall at 11 a.m. The first stop is on Monroe Street across from the fire station, and the second is in Lot 17 near the McClain center entrance. Riders will be dropped off in front of the Kohl Center on West Dayton Street, and picked up in that same location. The buses will run for approximately one hour after the concert.

The Sesquicentennial Anniversary Concert begins at 1 p.m. The program will feature the UW-Madison Marching Band, Symphony, Concert Choir, Jazz Ensemble and the university-community Choral Union.

Tickets are $5 for general admission, $3 for students 13 through college, and $2 for children 12 and under. They are available at the Kohl Center or through Ticketmaster outlets.

For more information, contact the School of Music at 263-1900.

New frontiers of medicine and health

2-6-99

By Gwen Carleton ■ The Capital Times

Listen to many UW scientists, and they will tell you: The century of physical science is drawing to a close, and the century of biotechnology is about to dawn.

The Madison campus plans to be ready. Researchers in chemistry, biology, agronomy and engineering are creating new alliances. The Wisconsin Alumni Research Foundation is teaching scientists about the emerging biotech field. And last April, the state Legislature provided a $1.5 million grant devoted solely to making possible more interdisciplinary work in the biological sciences.

The burst of activity has led to a handful of new ideas that promise to directly affect ordinary people, primarily by helping them live longer, healthier lives.

Stem cells: master key to drugs and tissue

For decades, scientists have tried to find a way to keep embryonic stem cells, which can develop into any cell or tissue, alive and healthy in the laboratory.

In November, UW's Dr. James Thomson announced he had taken that step. He and his colleagues had developed a way to maintain the cells indefinitely, Thomson reported, without destroying their ability to differentiate into specialized cells later on.

Stem cells should prove useful to sci-

See NEW FRONTIERS, Page 6A

FILE PHOTOS

Research assistant Karen Kritsch conducts dairy research on low-fat milk, continuing in the tradition of UW-Madison pioneer Harry Steenbock (above left), who first synthesized vitamin D.

New frontiers of medicine and health

Continued from Page 1A

ence in three ways, Thomson said. First, researchers can use them to study human development, something that should prove immediately useful because until now science has had to base almost all its developmental research on mouse cells.

Second, researchers will better be able to screen new drugs.

"This will speed up the drug discovery process immensely — within five years, I expect such screenings will be in place," Thomson said.

Finally, scientists should one day be able to manipulate the cells into producing custom tissues for disease treatments and transplantation. But that application, he added, will take at least a decade.

"The potential is enormous," he said. "But a lot of basic research is still required."

Enzymes that soothe, bacteria that protect

Another line of UW biotech research promises to lessen cancer chemotherapy's devastating side effects and to help the body resist bugs ranging from E. coli to salmonella.

Dr. Bill Fahl, a UW oncologist, has spent 20 years studying how enzymes, proteins that start specific chemical reactions in the body, can be manipulated to improve human health.

Fahl's current focus in on an enzyme that helps the body filter toxins known as glutathione S-transferase or GST. Humans have about eight different genes that make GST, Fahl explained.

"All we've done is take those genes and engineer them in a way that we can make them extra efficient at detoxifying certain molecules," he said.

When given to cancer patients, the modified enzymes allow bone marrow to detoxify more quickly than normal after absorbing chemotherapy drugs, reducing side effects ranging from hair loss to nausea.

In another project, Fahl is using "friendly" probiotic bacteria to a similar effect. He is genetically altering the bacteria to make them grow in the digestive tract, where they would detoxify a variety of invading organisms.

The bacteria, which could be consumed either in food or in a pill, could be programmed to fight specific health threats ranging from E. Coli and salmonella bacteria to the organisms responsible for dysentery and crypto-sporidium outbreaks.

The technology has promising applications for livestock as well, Fahl said, noting that about 20 percent of cows and pigs die of gastrointestinal infections in their first two months of life.

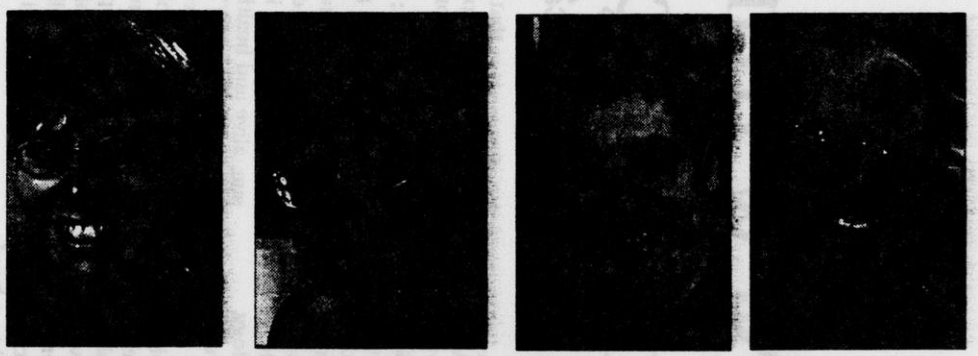
Fahl created the firm ProCertus BioPharm last May to license the new products. Consumers can expect to see food products enhanced with the pro-biotic bacteria within three years, he said, while the cancer and other medical treatments should take about six years to develop.

Cancer-fighting proteins

Like Fahl, biochemist Ron Raines is working to enhance natural disease-fighting mechanisms — in his case, with a focus on the power of proteins.

One of Raines' projects involves a common protein called ribonuclease, which has the natural ability to kill cells. The exact function of ribonuclease is not yet understood. But Raines and his colleagues have been able to teach the protein to single out cancer cells, bypass their defenses and kill them. The result is a potentially powerful weapon against cancer that does not damage healthy cells and tissue.

"We need to give physicians as many weapons in their arsenal against cancer as possible, and this is a new one," Raines said.



Kiessling Mackie Raines Fahl

A second recent breakthrough involves collagen, the most common protein in the body and the basis for connective tissue found in skin, bone, ligaments and cartilage.

Current collagen treatments and research rely heavily on cow collagen, which has limited uses in humans, Raines said. But now, with a small molecular change, Raines and his colleagues have learned to make the human protein more stable, making it easier to work with and study in the laboratory. The discovery raises hopes for new, more effective treatments for arthritis, cirrhosis, tissue damage and a variety of other common, devastating conditions.

If all goes well, the ribonuclease cancer treatment could be approved within five years, Raines said. Commercial applications of the collagen treatment

continued

UW transplant research is focusing on antibodies that will keep the body from rejecting a new organ, without compromising the body's ability to fight other invaders.

FILE PHOTO

are likely to take at least 10 years.

New weapons against pain, Alzheimer's

A substance that fights serious inflammation while preventing further pain is among two promising projects currently under way in the lab of Laura Kiessling, a UW chemist.

Inflammation is the body's response to irritation, infection or injury. It begins when white blood cells, in the process of fighting infection at an injury site, spill their toxic contents onto adjacent cells, causing swelling and pain.

Treatments such as aspirin and ibuprofen fight the problem by inhibiting the inflammation reaction inside the affected cells. But a molecule Kiessling has developed works from the outside, decreasing the number of white cells that bind to healthy cells in the first place. The result is less toxic spillage, and less pain.

The molecule would be appropriate for treating extreme cases of inflammation such as arthritis and lupus, as opposed to everyday bumps and muscle aches, she said.

"It's a different strategy that could be much more powerful," she said, not only relieving pain but also preventing future pain in the affected area.

A second project involves disrupting poisonous plaque deposits in the brains of Alzheimer's patients that scientists believe contribute to memory loss.

To disrupt the collection of the sticky proteins that form the plaque, Kiessling and chemical engineering professor Regina Murphy synthesized "inhibitor molecules" that prevent the protein from hardening.

If all goes well, the inflammation research could be in clinical trials within a few years, and available to the public within a decade. The Alzheimer's work also is preliminary, Kiessling said, but if all goes well, it too could lead to new medicines within the decade.

Precision bombing against tumors

While his colleagues develop 21st century cancer treatments, Thomas "Rock" Mackie is working to ensure more effective, precise treatments for cancer patients today.

He has developed a tungsten device consisting of a series of adjustable leaves that fits on the machine commonly used to deliver radiation treatments. The device allows physicians to aim the radiation more precisely and from more angles, significantly decreasing damage to sensitive structures surrounding the tumor.

"It's like a smart bomb, trying to avoid collateral damage," Mackie said.

Mackie's original device was patented through WARF in 1994, and now is in use at more than 60 U.S. hospitals and clinics nationwide.

University Hospital and Clinics will join that list sometime in the coming months, when it installs a new, improved version of the device, Mackie said. Among other things, the new device will be faster than the original and will be able to offer verification that radiation has been delivered correctly.

Helping transplants survive, thrive

Elsewhere on campus, surgeon Stuart Knechtle is building on UW's vibrant legacy of transplant research with two new substances that promise to improve a transplant organ's chances for survival.

Knechtle and his colleagues are working with the antibodies anti-CD154 and immunotoxin, both of which help prevent the activation of T-cells, the disease-fighting cells responsible for organ rejection.

CD154 has successfully prevented rejection in non-human primate trials, and its first human trial was scheduled to begin in late January or this month, Knechtle said. Immunotoxin, which is still being tested in primates, has yet to be scheduled for human trials.

"These two drugs are actually quite novel, because they work on tolerance," Knechtle said.

Tolerance, or the body's acceptance of the transplanted tissue even as it continues to fight other invaders, has long been a goal of transplant immunology. Most existing drugs that prevent the body from rejecting transplanted organs also reduce the body's resistance to other diseases, making patients susceptible to a wide range of illnesses.

If all goes well, the drugs could be eligible for FDA approval after completing about three clinical trials, Knechtle said. Clinical trials can take anywhere from one to several years each.

Advances for the environment

By Gwen Carleton ■ The Capital Times · 2·6·99

Our well-being is intricately tied to the health of our air, water, soil and food. UW-Madison scientists with expertise in everything from bacteriology to forest ecology are working to better understand that environment and protect it from current and future threats.

Natural pesticides

For decades, the multimillion-dollar biological pest control market has been dominated by Bacillus thurengensis, or Bt. Bt is considered safe and natural, but its effectiveness is slipping, the result of growing resistance among pests after nearly three decades of continuous use.

Now a UW discovery is poised to offer a badly needed alternative. Last summer a group of UW scientists published their findings about the poisonous properties of Photorhabdus luminscens, a bacterium capable of infecting and killing insects. They also learned to purify and clone the toxins produced by the bacteria, a key step toward using them as insecticides.

Not all of UW's new discoveries promise to make millions for WARF and corporate licensees. A few have much more modest financial prospects — but could mean a tremendous amount for the health and safety of U.S. citizens.

In nature, the bacteria work in conjunction with nematodes, tiny parasitic flatworms that burrow into pests such as caterpillars, beetles and cockroaches. Once inside the insect, the nematodes release the bacteria producing the toxin, killing the host.

Now the scientists are working to engineer the genes that create the toxin directly into crop plants, eliminating the need for the nematodes.

"We've isolated the genes for the bacteria, and moving these genes into the plant seems to be the most attractive option at this point," said David Bowen, a staff scientist working on the project.

The Racine firm S.C. Johnson Co. is now poised to commercialize the bacteria's household applications, while DowElanco, a subsidiary of Dow Chemical Co., is focusing on the potential multimillion-dollar agricultural market.

"If things continue to go as well as they are now, we could be seeing some products out of this in two to five years," Bowen said.

Cheaper, cleaner paper

Take a walk through the woods and you will see fungi at work softening and recycling dead wood. Now scientists from UW and the USDA Forest Service, Forest Products Laboratory are harnessing this natural decaying process to save the world paper industry millions in energy and chemical costs.

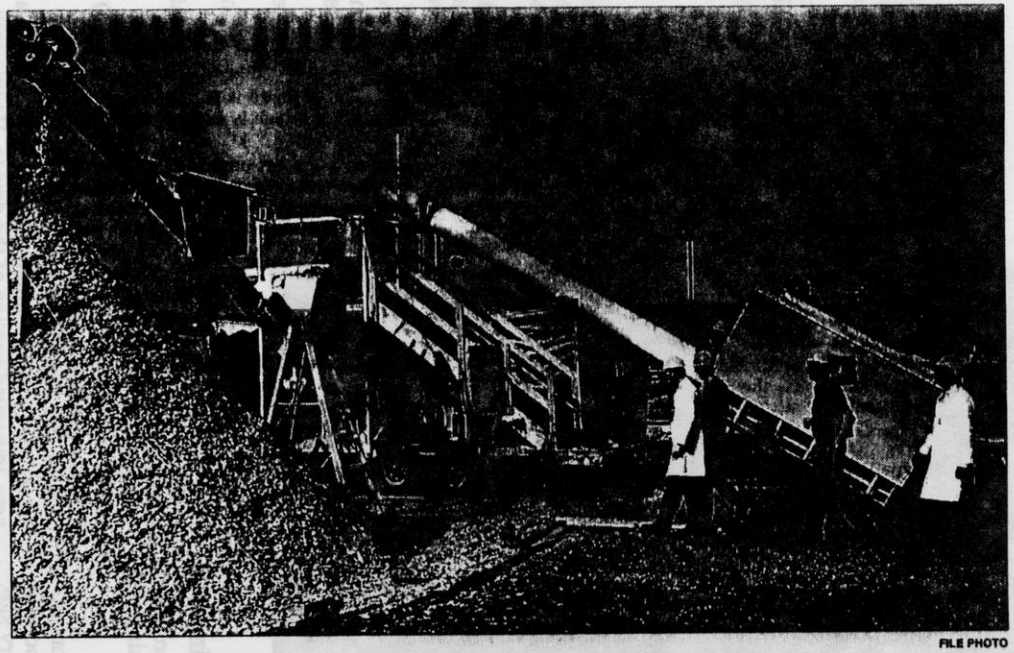
After more than a decade of work, the scientists have learned that a common Wisconsin forest fungus, Ceriporiopsis subbermispora, can be used to soften wood chips before they are processed into paper. The application of the fungus, called biopulping, naturally digests the chips without breaking up the cellulose needed for paper.

In experiments, biopulping has cut electric processing costs by up to 30 percent, said Masood Akhtar, vice president of Biopulping International, a Madison company that has grown from the technology.

"Electricity costs roughly $10 million a year to run a single plant producing 300 tons per day for newsprint," Akhtar said. "So this has tremendous benefits."

Biopulping also increases the quality of the paper fiber, lessening the industry's need for costly and environmentally damaging chemical enhancers, Akhtar said.

A successful large-scale trial in a regional paper mill ended in October, clearing the way for implementation of the technology worldwide, Akhtar said. Currently, mills in Wisconsin — which employ about 52,000 people statewide — are showing interest in applying the technology, as are mills as far away as Europe and India.



FILE PHOTO

UW and Forest Products Lab researchers are using fungus to help decompose wood chips slated for the paper plant. Called biopulping, it saves electricity needed to process the chips and produces a better quality paper.

Natural warning systems

Not all of UW's new discoveries promise to make millions for WARF and corporate licensees. A few, such as the work of Stanley Dodson, have much more modest financial prospects — but could mean a tremendous amount for the health and safety of U.S. citizens.

Dodson is studying endocrine disruptors, chemicals that can mimic or block animal hormone systems, causing different reproductive disorders. In recent years, a series of global anomalies — from low sperm counts in men around the world to feminized alligators in Florida and mink in Michigan — have raised fears about the substances in our air and water. But the topic remains complex and controversial, with little agreement about the size of the problem or which chemicals or combinations of chemicals are responsible.

Zoologist Dodson has developed a simple test to detect such disruptors in the environment. The test uses daphnia, flea-sized crustaceans that normally serve as food for fish.

The test exposes the tiny creatures to a sample of water or soil and observes the results on their reproductive cycle. If the treated daphnia's offspring have an unusual ratio of males to females, a disruptor likely is present.

The test is quick and simple thanks to the daphnia's three-day reproductive cycle and the ease with which they reproduce in the lab, said Christine Merritt, a UW zoologist. And it is cheaper than the only other available tests, which observe the reproductive cycles of vertebrates.

"It's like the canary down the mine shaft," said Merritt. "If our test shows any indication of endocrine disruptive activity, people can go ahead with longer and more specific tests."

Merritt founded BioAssay last year with the help of a federal Small Business Innovation Research grant. Since May, she has assembled a small staff and successfully field tested the product. The company now is applying for a grant to develop a test kit for a wider market.

If all goes well, she said, the test could be widely available within five years. The test could be more significant given the likelihood of new federal standards in the next decade.

"This is a quite complex, very controversial, very hot topic," Merritt said.

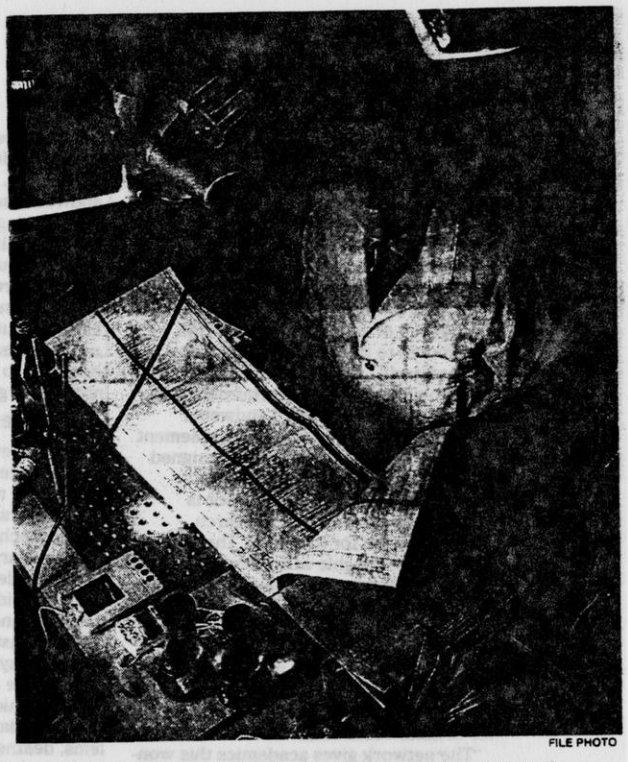
The Weekend of Feb. 6-7, 1999

WISCONSIN IDEAS: RESEARCH FOR TOMORROW

UNIVERSITY OF WISCONSIN MADISON

Fresher food and better bodies

By Gwen Carleton ■ The Capital Times 2-6-99



FILE PHOTO

UW biologist Goran Hellenkamp discovered the secret of sweetness in a Brazilian plant: a substance that is not a sugar but is 2,000 times sweeter.

UW-Madison nutrition researchers hope to prevent problems and improve human health with the help of nutrients commonly found in everything from meat and cheese to exotic fruits.

The substances created by these scientists are called nutraceuticals, and a handful created by UW researchers already are drawing widespread attention.

More muscle, less hunger

It's the stuff of nutraceutical dreams: a natural, essential fatty acid that seems to help humans and animals build muscle, decrease their appetites and shun fat.

Pariza

Michael Pariza, head of UW's Food Research Institute, discovered conjugated linoleic acid's healthful potential about 10 years ago.

The substance's applications fall under three broad categories: dietary supplements, animal feed and food additives.

Currently, UW researchers are focusing on CLA's potential to do everything from prevent muscle loss in cancer patients to cut farmers' feed costs.

Early animal trials offered remarkable results: again and again, Pariza and Mark Cook, a UW animal scientist, saw pigs and mice lose fat, gain lean muscle and decrease their food intake, all without negative side effects.

A human trial conducted last year indicated that CLA does not melt fat from overweight adults, as some had hoped. But when used as a nutritional supplement, CLA does seem to reduce the body fat and appetite levels of average-sized adults.

"CLA doesn't appear to have a tremendous effect in loss of body fat, but it does block the uptake of fat," Cook said, adding that he takes the substance himself and is convinced of its health benefits.

CLA already is selling briskly as a nutritional supplement — a largely unregulated field — in more than 2,700 stores nationwide. The substance also is close to appearing in many types of animal feed, Cook said, where it promises to create healthier animals while saving farmers money.

Federal regulations mean that it could take longer for CLA to show up in human food products, said Ken Johnson, a former WARF licensing associate involved with the project.

"But because this is a naturally occurring product, and because business is very interested, our assumption is it will be a few years instead of a few decades," Johnson said.

Earth's sweetest secret

In its native Brazil, the fruit is simply called "J'oublie," or "I forget." The reason? Brazilians believe its exquisite sweetness makes the taster forget what he or she was doing.

Now two UW scientists have become intrigued with the chemistry behind the tropical fruit's remarkable taste. Several years ago biologist Goran Hellekant learned that the substance responsible was not a sugar at all, but an unusual protein 2,000 times sweeter than sucrose. He named it brazzein, after the obscure vine that produced it.

Last year, biochemist John Markley identified the protein's complete chemical structure. Brazzein, he explained, offers the opportunity to unlock a scientific mystery: why cells in the tongue perceive some substances as sweet.

Meanwhile, several companies have licensed with WARF to add the gene that produces brazzein to crops ranging from cranberries to corn. A Texas company called Nektar Inc. also is producing brazzein as a food additive.

The substance appeals to industry, Markley explained, because of its unique nutritional properties.

"As a protein, it provides good nutrition to foods and doesn't add the calories sugar does," he said. "It really has very pleasant taste — we taste it regularly in the lab."

It could take six or seven years for brazzein to receive regulatory approval. But WARF officials say like CLA, brazzein's natural beginnings and its corporate support have the potential to move it into U.S. grocery stores and kitchens in record time.

Keeping foods fresh longer

New crops of flavor- and nutrition-enhanced foods may soon last longer on grocery shelves, thanks to yet another UW invention.

UW engineer Marc Anderson developed a system that cleans air of ethylene, a substance that causes plants to wither and spoil, for a series of plant-growth experiments aboard the NASA space shuttle.

But now a Georgia-based company is tapping the technology's applications as a way to help retailers prevent the earthly problems of yellowed broccoli, rusty lettuce and mushy fruit.

The device, which Georgia's KES Irrigation Systems has named Bio-Kleen, uses ultraviolet light and titanium dioxide to break ethylene down into the harmless byproducts of carbon dioxide and water vapor.

Unlike current removal systems that filter or collect ethylene, Bio-Kleen needs virtually no maintenance. The ultraviolet lights also reduce bacteria, molds and odors from storage rooms, according to Anderson, a professor of environmental engineering and materials science.

Bio-Kleen, which hit the market last year, should be able to increase the shelf life of perishable items by more than a week. It now is available around the world, Anderson said.

Food preservation is just one use of the technology, he added.

"The same kind of thing can be used to clean air, particularly in confined spaces," he said. New uses for the technology could be ready for market within the year, Anderson said.

A look at the next Internet

By Gwen Carleton ■ The Capital Times
2-6-99

Thirty years ago, when computers were still hulking mainframes, Larry Landweber began wondering about how he could help the machines communicate.

That interest led him to develop an early e-mail system, and to help develop the Internet-precursor CSNET. Finally, with a small group of colleagues nationwide, he contributed to the development of the Internet itself.

But now the Internet, overburdened as it is, is no longer enough, Landweber says. So now he is working to supplement it with a newer, faster network designed to connect universities nationwide.

The computer science professor is chairman of the Network Research Liaison Council for Internet2. The network will be capable of moving data at speeds ranging from roughly 155 to 622 million kilobytes per second — dramatically faster than speeds available on the original Internet.

Such speeds will open whole new possibilities for the researchers using the network and for the corporations that paid for it, Landweber said.

"The network gives academics this wonderful facility, but the scientists also will be guinea pigs, learning how to do things better," he explained. "It is basically giving a lot of these companies the opportunity to test out the next generation of equipment ... things which are not ready for prime time yet."

That new generation should include equipment capable of distinguishing between audio, graphic and video data, and prioritizing how they are sent. Once networks can make such distinctions, Landweber said, technologies ranging from digital libraries to high-speed telemedicine, virtual reality and interactive video should follow close behind.

Just a vision two years ago, the Internet2 is moving ahead with remarkable speed. This month, workers laid the final link in a fiber-optic backbone for the network that stretches from Seattle to New York. UW, one of the network's 34 original members, recently connected with the network but is still in the testing phase. An "official" launch of UW's connection is scheduled for March.

Internet2's existence promises to dramatically relieve congestion on the original Internet. And before long, Landweber said, the public likely will begin reaping the project's benefits even more directly, in the form of new high-tech equipment and services.

"What we're doing now is taking research done over the last 20 or 30 years and putting it onto Internet2," Landweber said. The next step, he added, "is to begin thinking what Internet3 is going to look like."

Computers vault disabilities

Have you ever thought about how you would use technology if your eyesight failed, your motor control slipped or your arm was in a sling? In fact, much modern technology would accommodate you, largely due to the efforts of Gregg Vanderheiden.

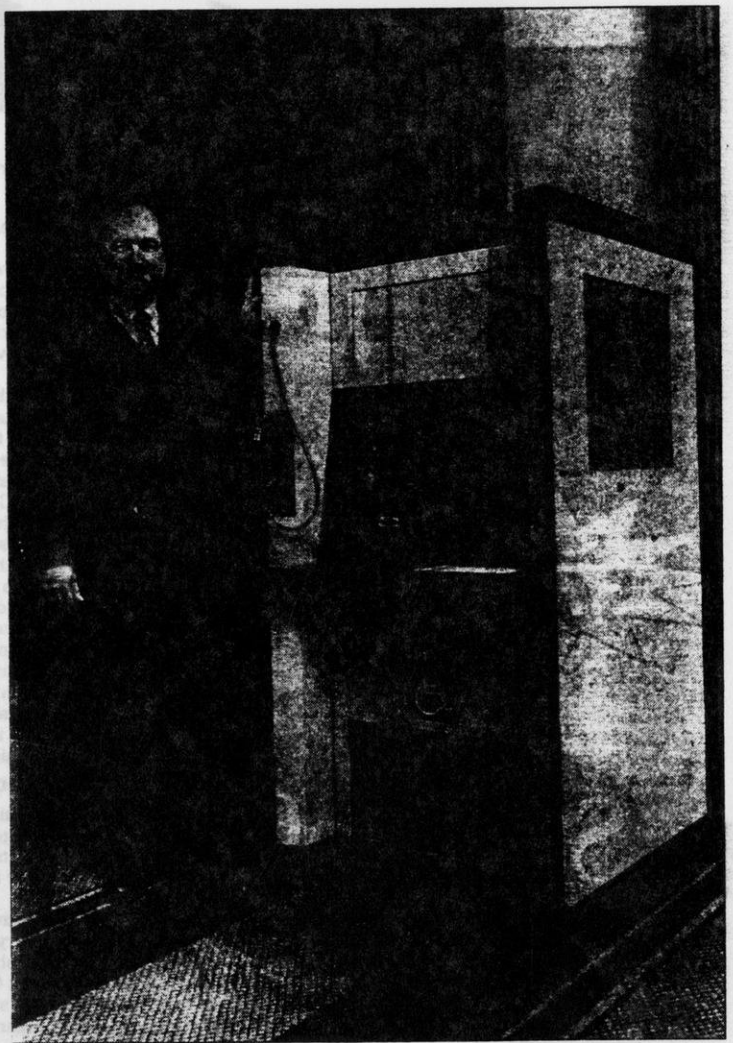
Vanderheiden directs the Trace Research and Development Center, a research institute dedicated to making computer systems accessible to people with a wide range of physical limitations. Thanks to Trace, features to accommodate people with motor problems, deafness, low vision, missing limbs and other limitations have been standard in most major computer operating systems for years.

But that was just the beginning, according to Kate Vanderheiden, the center's program manager. Today, Trace's projects include the development of accessible telephones and telecommunications equipment, information kiosks and World Wide Web sites, she said.

Industry, which is working to broaden the versatility of its products and meet federal access laws, has shown considerable interest, said Kate Vanderheiden, who is Gregg's wife. So has the U.S. government. In mid-January, her husband demonstrated a variety of Trace technology at the White House for President Clinton and Vice President Gore, she said.

Industry executives regularly travel to Madison for training at Trace, and can obtain detailed technical information from the center's Web site, http://www.trace.wisc.edu. And at least one major product, a voting booth that allows people with disabilities to vote independently, should appear in many municipalities within the year.

"It's very exciting right now," Kate Vanderheiden said. "The idea is, over time, that we're not shutting people out."



UNIVERSITY OF WISCONSIN-MADISON

Researcher Gregg Vanderheiden exhibits a computer kiosk designed for people with disabilities.

Better readers, writers and viewers

CT 2-6-99

UW-Madison humanities researchers' work may not attract the patents and corporate interest that their counterparts' efforts in science and engineering do.

But their research in learning and how we process culture will have a direct impact on us and our children.

Coping with television

The work of one UW humanities researcher, in fact, may already be making an appearance in your living room.

Joanne Cantor is among the nation's leading experts on the influence of television on children. A communication arts professor, Cantor testified before a congressional committee about TV ratings in February 1997, and addressed Congress again in the spring of 1998 in response to a series of school shootings around the nation.

Cantor's research has made some surprising discoveries: for example, that it

Professor Joanne Cantor is a national authority on television's influence on children.

is the context of violence, not necessarily the type or amount, that determines children's reactions. Her research into the new television ratings system concluded that age-based ratings were as likely to attract as deter young viewers from sexual or violent material.

Currently, Cantor is focusing on the "V-chip," a computer chip capable of blocking selected programs that will begin appearing in many new television sets this year.

"Television's not covering this, so it's hard to get information out to parents," she said. "But they're really interested in getting products to help them screen out things they don't want."

As for research, she plans to continue her ratings studies and to add a new focus area: a look at how depictions of sex on television influence the attitudes of children, especially teens.

The keys to literacy

In another part of the university, English professor Martin Nystrand is studying how students learn in an increasingly complex and technical world.

Nystrand is director of the National Research Center for English Learning and Achievement, a federally funded national project designed to discover what specific teaching methods improve students' success from kindergarten through 12th grade. The project is probing how reading, writing and discussion affect learning in a variety of subjects, and also exploring how teaching is complicated by everything from a more diverse student population to the computer revolution.

One study in eighth- and ninth-grade classrooms, for example, showed that classroom discussion affected students' writing abilities, with students who discussed a topic, read about it and then wrote about it producing much more sophisticated analyses than those who learned via other methods.

"We found students in those classes were superior not only for their depth of understanding but also for their recall," Nystrand said.

Other studies include how the acquisition of literacy has changed over the century and how American Indians and immigrants learn and express literacy. UW English professor Deborah Brandt, for example, has discovered that becoming literate now requires more time, money and ingenuity than it did a century ago.

The researchers are publishing their findings widely and disseminating the information directly to teachers. The project also has an interactive Web site, www.wcer.wisc.edu/cela, where educators can learn about the latest findings and ask questions of the researchers.

- *Gwen Carleton*

150 years of cultural life at the UW

UNIVERSITY OF WISCONSIN MADISON

1851: Memorial Library opens, today, it's the biggest single book collection in the state

1875: Glee Club founded; becomes Choral Union in 1893

1885: UW Band founded

1895: School of Music founded

1898: "Varsity" reworked from a tune by French composer Charles Gounod with words by UW alumnus Henry Dyke Sleep

1909: "On, Wisconsin" composed by Chicago composer William T Purdy with words by UW alumnus Carl Beck

1917: 9XM, the first public radio station in the nation, starts experimental broadcasts

1922: Call letters of 9XM changed to WHA

1922: UW music professor Edgar "Pop" Gordon performs sing-along on WHA, gives nation's first music class on the airwaves

1926: UW alumna and professor Margaret H'Doubler opens first college dance program

1934: Band leader Ray Dvorak adds arm swing to "Varsity."

1936: Painter John Steuart Curry becomes the nation's first artist-in-residence

1937: UW Press releases first book

1939: Wisconsin Union Theater opens; black contralto Marian Anderson sings at UW shortly after she is denied access to Constitution Hall in Washington, D.C.

1940: Belgium's Pro Arte String Quartet, exiled by World War II, becomes artist-in-residence at UW. The quartet is active at UW today.

1954: WHA-TV goes on the air

1959: "On, Wisconsin" becomes state song

1962: UW art professor Harvey Littleton forges nation's first glass art movement. Program produces Dale Chihuly, whose sculpture is in Kohl Center

1967: "Roots" author Alex Haley comes to UW to have historian Jan Vansina help decipher his genealogy

1969: WHA is first public TV station to win an Emmy

1969: Wisconsin Center for Film and Theater Research opens

1970: Elvehjem Museum of Art opens; it is now second largest museum in the state

1973 Song "You've Said It All" first performed by UW Band

1978: Ron Wallace and Kelly Cherry establish creative writing program in English Department

1984: Writer Lorrie Moore hired by UW

1985: First volume of "Dictionary of American Regional English," edited by UW professor Frederic Cassidy, is published

1985: Brittingham Prize in Poetry established

1997: UW professor Nellie McKay co-edits best-selling "Norton Anthology of Afro-American Literature"

- *Jacob Stockinger*

Elvehjem Museum of Art opened in 1970.

Reinvented Wisconsin Idea must address real problems

By Donald F. Kettl
WSJ - 2-7-99

GUEST COLUMN

Imagine a television special on the future of the University of Wisconsin. It begins with a close-up of a baby, just hours old on New Year's Day 2000, crying in her bassinet. The announcer asks, "What kind of state will this baby inherit in 2020? What will Wisconsin need from her for the state to meet its 21st century potential? What must Wisconsin do *now* to guarantee that she'll be ready?"

Kettl

At the launch of the university's 150th birthday party in September, Gov. Tommy Thompson framed just such a picture. He asked us to identify the five big challenges facing the state — and what we will do to meet them. It's a mighty tall order. But thinking about the question in terms of a soon-to-be-born baby — where Wisconsin has been and where we want her to be — provides a way of stretching our imaginations into the future.

To develop a strategy for how the university can help meet these challenges, the La Follette Institute ran two focus groups in Milwaukee and Madison. The participants in our focus groups concluded several things.

Wisconsin is a special place, beyond Rose Bowls and Super Bowls and cheese and a clean environment. Wisconsin is a state of mind — a state where people take important ideas seriously. Badgers understand that the state's future depends on building its intellectual capital and that the storehouse of that capital is its university. Wisconsin without the University of Wisconsin would be . . . well, it wouldn't be Wisconsin.

For Wisconsin to stay Wisconsin, however, we must solve five big puzzles. First, the changing economic framework: How will Wisconsin cope with the rapid transformation of its traditional commodity-based industries (especially dairy and pulp and paper)?

Second, the information age: How will Wisconsin position itself to benefit from the emerging information-based, computer-driven, global economy?

Third, shifting demographics: With more retired baby boomers and a work force less white and male, how will Wisconsin deal with a population that, 20 years from now, will look very different?

Fourth, social challenges: How will Wisconsin forge new strategies to deal with emerging social issues — prisons and welfare, children and senior citizens?

Finally, the role of government: How can Wisconsin's state and local governments rise to solve these challenges?

To solve them, our focus group participants also concluded that the university must build on the century-old Wisconsin Idea — putting the university's resources to work in service to the state. But as one senior state official once told me, "The bridge between the state and campus has long been an important one. But there's a sense that a couple of the planks have fallen out of that bridge."

One of Wisconsin's future governors is now in diapers. A future corporate leader is managing her playpen. What must the university — and, therefore, the state — do now to prepare them for the world they will inherit? Here's a strategy:

■ Strengthen the liberal arts. The last millennium shows that the future has always belonged to those who think sharply and communicate well. The issues that shaped society in the past provide the surest sense of what will matter tomorrow; students well-grounded in the liberal arts will be best prepared to lead Wisconsin's future.

■ Build faculty-community ties. Tackling the big problems means linking the university's reservoir of intellectual capital — especially its faculty members — with citizens. The ties must be direct and personal.

■ Construct an institutional presence. The university ought to devise a formal strategy to forge and sustain links between the university's resources and the state's problems. An institutional presence would identify the university's commitment to attacking these problems.

■ Listen. The reinvented Wisconsin Idea must begin by focusing on the problems that citizens believe most need to be solved. The university needs to listen carefully and direct its efforts accordingly.

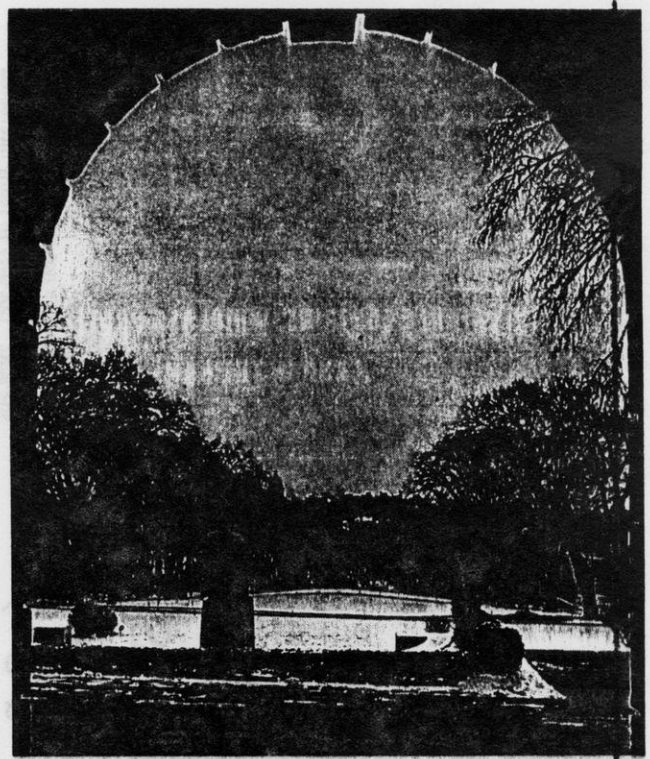
■ Encourage cross-disciplinary contributions. No academic discipline can "own" any problem that really matters. The university faces the challenge of strengthening its core disciplines while linking them to help solve problems that pay no attention to disciplinary boundaries.

■ Stimulate lively debate. The reinvented Wisconsin Idea ought to provide lively debate on keenly troublesome issues. Stimulating careful thinking about knotty issues is the best way the university can grow its own — and the state's — intellectual capital.

Our focus group participants worried about the state's ability to remain a special place if it could not solve the five big problems. They concluded that solving them required the commitment of the university — and a commitment of the state to the university to make it possible. They were excited about the potential. But they fretted about the implications if the state and the university did not both rise to the challenges.

Rebuilding the bridge between the state and its university provides a way to meet this challenge — and the challenge our soon-to-be-born baby faces. Reinventing the Wisconsin Idea charts the path to renewing the compact.

Kettl is a UW-Madison political science professor. He is to speak at 11:45 a.m. Tuesday at Tripp Commons in the Memorial Union, 800 Langdon St., on "The Future of State-University Relations: Charting a Course for UW-Madison in the New Century." Registration is required to attend the speech, which is a University of Wisconsin Sesquicentennial event. The cost is $8. For more information, call 265-2447.



File photo

For a century the Wisconsin Idea has connected UW-Madison's Bascom Hall with the state Capitol and points beyond. Will the Wisconsin Idea of using the university to serve the state be reinvented to help solve the problems of the next century?

UW's dazzling dozen: These faculty and

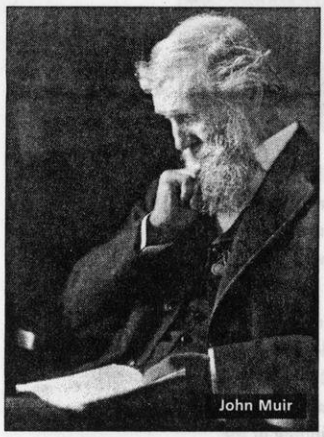
Michael Penn

SINCE FEB. 5, 1849, when John Sterling called together the University of Wisconsin's first class of 17 in a borrowed classroom, the people who have taught, studied, toiled and triumphed on this campus have shared a common goal: to make something munificent of this business of education. What makes this university special is that its history is dotted with individuals who succeeded not for their own glory, but for the good of us all.

It is always difficult to shine the spotlight on individuals, especially on a campus where collaboration and teamwork is so highly valued. That said, there have been faculty, administrators and alumni who are worthy of a little limelight. Though not a comprehensive list, we offer this group of a dozen who made a difference:

Photos courtesy UW-Madison Archives

Edgar "Pop" Gordon conducting on the air



John Muir

John Muir

Muir attended UW from 1860 to 1863 and received his first botany lesson from a fellow student at the foot of a black locust tree near North Hall. Apparently, the lesson stuck. Muir left campus his junior year to launch a career as one of history's greatest naturalists. Considered the father of the national park system, he founded the Sierra Club and convinced the federal government to intervene in helping save redwoods and other natural treasures.

John Bascom

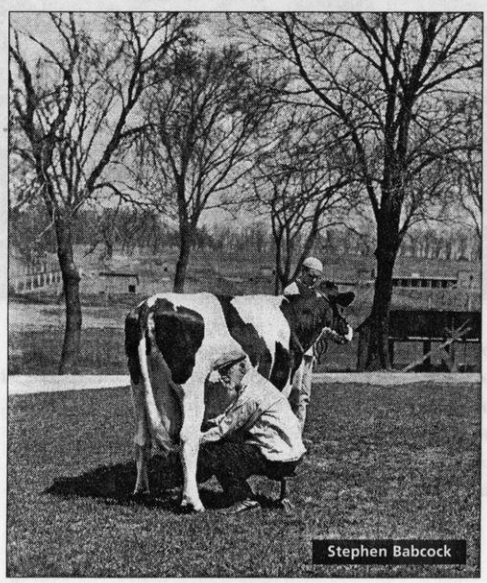
The Wisconsin Idea, the notion that the boundaries of campus extend to the boundaries of the state, is most often attributed to Charles Van Hise, the eloquent president of the university from 1903 to 1918. But in truth it probably germinated from the earlier teachings of Bascom, who served as UW president from 1874 to 1887. A well-rounded scholar who was regarded as an expert in fields as diverse as mathematics and English literature, Bascom gave Sunday lectures to students on their moral responsibility to society. Among his audiences were Van Hise, a geology student in the 1880s, and future Gov. Robert La Follette, who called Bascom the guiding spirit of his time.

Richard Ely

In 1890, the university won the services of Ely, at the time already a noted economist, by prying him away from Johns Hopkins to direct UW's school of economics. Ely would do that — and more. His bold opinions about the rights of workers earned him a label as a socialist but also forged twin legacies that tie him to history. Ely's teachings are largely credited for inspiring the "Wisconsin School," a generation of thinkers who redefined government's role in the workplace and brought into being worker's compensation and minimum-wage laws. But the radical also became the focal point of a landmark trial over academic freedom. Charged with teaching such "pernicious" ideas as labor's right to organize, Ely was exonerated by the Board of Regents' famed "sifting and winnowing" statement, which has become the rallying cry for the free exchange of ideas on campus.

Stephen Babcock

When the dairy industry languished in dire need of an accurate way to separate high-quality milk from cheap imitation, Babcock, an agricultural chemist, set aside his lab work and devoted himself to finding a solution. In 1890, he devised a simple, foolproof method to test the butterfat content of milk, allowing merchants to pay farmers based on butterfat rather than weight. Because Babcock unselfishly refused to patent his device, it gained almost-universal employment immediately, ending the days of watered-down milk and making, according to former Gov. W.D. Hoard, "more dairymen honest than the Bible."



Stephen Babcock

Margaret H'Doubler

So gracefully athletic was UW student Margaret H'Doubler that after her graduation in 1910 she was asked to teach physical education. From that position, she helped shape the world of modern dance, commencing the nation's first college dance program at UW in 1926. Under H'Doubler's direction, dance transcended movement; she taught her students philosophy and art history, searching for a medium, as she said, "worth a college woman's time." Her curriculum helped define a structure for teaching dance that scores of universities still follow today.

Margaret H'Doubler

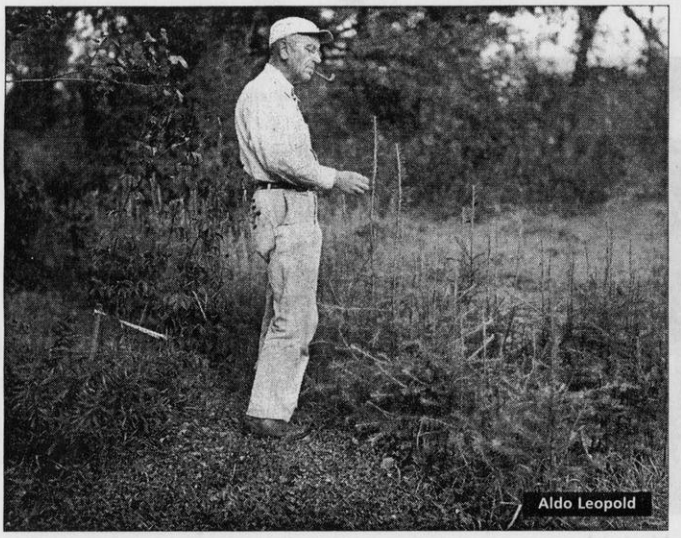
Harry Steenbock

Biochemist Steenbock effectively rid the world of rickets when he discovered in the 1920s that the vitamin D content of food and drugs could be enriched by exposing them to ultraviolet light. By presiding over the creation of the Wisconsin Alumni Research Foundation to manage his and future patents, Steenbock also created a path that scholarly inventions could follow from lab to the public domain, ensuring that we all benefit from Wisconsin's ideas. Steenbock's bright idea has resulted in WARF returning more than $420 million to the university.

Edgar "Pop" Gordon

A familiar name to many native Wisconsinites, Gordon passed on his

alumni among many who made history


Aldo Leopold

appreciation for music to thousands of state schoolchildren by harnessing the educational power of radio. In the early 1920s, Gordon was one of the first people to grasp the possibilities for using radio broadcasting as a teaching tool. While most radio operators were sending out jumbles of Morse code, the UW music professor led sing-alongs and gave tutorials as a volunteer broadcaster for the university's fledgling radio station, WHA. Gordon delivered the joy of music to classrooms and living rooms at a time when many state schools couldn't afford music teachers. Over the next four decades, he shared his gift with more than a million listeners.

Alexander Meikeljohn

Meikeljohn's tenure on campus was short — lasting less than a decade — and tumultuous. Indeed, in 1932, when his Experimental College closed amid declining enrollment and heavy criticism, he was widely written off as a noble but naive dreamer. Only now are we seeing that he was far ahead of his time. A reformer who considered traditional college education a "chestnut-stuffed goose," fat with formalities, Meikeljohn envisioned the Experimental College as a bold reinvention of liberal education. When it opened in 1927 in Adams Hall, the college featured few tests, no traditional grades and an emphasis on learning by doing. Though it was short-lived, the experiment made a lasting imprint, and learning communities on today's campus — such as Bradley and Chadbourne — borrow much from Meikeljohn's dream.

Aldo Leopold

Few scientists have captured the emotional and aesthetic nature of their work as well as Leopold. His forceful and elegant narrative of the beauty and value of land made his 1949 book, *A Sand County Almanac*, a timeless best-seller that has become the wellspring for modern efforts to preserve our environment. The book chronicles Leopold's painstaking work, done on weekends away from his faculty desk, to breathe life into the tired soil of his farm near Portage. But Leopold's accomplishments transcend his ability to write poetically. Joining the UW faculty in 1933 as the country's first professor of wildlife management, Leopold helped found the study of wildlife ecology on campus and served as the Arboretum's first research director.


Kathryn Clarenbach, seated at right, with Gov. Warren Knowles

John Bardeen

Bardeen grew up in Madison and earned his bachelor's and master's degrees from UW-Madison. With that pedigree, he left for a doctorate at Princeton and a job with Bell Labs, where, along with two other scientists, he would fashion the world's first transistor in 1947. The tiny silicon chip did all the tasks that once required unwieldy vacuum tubes and sparked the modern electronics revolution. Without it, space-exploration equipment, televisions, portable radios and virtually every hand-held electronic device would have been inconceivable. The transistor earned Bardeen the Nobel Prize for physics in 1956. No one-shot inventor, the soft-spoken scientist stayed on physics' cutting edge, winning the Nobel again in 1972 for his explanation of superconductivity, the key to high-speed computer processing.

Kathryn Clarenbach

As a UW alumna and political science professor, Clarenbach witnessed, participated in and led many of the landmark events of the women's rights movement in the 1960s and 1970s. In 1966, she and Betty Friedan co-founded the National Organization for Women, and, as NOW's first chairwoman, Clarenbach led the cause from her Madison office. Her managerial skill and ability to appeal to diverse audiences helped place women's rights squarely on the national agenda. She won the support of the various factions rallying for women's rights and helped unify them into an effective voice for political change.

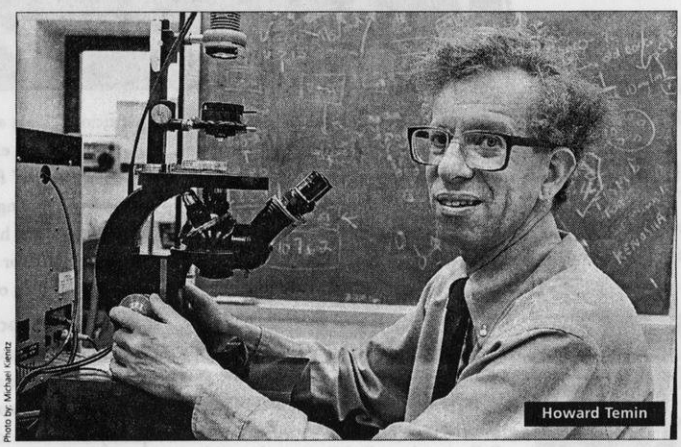

Howard Temin

Photo by: Michael Kienitz

Howard Temin

A methodical and introspective scientist, Temin waged a lonely battle to convince biologists that viruses can carry genetic information in the form of RNA. His 1970 finding of the reverse transcriptase enzyme, a biological catalyst that enables a cell's DNA to receive genetic information from RNA, turned bioscience on its ear. That and Temin's other discoveries enlarged our understanding of how genetic information flows in cells, yielding a clearer understanding of cancer and making possible the discovery of the AIDS virus. The work won Temin the Nobel Prize in 1975 and has enabled many of the techniques that are now common practice in biotechnology.