

The University of Wisconsin press bulletin.

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Campus Stretches Out to Receive 150 From State Centers

Characterized by University officials and student leaders as component members of the University community, although living at a distance, 150 students and teachers from 13 University extension centers in the state mingled on the State University campus with residence students, listened to words of welcome and advice, and attended campus classes at the first "University day" program arranged for extension groups recently.

Dean F. O. Holt, for the Extension division, invited the visitors to think of the campus as theirs after the manner of residence students, and Pres. C. A. Dykstra observed it was "about time that young people in University classes 50, 100, or 200 miles from Madison were coming here more often to visit their own campus, and thus to help fulfill the Van Hise conception of this University as one whose bounds are the boundaries of the state itself."

The executive gave a word picture of the transformation going on throughout the University—the change from a peacetime to a war basis. He noted that the national government has turned to the University of Wisconsin for help in training thousands throughout the state, through its "ESMDT" classes, for wartime tasks; in training hundreds of college students for air pilot careers; in teaching radio code and communications to increasing complements of bluejackets of Uncle Sam's navy; in serving as the center for the army's correspondence-study program for soldiers in service everywhere; and in organizing and operating a key center of war information for the Wisconsin populace.

War Labor Board Member Speaks at U.W. Law Meeting

A two-day program of dinners, addresses by prominent Wisconsin law graduates, and fraternal reunions has been arranged for the annual spring program of the University of Wisconsin Law school and the Wisconsin Law Alumni association to be held on the campus this Friday and Saturday, April 24 and 25.

The program will start off informally with a ball game between Law seniors and the faculty at 2 p. m. Friday, but will swing quickly to the serious side with the annual initiation of Coif, honorary Law society. The Coif banquet and Law fraternity reunions are scheduled for Friday evening, followed by the informal Law ball.

At luncheon Saturday noon in Tripp Commons of the Memorial Union, announcement will be made of scholarship and other awards; of Coif, Law Review, Legal Aid, and Law School association elections, and officers of Law school associations will be presented.

Dean Wayne L. Morse of the University of Oregon Law school, member of the national War Labor board, will be the main speaker at the Luncheon. A native of Wisconsin and a graduate of the State University, Dean Morse is well known for his successful work as Federal Labor arbitrator for the Pacific coast maritime industry since 1938, and more recently for his aid in settling the railroad wage controversy as head of the emergency board named by President Roosevelt.

Present and former members of the Wisconsin Law Review will attend a banquet Saturday night in the Memorial Union. Principal speaker will be R. Worth Vaughan of New York, editor in chief of the Law Review in 1926-27. Vaughan is now associated with the Guggenheim interests in New York in both a legal and executive capacity.

NAMED TO WAR BOARD
W. P. Mortenson, of the agricultural economics staff at the University of Wisconsin, was recently named to a position with the division of civilian supply of the United States war production board. He will be on leave from the University for the remainder of the academic year.

Wisconsin Coeds Learn to Run Tractors to Help Out On Farms

While the farm boys are busy driving tanks and trucks for Uncle Sam, nine University of Wisconsin women are hard at work at the College of Agriculture learning to drive farm tractors and operate farm implements so they may help in raising and harvesting America's food resources next summer.

Most of them coming from farm homes, the girls have enrolled in a special non-credit class which meets "whenever it can" during free afternoon hours and on Saturday, to learn from Floyd W. Duffee, professor of agricultural engineering, the way to steer a tractor down a straight furrow, and how to keep it operating correctly.

"They've all taken hold quickly," Duffee declares. "They want to learn to drive the machines so they can go home and help out. Dad or brother this summer after school closes. They won't get much work in seeding, since most of that is completed, but cultivating and harvesting will keep them busy."

The girls come from all departments in the University. One is a geology student, another in journalism and another a graduate student in home economics. The class includes a member of the Law school library staff who expects to be on a farm this summer.

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.

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Young Man, Member of Class of 1942, Aids An Ancient Science At U. W., Builds Valuable "Atom Sorting" Machine

A young man who does not yet have his first academic degree has come to the aid of an ancient science at the University of Wisconsin.

The young man is Frederic Epling, Jr., graduate of the Kohler, Wis., high school and now a senior majoring in physics at the State University. The science that he is aiding is in the field of nitrogen fixation of plants and bacteria, that is, the ability of certain plants and bacteria to absorb and use nitrogen, especially heavy nitrogen, in the growing process.

For many years scientists in agricultural bacteriology and allied science fields have been struggling with the problem of the ability of leguminous plants to absorb and use, in the growing process, certain of the basic elements of nature, such as nitrogen and carbon.

Knowledge Important

This knowledge is important, because the use that plants and bacteria make of certain basic elements determines to considerable extent their growth. For many years studies of the fixation of basic elements by plants and bacteria have been carried on by chemical methods only. These were slow and tedious, and not always accurate. Using these methods, the scientists could not always be absolutely sure of their results.

Then a few years ago, the mass spectrometer, familiarly known to scientists as the "atom sorter," was developed. This complex machine could be used in high speed analysis of chemical elements by sorting out by weight the molecules and atoms which are the building blocks of all matter. By means of this maze of glass and metal tubes and coils, the scientists could measure more rapidly, more accurately, the absorption and use of nitrogen and carbon by plants and bacteria.

But the University of Wisconsin had no atom sorter. There were only a few such machines in existence. A national manufacturer could make one for the University for about \$7,000. This price was much beyond

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.

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Vol. 35 No. 8

anything that the State University could afford.

Some Tall Figuring

Then the men of science on the campus who had a direct interest in the matter began to do some tall figuring. Dr. Perry W. Wilson, of the agricultural bacteriology department, who is a leader in these studies of nitrogen fixation of plants and bacteria, got together with Dr. H. B. Baldwin, of the physics department, who was already familiar with the design of the mass spectrometer.

An inventory was made of men and materials on the campus. The upshot of the discussion between these two men was that the physics department would gather what material it had on hand, Dean E. B. Fred of the Graduate school, would somehow produce some more from an already burdened budget, while Dr. Wahlin would draw up the plans and specifications for the complicated machine.

Clockwork is the way to describe the manner in which these men went to work. The plans and materials were produced and dumped into a physics laboratory. Then the biggest problem arose. Who would build the machine? Again Dr. Wahlin stepped into the breach—with the young Frederic Epling, Jr., only 21 years old, a senior who has yet to get his first academic degree.

Likes Knotty Problems

Epling is a genius when it comes to building things and getting things done. He has a mind that revels in solving the knotty problems of chemistry, mathematics, and physics. In high school his first love was chemistry, and he had a workshop in the basement of his home in Kohler in which he used to do carpentry work and solve chemical problems. At the State University his affection turned toward mathematics and physics.

He made an outstanding record in his University work, and on next June 1 at the University's 89th commencement he will receive not only his bachelor's but also his master's degree for his four years of study.

And at the same time, under the supervision of Dr. Wahlin, he has built the atom sorting machine—a man-sized job in itself. The University has helped to train and develop Epling, and he in turn has aided a University science project.

He worked all last summer and fall on the machine, completed it during the winter, and the total cost of the entire project to the University was less than \$1,000! At the same time Epling is writing his graduation thesis on the construction and operation of the machine which, from all reports available, is giving performance equal to that of the two or three others in this country.

How Machine Helps

In another laboratory in King hall, the old soils building on the campus, just a few city blocks from Sterling hall where Epling is now operating the atom sorter, another young man has a direct interest in the matter of nitrogen fixation of plants and bacteria and is working under the supervision of Dr. Wilson.

He is Dr. Robert H. Burris, post-doctorate fellow in agricultural bacteriology. It is Wilson and Burris who are trying to trace the absorption and use of nitrogen by bacteria by leguminous plants such as alfalfa, oats, barley, and soybeans. They want to know how the tiny micro-organisms called bacteria, and how the plants themselves, take on the nitrogen, and then how they use the element in the growth process.

Such knowledge concerning bacteria might lead to ways in which the tiny organisms can be controlled and made to do better their jobs in the growth process of the plants. And such information, in regard to the plants themselves might unveil some important knowledge concerning their own growth.

Use Heavy Nitrogen

The two scientists "feed" heavy nitrogen, called N15, to plants and bacteria by growing them in glass cages in which they can control the atmosphere completely. The heavy nitrogen is fed to the plants and bac-

teria in gaseous form in this manner.

Why use heavy nitrogen or N15? The scientists explain that of the total nitrogen present in all matter, including plants, 99.6 per cent is ordinary, known as N14, while only four-tenths of one per cent is N15. Thus, it is much easier to trace the absorption and use of N15 by the plants and bacteria than the more universal N14.

It is at this point of tracing N15 that the youthful Epling reenters the picture. After the plants or bacteria have been fed the heavy nitrogen for the determined period, they are reduced to gaseous form in small glass containers, and given to Epling. He fits the container into his machine, releases the gaseous residue into its maze of glass and metal tubing, and begins the process of measuring the light and heavy atoms, or isotopes, which are present.

Sort Atoms by Weight

In an almost perfect vacuum, the machine actually sorts the atoms and molecules by forcing them at million-mile-per-hour speed around a bend in a copper tube. The curved part of the tube is encased in a powerful electromagnet which bends the paths of the atom or molecule. The lighter the atom or molecule, the more its path is bent. Then detection of the weight of each stream of these building blocks of nature is made by means of a sensitive radio tube and the measuring of that weight is done with electric meters.

Thus, with the aid of this mass spectrometer, it is possible for Epling to measure rapidly and accurately the amount of heavy nitrogen atoms present in the bacteria or in any part of a leguminous plant, simply by weighing them in this manner.

And the reports which he sends back to Wilson and Burris, concerning the weights of the nitrogen atoms which they have furnished him, helps them to trace the secrets of the nitrogen fixation of plants and bacteria—how both absorb nitrogen and how they use it in the process of growing.

Wisconsin Plants 7,750,000 Trees During This Spring

Spring tree plantings on Wisconsin farms, school forests, and county forests will total a full 7,750,000 trees, according to an announcement by F. B. Trenk, state extension forester at the University of Wisconsin. This is but a slight decrease from the 8,000,000 trees planted in 1941, and indicates that in spite of reduced farm labor Wisconsin farmers will keep up their tree planting program.

Burnett county leads all Wisconsin counties again this year in farm tree plantings where farmers will use 2,606,000 trees. All other adult farm plantings in the state total 3,780,000 trees, out of which 355,000 are acre demonstration grants of 1,000 free trees to each of 355 farmers by the State Conservation department, and 1,890,000 allotted to the central Wisconsin shelterbelt project which includes Adams, Marquette, Portage, Waupaca, Waushara, and Wood counties.

Farm boys enrolled either as members of 4-H clubs or as Future Farmers in vocational agricultural classes will plant 928,000 trees granted free by the conservation department. Most of these trees will be set in nursery beds which the boys agree to cultivate, two years after which the trees will be set out in forest plantings on farms or will be used for windbreaks around farmsteads.

School forests of which more than 170 will make plantings have been granted 271,000 trees, nearly all four-year old transplants. Other community forests, many of which are in Brown county, will receive allotments of 269,000 trees.

Every Wisconsin county is represented in the 1942 farm tree planting program, the extension forester reports.

Teachers of History And Social Studies Meet at U. W. May 2

Two panel discussions on workshop techniques in social studies, and discussion periods on the social studies fields will highlight the 13th annual conference of Wisconsin teachers of history and social studies to be held in the Memorial Union building at the University of Wisconsin Saturday, May 2.

A general session at 10 a. m. will begin the conference, with the panel discussion on workshop techniques and talks based on workshop experience on the program. At forenoon sectional meetings, elementary and junior high school teachers will talk on progress made in social studies, use of visual materials, selection of experience units, and worthwhile permanent outcomes. Senior high school instructors will attend an illustrated lecture by Prof. Glenn T. Trewartha, of the State University department of geography, on Japan and the Far East.

At the luncheon meeting concluding the conference, Dr. Edward P. Alexander, superintendent of the Wisconsin Historical association, will speak on "Let's Study Our Local History."

Leaders at all meetings will be educators from Wisconsin elementary and high schools, as well as the University faculty. President C. A. Dykstra of the University will greet the teachers at the opening session. The program is sponsored by the University's School of Education, and Ronald B. Edgerton, secretary, Wisconsin History Teachers association, is program and registration chairman.

Badger 4-H Members In National Contest

The records of three Wisconsin 4-H club members chosen as winners in the state farm, home and crop records contests have been submitted for competition in national contests, according to T. L. Bewick, state club leader, at the University of Wisconsin.

Harriet Stanchfield, Fond du Lac, R. 1, is the state entrant in the national farm records contest; Sophie Wydra, Knöwlton, R. 1, in the home records contest; and Harvey Pautz, Horicon, in the crop records contest. Awards to national winners will include scholarships and trips to the 1942 National Club Congress, Chicago.

Two U. W. Men Are Guggenheim Fellows

Only middlewest school to be awarded more than one fellowship, the University of Wisconsin has two faculty members who recently received Guggenheim fellowships. Dr. Einar Haugen, professor of Scandinavian at the University, and Dr. John Thomas Curtis, assistant professor of botany and research director of the University arboretum, were the two men awarded the fellowships. Wisconsin is one of seven midwest schools which have Guggenheim fellows on the faculty as a result of the recent awards by the John Simon Guggenheim Memorial foundation at New York.

Civic Zeal Rises As Wisconsin Prepares for Citizenship Day

For the fourth year Wisconsin, where the movement for the training and induction of new voters had its birth, will exalt among the youth in many counties the virtues of loyal citizenship, not only for its significance in time of war but for its necessity in normal times to give strength to a government "of, by and for the people."

The University of Wisconsin—source of the idea—the state through its department of public instruction, and the counties through county and city superintendents of schools, are aiding local committees in plans for observing Sunday, May 17, as Citizenship day, now given validity by acts of the Wisconsin legislature and the congress of the United States.

Among the Wisconsin counties reporting on plans for 1942 are Manitowish, Winnebago, Sauk, Kenosha, Rock, Walworth, Jefferson, Grant, Washington, Marinette, Marathon, Richland, and Dane. The 1942 program has been pointed to emphasizing the winning of the war and the necessity for planning for post-war adjustments.

Under Wisconsin's program, new voters—the 21-year-olds—are to take part in forums and other discussion activities with a view to a better acquaintance with the rights, duties and responsibilities of voting citizens. Dr. R. J. Colbert, of the University of Wisconsin extension division, founder of the plan, noted that many schools have strengthened their citizenship training facilities on their

U. W. Accredited By U. S. Navy To Train Naval Reserve Officers

The University of Wisconsin has been accepted under the United States navy's V-1 accredited college program for the training of officers in the naval reserves. Pres. C. A. Dykstra has been notified by Secretary Knox wired Pres. Dykstra that "the navy is proud that your University has undertaken our V-1 plan for training freshmen and sophomores as officer material. Please tell your young men who apply for enlistment and training under the plan that they will be serving the nation if they continue their college courses no less than those of your alumni who are already in active service. The navy knows your institution and your V-1 students will do their part."

Pres. Dykstra explained that freshmen and sophomores who enroll this summer or next fall or are enrolled now in courses leading to any of the following degrees may also enroll in the navy's V-1 program at the State University: Bachelor of Arts, Bachelor of Philosophy, Bachelor of Science in Chemistry, Medical Science, Physical Education, Applied Arts, Engineering, and Agriculture. This program is thus also of interest to new students entering the University this coming June in the summer session or next September, he added.

Students who enroll in this program will pursue their normal course of study in the University together with a minimum requirement of one year of mathematics and physics, plus a physical fitness program amounting to about four hours weekly.

Enlisting as apprentice seamen, the men will be placed on an inactive status in the U. S. naval reserve and allowed to complete a minimum of two years in college. During the second semester of their sophomore year they may take an examination and if they pass they may volunteer for V-5 aviation cadet training or for V-7 training for general deck or engineering duty.

Sets Dates for Two Junior Stock Shows

Dates for two Wisconsin junior livestock exhibitions—a lamb and pig show and a beef calf show—are being announced this week by Arlie Mucks, secretary of the Wisconsin Livestock Breeders' association.

The lamb and pig show will be held for two days, September 21 and 22, and the beef calf show for three days, October 12, 13 and 14. Both events will be held at the University of Wisconsin stock pavilion in Madison, and are open to exhibits by boys and girls between the ages of 12 and 21.

The executive committee, in charge of show arrangements, includes: J. Scott Earll, Prairie du Chien; R. E. Reynolds, Lodi; M. F. Hogan, Waukegan; Peter Templeton, Evansville; C. H. Hulbert, Waukegan; N. H. May, Mineral Point; Rex Whitmore, Burlington; Arlie Mucks, Mrs. Beulah Olson, and T. E. Hamilton, Madison.

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