



# **The Badger quarterly. Vol. 8, No. 2 December 1945**

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# THE BADGER QUARTERLY

State University  
of Wisconsin  
News for—

If you want to be a Badger, just come along with me...



December, 1945

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Vol. 8, No. 2

## Wisconsin Scientists Aid Nation in War

The University of Wisconsin's great record of service in World War II has been told piecemeal as the war went on and as fighting ended. The great stories of the war service records of the University and its alumni and former students have been told in part or all at intervals. Some of the work of Wisconsin scientists in the war has been told, but for security reasons some of it could not be mentioned until war's end. The stories below tell of some more of these science contributions.

### Help Develop Atom Bomb

This is the story that up to this fall was one of the super secrets of the war. The story of the University of Wisconsin's atom smashers and the men who worked with them, under government orders.

Back in 1934, Prof. R. G. Herb of the Physics Department foresaw that more knowledge of the atom

was of vital importance because more uses for atomic particles were being found every day. He began work on a new compact type of atom smasher which operated in an atmosphere of high pressure air.

**BREIT** This has become known as the Herb pressure electrostatic generator. By 1941 Herb's group had perfected a generator capable of accelerating atomic particles to 4 million volts energy. This means speeds of about 70 million miles per hour, or one-tenth the velocity of light. By 1941, a slightly smaller electrostatic generator developing 2 million volts and built by Dr. J. L. McKibben was also in operation. Although the voltage produced was lower, this atom smasher would accelerate ten times as

(See ATOM BOMB Page 8)

### U. W. Studies State Water Resources Now

A long-time research program to investigate the quality, quantity, and distribution of underground water resources in the state was begun recently at the University of Wisconsin under the direction of a committee headed by Ernest F. Bean, state geologist at the University.

The work was instituted when it became apparent that in many localities the level of ground water supplies was declining because of increased wartime use of water.

"During the past few years," Bean declared, "Wisconsin has been drawing heavily, more heavily than usual on ground water supplies because of military fields, increased manufacturing in industrial regions, and growing use of air-conditioning."

"As a result there has been a decline in the water levels of some of those areas," he continued. "To prevent any danger of depleted water supplies we must know the safe yield of the water resources."

Though it is hoped that eventually the work will cover the entire state, research will be conducted first in those regions where the need is most urgent. Green Bay and Milwaukee are two such areas.

"Though there is no danger of complete failure," Bean said, "as

### Production of Nitric Oxide

The nitrate industry, one of the biggest of the large-scale American enterprises, now has an efficient, simple and inexpensive method for the production of nitric oxide, the building-block of all nitrate fertilizers and explosives, as a result of research conducted at the University of Wisconsin during the war.

In addition, Wisconsin may expect to have in a few years a process for the cheap manufacture of the 150,000 tons of nitrate fertilizer which should be used on state

(See NITRIC OXIDE Page 7)

### Help Develop Radar for War

Among American scientists who contributed immensely during the war to the development of radar at the Radiation Laboratory on government work at Cambridge, Mass., were four faculty members of the University of Wisconsin. They are Raymond G. Herb, professor of physics, Henry E. Guerlac, assistant professor of the history of science, Ragnar Rollefson, associate professor of physics, and Albert E. Whitford, assistant professor of astronomy, all on leave from the State University.

Prof. Herb also aided in the development of the atomic bomb, for it was his invention, the Herb Pressure Electrostatic Generator, or atom smasher, that was used in the important work in New Mexico.

Three of the Wisconsin profes-

(See RADAR, Page 5)

### "Living Memorials" Help U. W. Serve State, Nation in Education, Science, Public Service

"Living Memorial" funds, established by gift or bequest to perpetuate forever the good name and memory of father or son, mother or daughter, or other close relative or friend, are now constantly, day after day, helping the University of Wisconsin to carry on the wide scope of its work in serving citizens of state and nation in the fields of education, science research, and public service.

"Living Memorials" is the general title which State University officials have given to gifts from the living or from bequests contained in the last wills and testaments of the deceased, to establish memorial funds in their own names, or in the name of some

### Honored for Service



F. J. SENSENBRENNER

Frank J. Sensenbrenner, president of the Board of Regents of the University of Wisconsin, was recently honored at a testimonial dinner sponsored by the Fox River alumni of the State University. Graduates numbering more than 300, including many state officials, educators, judges and

(See HONORED, Page 4)

### U. Celebrates 97th Birthday In February

When the University of Wisconsin celebrates the anniversary of its founding on February 5, 1946, it will not only mark its 97th birthday, but it will remind alumni that the great year of the University's centennial is only three years away. The academic year of 1948-49 will commemorate the State University's century mark, and February 5, 1949, will be its 100th birthday.

Because the centennial is growing so near, alumni the country over will pay particular honor this year to the founders of the University of Wisconsin, and alumni club programs have already been scheduled to mark this important event in University history.

Pres. E. B. Fred, Frank O. Holt, the University's director of public service, and John Berge, executive secretary of the Wisconsin Alumni association, are now perfecting a plan whereby speakers can be provided for the Founders' Day meetings throughout the state and country. It is expected that a large roster of faculty members will be available for

(See BIRTHDAY Page 8)

member of the family or close friend.

They are "Memorials" because they perpetuate forever, as long as there is a University of and



McCAFFREY PETERSON

Such is the idea of M. E. McCaffrey, secretary of the State

### Building Plans Go Forward at U. W.

The State and its Legislature and governing officials, and the Board of Regents and administration, faculty, alumni, and students of the University have all cooperated and are cooperating in the building program of the University of Wisconsin, to improve and enlarge and expand the State University's campus facilities and its work. The great progress of this cooperative spirit and work on the part of all is told in the articles below.

### Build, Improve Lower Campus

(See Pictures on Page 3)

A long-range program of campus enlargement and improvement, designed to continue the University of Wisconsin as leader among universities in culture, learning, and service to its state, was revealed recently to the alumni of the State University by William J. Hagenah, Chicago utility engineer, and Wisconsin alumnus.

The plan would include completion of purchase of the entire area between Langdon st. and University ave. as far west as Lake St., in Madison. Major construction projects of immediate importance outlined in the plan include a building for continual study of Wisconsin industry and agriculture, an art institute and museum, a new library, and a new auditorium.

"There is no other University,"

(See LOWER CAMPUS, Page 4)

### 9,209 Enrolled; 1,200 Veterans

The University of Wisconsin is once again beginning to take on the proportions that characterized the great mid-western university in the years before the war. Freshman class registration has hit an all-time record high of 3,318, and total enrollment so far this winter has reached 9,209, a campus population less than 3,000 short of the pre-war high.

Of this number over 1,200 are men and women who have returned from the services of their country to continue or begin their college careers. In the regular semester this fall, numbers totalling over 800 veterans registered in University courses, 300 enrolled in the College of Engineering, and over 100 completed their registration in November in a special eight-weeks session organized to accommodate veterans and other students who were unable to enter the regular fall semester.

With last year's total reaching 6,509, excluding the 1,500 Navy radio men on the campus, it can

(See ENROLMENT Page 4)

### Regents Start Building Plan

Construction of two student dormitories, three new classroom-library-research buildings, the fire-proofing of Bascom hall, and selection of the site for 100 more trailers for the emergency housing of married veteran students, was approved by the University Board of Regents in a busy session in Pres. Edwin B. Fred's office in Bascom hall recently.

The Regents also approved locations for the Agricultural Short Course dormitory and Forum hall and the Bacteriology building at its meeting, approved recommendations of the Campus Planning Commission, and its Constructional Development committee of which Regent John D. Jones, Jr., Racine, is chairman.

The new dormitories, which will house 650 men and 400 women,

(See REGENTS START Page 3)

### War Records Of U. Alumni Being Compiled

Without a doubt the most enormous job now being undertaken by the Wisconsin Alumni association and the Alumni Records office is that of its War Records Department: namely, to compile all the significant data about every University of Wisconsin alumnus and former student who has served or is now serving in the armed forces.

As a part of the total picture of the University's contribution to World War II, the individual stories of each Fighting Badger are a matter of great importance for the historical record. The War Records department is now expanding its collection of military data, and upon completion of the enlarged program it faces, will eventually tell a full story of the contribution of alumni and former students to the winning of the war.

Information now being collected about each University of Wisconsin serviceman and woman includes the following items and many more: date of induction, branch of service, complete service record, awards and decorations, where stationed, date of discharge, type of training given, length of service, rank, and particular jobs undertaken.

The war records program also involves compiling figures and lists of alumni killed in action, missing in action, prisoners of war, wounded in action and decorated.

To make this job easier and to fully round out the records, each Fighting Badger is being asked to supply information about himself. Any information sent to the Wis-

(See STATE WATER Page 4)

(See WAR RECORDS Page 6)

## Where Can We Find These Lost Alumni?

How many of your friends are lost?

Unless you recognize our meaning for the word "lost" you will be unwilling to label any of your friends in that class, but it might be that some of the University of Wisconsin alumni in the list below are good friends of yours.

These men and women moved away from the city which is listed behind their names and left no forwarding addresses. Now they are "lost" in our files, for we have no way of reaching them. Until the Alumni Records Office of the University of Wisconsin locates good addresses for them, no University mail will reach them and no one seeking their addresses through this office will have any success in finding them.

If you know the present whereabouts of any of these alumni and former students, or if you know a good lead concerning where we might find their correct addresses, please inform the Alumni Records Office, Memorial Union, Madison 6, Wis.

The first four names are from our military file, which means that at the time they became members of the "lost" U. W. contingent they were in the armed services. The other names are those of civilians.

Bunn, John M., '40, Madison, Wis.

Meisels, Milton, '38, New York, N. Y.

Nelson, Gordon V., '34, Waupaca, Wis.

Silk, Leonard S., '40, Atlantic City, N. J.

Benedict, Russell Edison, '24, Bristol, Wis.

Ellingson, William M., '18, Hawkins, Wis.

Engeseth, Alfred John, '11, De Forest, Wis.

Falck, Erven Jacob, '17, Green Bay, Wis.

Farisy, Arthur Thomas Ross, B. S. '16, Fairfax, Minn.

Frazier, Charles Ross, B. L. '95, Raymond, Wash.

Galey, Strand Byrum, '15, Gates Mills, Ohio.

Gay, Mrs. Weiland, B. A. '19, Rocky River, Ohio (Formerly: Johnson, Margaret R.)

Greiling, Reuben Henry, '22, Green Bay, Wis.

Grenamyer, Arthur G., '08, Warren, Ohio.

Gruszyński, Edmund L., '18, Thorp, Wis.

Guenther, Eric Oscar, '23 Chilton, Wis.

Hart, William E., '23, Springfield, Ohio.

Haugstad, Tilby A., '22, Black River Falls, Wis.

Hedstrom, Lowry Henry, '23, Lombard, Ill.

Herrell, Eduard M., B. S. '38, Augusta, Wis.

Higbie, Nathan Bradley, B. A. '20, Detroit, Mich.

Hornseth, Richard Allen, M. A. '41, Waukesha, Wis.

Irsay, Leonard, Ph. M. '40, Philadelphia, Pa.

Johnson, Harold Edward, '30, Oak Park, Ill.

Judevine, W. Kenneth, '19, Oakdale, Wis.

Keithley, Amy, '12, Peoria, Ill.

Kelley, John William, LL.B. '99,

### New Address?

Your Badger Quarterly is sent out four times a year to all alumni and former students of the University of Wisconsin for whom the University has an adequate address.

If an address is no good, that alumnus receives no Badger Quarterly. In an alumnus moves and fails to notify the Alumni Records office of his new address, the Badger Quarterly, which is sent to his old address, will not be forwarded to the new one, for no second-class mail is forwarded.

If you move, make sure that the University has a record of your new address, so that your Quarterly and other University and Wisconsin Alumni association publications may reach you. Drop a card to the Alumni Records Office, Memorial Union, Madison 6, Wis.

Pittsburgh, Pa.  
Kelsey, Rueben Clifford, '18, Park Falls, Wis.  
King, Donavon Sumner, '22, Eau Galle, Wis.  
Kramer, Orin William, '23, Lowell, Wis.  
Laing, Stanley Glenn, '22, Alma Center, Wis.  
Lambrix, Percy James, '27, Hurley, Wis.  
La Rouché, Joseph F., '23, Egg Harbor, Wis.  
Lippert, Leslie John, Law C., '36, Santa Monica, Calif.  
McFetridge, George William, Law C., '21, Clam Falls, Wis.  
Martin, Louie Eugene, '15, Blue Mounds, Wis.  
Noyes, William Baker, B. S. A. '15, Beaver Dam, Wis.  
Qually, Cecilia Johanna, B. S. '39, Racine, Wis.  
Pelletier, Mary Addison, '27, Sioux City, Iowa.  
Quarles, Benjamin Arthur, M. A. '33, Greensboro, N. C.  
Quarles, Mrs. Benjamin Arthur, M. A. '38, Greensboro, N. C. (Formerly Bullock, Vera K.)  
Qually, Cecilia Johanna, B. S. '39, Racine, Wis.  
Rabe, Naomi Frances, B. A. '29, Chicago, Ill.  
Rabinovitz, Samuel, B. A. '30, Detroit, Mich.  
Randell, Mark, B. A. '32, Madison, Wis.  
Randle, Stacy Boyce, Ph. D. '39, Oxford, Miss.  
Randolph, Howell Sheppard, M. A. '24, Phoenix, Ariz.  
Randolph, Thorne Fitz, M. S. '33, Indianapolis, Ind.  
Rath, Martha Amelia, Grad., Edmonton, Ala.  
Rathgeber, Mrs. Van D., Ph. B. '25, Fort Worth, Texas. (Formerly: Walters, Bernadine)  
Schmalhausen, Gertrude, B. A. '29, Chicago, Ill.  
Schmidt, Claire, B. A. '29, Chicago, Ill.  
Thomas, Cora Marie, B. S. '13 Chicago, Ill.  
Welch, Paul B., B. A. '13, Chicago, Ill.  
Wells, Earl Harvard, B. A. '10, Cleveland, Ohio.

## U. W. Alumni Assn. Sends 635,000 Pieces of Mail in Year

If the Wisconsin Alumni Association went about its normal business but addressed its mail to residents of Wyoming instead of alumni of the University of Wisconsin, each man, woman, and child in Wyoming would have received almost three pieces of mail from the association in the past year. For last year, 635,000 pieces of mail were sent out by the Wisconsin Alumni association.

Actually, these 635,000 pieces of mail went to a widely scattered group of alumni and former students of the University of Wisconsin, all of whom were momentarily returned to the University and State of Wisconsin each time they received their Wisconsin mail.

Included in the 635,000-piece calculations are the thousands of Badger Quartiles, Stuhldreher Football Letters, Wisconsin Alumnuses, Cardinal Communiques, class reunion letters, personal letters to Fighting Badgers, and miscellaneous letters to alumni and interested Badgers which are sent from the Alumni association offices each month.

The month of September alone found mailbags containing 96,000 pieces of mail leaving the association bound for each county in the state, each state in the union, and, one might safely guess, each APO and FPO number listed by our Army and Navy.

During September alone the mail sent out by the Wisconsin Alumni Association would have

## U. W. 'Profile' In National Publications

The University is scheduled to have its "profile"—and those of some of its students and faculty members—appearing this winter in a number of the nation's publications. For within recent months some of the leading magazines and news services have been "writing up" the campus and the work of the students and faculty of the University. The University News Bureau handled local arrangements with the publications.

One of the more important stories appearing in its Jan. 5 issue was written by Saturday Evening Post writer and novelist, George Sessions Perry, whose profile of the University and of the city of Madison is running in the current series now featured by the "Post" and entitled "The Cities of America."

Both Life and Look magazines and Mademoiselle magazine have had photographers and writers doing picture series on the new "city" at Camp Randall, with the articles scheduled for publication in the Look issue of Feb. 5, the Mademoiselle issue for February, and a late December or early January Life issue.

Among other publications and news services which came to the campus to do work on the varied and vital activities of the University and the campus population have been Acme Newspictures, Paramount Newsreel cameramen, and reporters and photographers of a number of midwest newspapers.

## Continue Sending Publications To Fighting Badgers

"Don't you know there's a war on?" has come to be a slogan of the past in many places, but in the offices of the Wisconsin Alumni association, that slogan hasn't disappeared entirely.

For until the last Fighting Badger comes home for keeps and dons his first "civilian suit" (or her first frilly frock) the Alumni association is continuing its wartime policy of sending its publications free to men and women of the University who are in the armed services.

Although, technically, the war is over, the need for mail among men and women still in the service of their country is as great, if not greater than ever. Fighting Badgers, wherever they may be, will not be let down by their alma mater merely because the Nazis and Nips have given up their lost causes. They will receive mail from the Wisconsin Alumnae association just as regularly now as they did when shells were being fired and bombs dropped.

Postal regulations and normal delays in overseas delivery have caused the creation of two special publications for overseas Badgers. First, the postal authorities will not permit the sending of the Wisconsin Alumnae to servicemen and women overseas unless they subscribe to it, so the Cardinal Communiqué has been developed which we can send these Badgers without charging them for it.

The Communiqué is a four-page newsletter, which was originally meant to be a concentrated version of the Alumnae, but by virtue of its size and compactness has turned into an informal newsy letter containing items of particular interest to Badgers overseas.

Second, the delivery of the regular Stuhldreher Football Letters would normally be so late as to detract from their interest value, so the Alumnae association developed a special pony edition for overseas Badgers. This 5x6½ inch miniature combines two weekly letters, omits the advertising, and permits mailing in an airmail envelope. Consequently overseas Badgers can read about the games only several weeks after they've been played instead of several months afterward.

## Making Good Progress on U. Centennial Plans

Good progress is being made on the comprehensive history of the University of Wisconsin during its first 100 years which will be published as part of the joint State and University Centennial celebration to be held in 1948-49.

The history, now being prepared by Merle Curti of the his-



CURTI



KIEKHOFER

tory department, will augment the centennial observance, preliminary plans for which now include symposia in various divisions of the university, special publications of the University of Wisconsin Press, national meetings of educational and scientific organizations, the largest commencement activities ever planned, a Founder's Day observance, expositions by students illustrating work of the university in all fields, and a drama and music festival featuring leading American artists. The preliminary plans have been described to the state university faculty and regents by Prof. W. H. Kiekhofer, Centennial committee chairman.

The work of Prof. Curti, diffi-

cult because of the absence of central archives and the scattered nature of manuscripts and documents has resulted in the discovery of a great deal of unpublished material, including 300 letters written or received by Chancellor Barnard, student diaries and letters, faculty correspondence, letters of the regents, and other pertinent papers.

The basic research for the founding of the university and its career to 1858 has been completed, and the work is now continuing into the period of expansion—the handling of university lands, newspaper opinion on university policies, composition of the board of regents in regard to educational, vocational, and political and religious affiliations.

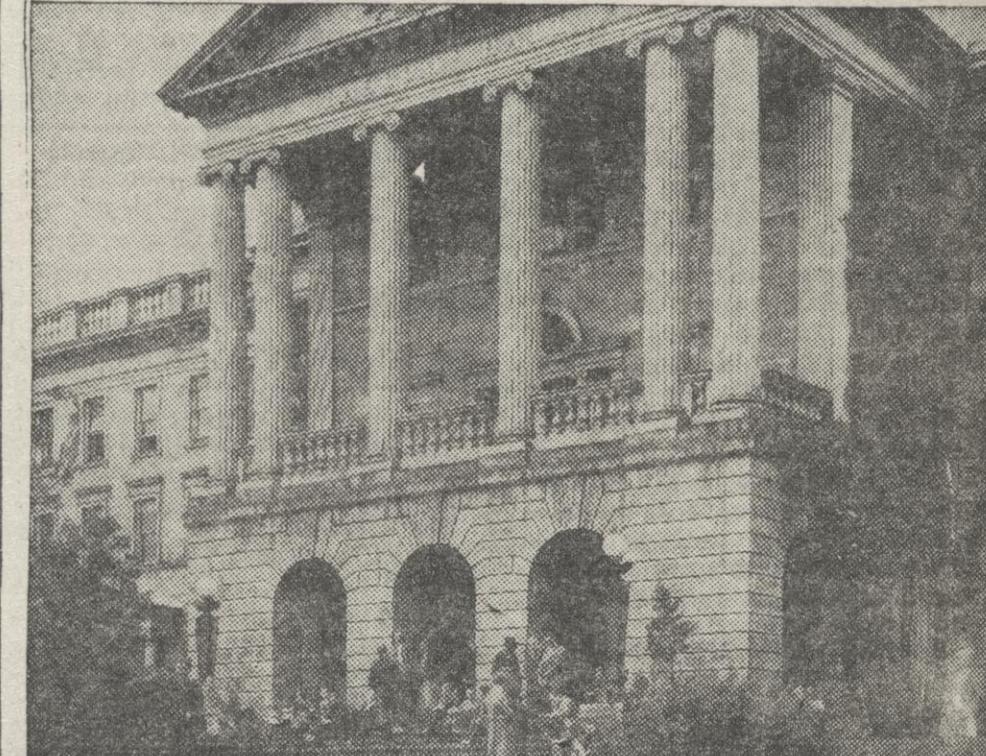
In addition, an analysis has been made of the greater number of the 200-odd writings of Pres. Bascom, for the first time revealing the scope of his intellectual interests, his standing in the intellectual life of the nation, and the quality of his mind and educational leadership.

\* \* \*

Although no complete collection of Bascom manuscripts has been discovered, the many Bascom letters in the collections of Regents Paul and Keyes have thrown much light on the internal administration of the university during the Bascom period.

A substantial study of the curriculum of the university from 1858 to 1887 will be completed for the history, shedding light on what was taught at the university during those years, how it was taught, and the opinion of the students, regents, and the religious and secular press concerning the curriculum.

"A great deal remains to be done," Prof. Curti reports, "but we feel we have so far accomplished a substantial amount of work." The completed history, it is anticipated, will be published by the university of Wisconsin Press in time for the Centennial, to be held during the school year 1948-49.



## A Strong Right Arm...

Your University needs the strong right arm of organized alumni support. This support is best effected through membership in the Wisconsin Alumni Association. Your influence is then combined with that of thousands of full-time Badgers working together to promote the best interests of the University of Wisconsin. Share in this program of activities by mailing your membership application TODAY.

....., 194...

Wisconsin Alumni Association,  
770 Langdon Street, Madison

Here is my check for membership in the classification indicated:

Intermediate membership \$2  
(Classes of '41 to '45 inclusive)  
 Victory membership \$10

Regular membership \$4  
 Life membership \$75

Name ..... Class .....

Address .....

City ..... State .....

Membership is open to anyone who has attended  
the University one semester or more.



## The Old and the Planned--

These pictures illustrate the long-range plan for the improvement and enlargement of the lower campus of the University of Wisconsin, proposed to the State University alumni this fall by William J. Hagenah, Chicago architect and former Wisconsin student and resident of Madison.

The aerial picture at left taken this fall from above Lake Mendota and looking southward, shows the lower campus area as it looks today between Park st. on the right and Lake st. on the left. On the lakeshore facing Langdon st. may be seen the Memorial Union, and the aged YMCA building and Armory and gym annex. Between Langdon and State sts. is the Lower Campus playground in center and the State Historical Library at right facing Park st. Between State st. and University ave. and beyond may be seen more of the crowded and compressed and aged lower campus area which the long-range building plan is designed to improve and beautify and at the same time give the State University campus long-needed additional area and building facilities.

Present preliminary area layout and building plans proposed for

this entire area by Hagenah are shown in the architect's sketch below, again looking southward from Lake Mendota to Johnson st. with a beautiful parkway extending down the center between the proposed buildings. Major construction projects of more immediate importance outlined in the plan include a building for continual study of Wisconsin industry and agriculture needs, an art institute and museum, a new library, and a new auditorium, classroom buildings, an administration building, and a shrine in memory of all the men who were students of the University and who have given their lives in American wars.

The recently organized University of Wisconsin Foundation is launching a campaign among alumni and friends of the University for the raising of funds for projects of the plan outside the regular University activities. The University already owns or controls as part of its campus part of the area exhibited in the pictures. The plan is a long-range one, and removal of churches in the area will be the last step in its development and every effort will be made to find near-by locations where they may continue to serve the student population.

## Dr. Fred Earns \$500 on Radio; Gives It to U.

Gifts and grants totaling \$40,500, including \$500 which Pres. Edwin B. Fred received for a radio speech on bacteriology recently over a national hookup, were accepted by the University Regents Saturday.

Pres. Fred turned the \$500 over to the University, with \$250 to be used by the department of bacteriology and \$250 by the division of radio education in any manner the departments see fit.

Other gifts and grants ranged from a herbarium from a former student, to \$15,000 from the International Cancer Research foundation of Philadelphia, Pa. The foundation's grant will be used by the department of plant pathology to study the pathological cell multiplication in plants.

One of the gifts was for \$100 which will help bring some cheer to the children receiving medical care in the Wisconsin Orthopedic hospital at the University.

The gift, from Mrs. Katherine Keating of Neenah, is the third given by her in as many years to be used by the Orthopedic hospital for such purposes as may be desired, and particularly for the children suffering from infantile paralysis. The fund is used to purchase things for the children for which other funds cannot be used.

The Regents accepted a bequest made in the will of the late Miss Nettie May Cook, a retired school teacher of Spokane, Wash., of a herbarium which is now at the Lewis and Clark high school at Spokane.

The herbarium consists of 2,000 cards with specimens of plants gathered by Miss Cook over the years. Her will divides the herbarium between the high school in Spokane and the University of Wisconsin.

Miss Cook came to the State University as a student from Lake Mills, Wis., and received her bachelor's degree in letters and science in 1904 and her master's degree in 1920 after some years of teaching. During her years on the campus she was considered an outstanding student.

## Dates for 1946 School Sessions

The University calendar for the regular 1946-47 school year, together with calendars for an 8-week summer session and a full length summer semester during 1946, have been approved by the University of Wisconsin faculty.

The recommendation for all of the calendars, made by the University Administrative committee, included a summer term for the college of engineering in 1946 but did not include specific dates for it. It will begin early in July and close with the summer semester, and thereafter the engineering college will follow the State University's regular calendar.

Under the calendars as ap-

## Industries Turn to U. W. for Training

Faced with large-scale production to meet the postwar home demands, Wisconsin industries are having the benefit of 40 one-week industrial supervision institutes at the University of Wisconsin, with the aim of developing the abilities of plant supervisors, foremen and superintendents, as well as of management, to the end that company operations may be performed most effectively.

The program is sponsored jointly by the Extension division and the school of commerce of the University. Cooperating is the Wisconsin Manufacturers' association, whose members are being urged to send selected employees, at company expense, to various institutes at Madison.

The aims are set forth as follows: "To provide training of supervisory personnel to increase their responsibility to the plant's management; to keep supervisors posted on new developments in practice and research, and to develop in supervisors the qualities of leadership and the techniques of handling people." The program also considers the problems of top management, through an institute planned for presidents and vice-presidents of businesses.

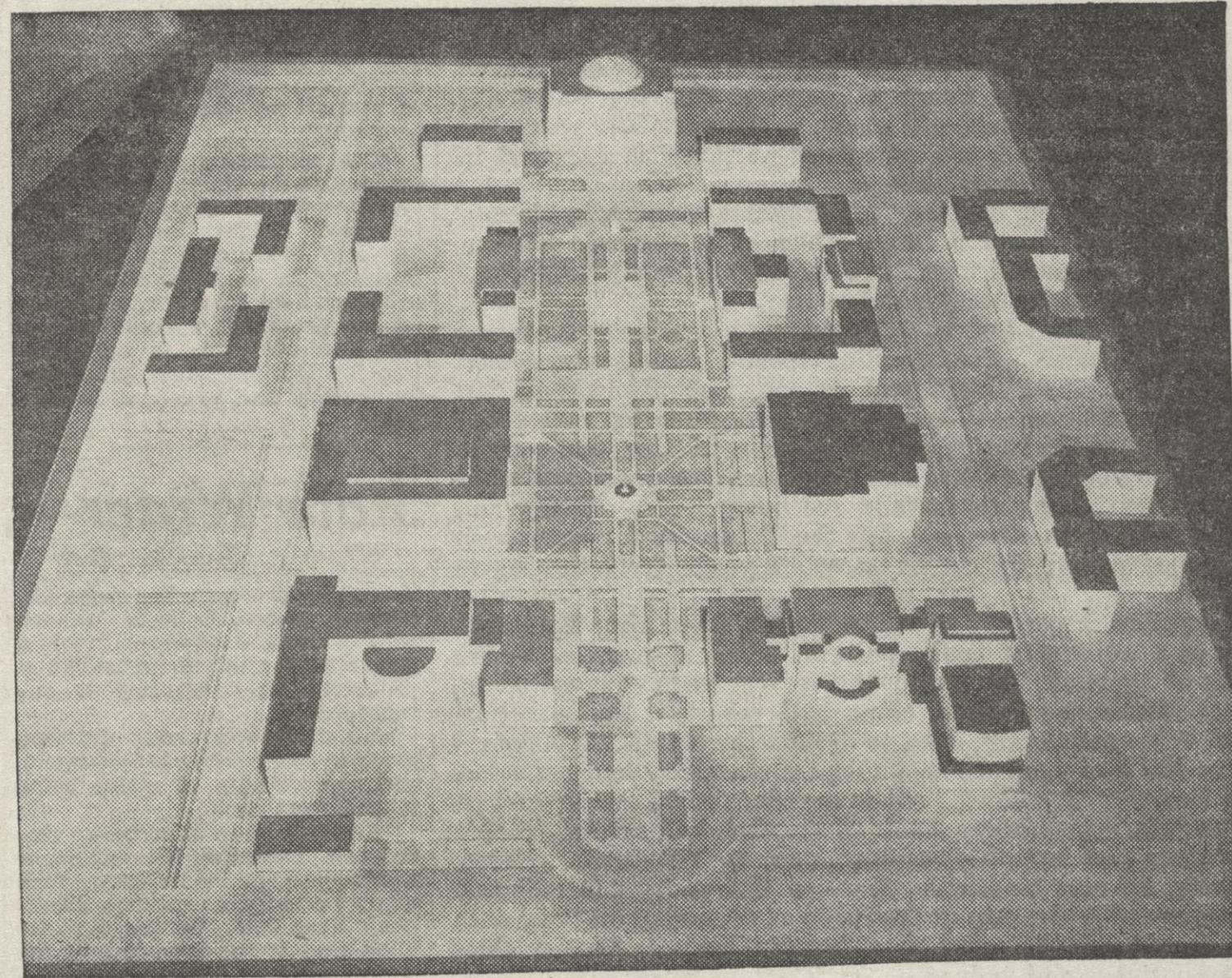
Institute I, now in progress, is for "first-timers," including supervisors, foremen, general foremen, superintendents, and others who have not attended a previous institute nor had equivalent training. There are 20 of these institutes, each running six days.

Institute II (advanced) is for supervisors and members of management who have completed Institute I or an equivalent course, and will consist of 10 institutes of six days each, beginning Sept. 24.

Ten special institutes are planned for different management groups, to run from three to six days each. Topics include labor legislation, on time and motion study, the war veteran in industry, industrial personnel testing, industrial training, industrial service (programs for employees), programs for employee counseling, an institute for directors of personnel and industrial relations, and an industrial top management institute (for high executives).

proved by the faculty, the 1946 full summer semester will begin with freshman period and registration May 31-June 1, and will close with final examinations Sept. 11-14. The 8-week summer session will begin with registration June 21-22 and close on August 16.

The first semester of the 1946-47 school year will begin with freshman periods Sept. 17-21 and registration Sept. 19-21, closing with final examinations Jan. 13-18, and the second semester will open on Jan. 21-22 and end with final examinations May 14-20.



## Regents Start -

(Continue from Page One)

will be constructed by the Wisconsin University Building Corp., a private non-profit corporation of state and University officials created some years ago for construction of University buildings, such as the fieldhouse and stadium, which can be amortized over a period of years from their own earnings.

A construction fund of \$2,080,000 needed for the building of the dormitories will be borrowed from the State Annuity and Investment Board on a 30 to 50 year amortization agreement at 3 per cent interest. The loan will be amortized by room and board income from the dormitories.

The women's dormitories will be located east of Elizabeth Waters hall on the hillside between the lake and the Carillon tower. The new men's dorms will be located near the present dormitory units west of Van Hise hall and south of Adams hall.

The three new classroom-laboratory-research buildings for which funds were allocated by the Regents, in addition to fire-proofing Bascom hall, are the first wing of the library, the Dairy building, and the new wing to the Home Economics building. The Regents allotted a total of \$3,030,000 from the legislature's postwar building appropriation of \$8,000,000 for these four projects, all previously approved.

These allotments are for fire-proofing of Bascom hall, \$200,000;

the first wing of the new Memorial library on the lower campus at Langdon and N. Lake sts., \$1,950,000; the new dairy building, \$600,000; and the addition to the home economics building, \$280,000.

Allotment of funds for these four building projects carries further into effect part of the construction program provided by the 1945 legislature for the University. Remaining parts of the program are under steady consideration by the Campus Planning Commission and the Constructional Development committee.

The 100 trailers, which will be in addition to the 91 now at Randall Park, will be located on the women's intramural athletic field east of the fieldhouse and stadium. The area is bounded by Monroe st. on the west, Randall ave. on the east, and the wooded area of Memorial park on the north. The new trailer camp will extend into the level area of Memorial park along Monroe st.

The new trailers will be brought here from Kingston, Ind., and are being leased from the Federal Public Housing administration. The area will be leased for one year to the Wisconsin University Building Corp., which will install the trailers, the roads, and the utilities.

A. W. Peterson, director of business and finance, told the regents that the University administration is working on methods for financing of a new dormitory for married veteran students to replace the trailer camps, but that nothing definite has been completed yet. Location most promi-

nently discussed for the dormitories is the present site of the poultry buildings on University ave.

Need for more housing was stressed by Pres. Fred who declared that the freshmen class this year is the largest in University history, totalling 3,318 students.

The regents approved locations for the new Agriculture Short Course dormitory and Forum hall, for which the 1941 legislature appropriated \$200,000, and for the new Bacteriology building.

The short course dorms will be located in the northeast corner of the men's intramural athletic field, between Kronshage hall and the residence of the dean of the college of agriculture.

The Bacteriology building will be on the present parking lot north of the west wing of the bio-chemistry building. Construction of the bacteriology building, as well as a wing on the Biology building, has been approved by the regents, but money has not yet been allocated from the post-war building fund.

Locations of all buildings and allocation of funds from the post-war building appropriation are presented to the Regents by the Board's Construction and Development committee on recommendation of the Campus Planning Commission.

Also on recommendation of the commission the Regents approved a plan whereby all accumulated library fees will be used for purchase of equipment for the new Memorial library. It is estimated these fees will total \$165,000 by July 1, 1946.

## Alumni Strength Gauges University's Greatness

A great university must have a strong alumni association if it is to continue to be great. Conversely, a forceful alumni association, large in numbers and strong in influence, is the product of a great university. The two necessarily must go together. They cannot be separated.

Other great institutions, like Princeton, Yale, Harvard, and Michigan, have large, enthusiastic and active general alumni associations. Strong local units, from coast to coast, are important forces which further the interests of the respective universities.

During the course of the next few years, the eyes of the nation will be focused on the University of Wisconsin, because it is destined to be one of the truly great universities in the United States. It follows, inevitably, that such a position means also that Wisconsin will take its rightful place among the highly regarded institutions of the entire world, for the reason that most of the great colleges and universities today are in America. As rapidly as possible, a program is being carried out which will place our University on the highest possible plane. Under the able leadership of our president, Dr. Edwin B. Fred, and with the cooperation of one of the most active and interested Board of Regents that the University ever has had, Wisconsin will enjoy, in the next four years, the greatest development and advancement that has occurred in any similar period in its history.

To make this development program completely effective, we must have a large group of interested, active alumni to cooperate with the University authorities and to lend assistance in every possible way.

First and foremost, in order that a university may achieve greatness, it must be outstanding from a purely educational point of view. The University of Wisconsin always has had that distinction. Educational leaders have been identified with every department of the institution. At the present time, new courses of study are being initiated and important changes in and additions to the faculty continually are being made. Young and enthusiastic instructors, who left the University for one reason or another during the recent uncertain years, are returning to its staff.

Another important consideration, in measuring the greatness of a university, is the position which it occupies in the fields of research. The world knows Wisconsin's record of accomplishment in research, along both scientific and practical lines. It is unnecessary, here, to discuss the details of its record in the fields of agriculture, biological chemistry and medicine. The fact that President Fred is an educational leader and an eminent influence in the fields of research will attract leading educators and valuable research men to Wisconsin. Consequently, we may be assured that our University will maintain a position of leadership in the fields of education and research.

In order to be great, a university cannot remain aloof from business and industry. If it attempts to withdraw itself from these important influences which make up the life of the community, it will find its greatness slipping away. There has been a tendency, on the part of certain departments of the University of Wisconsin, to withdraw themselves from the business and industrial activities which they ought to serve. On the other hand, our College of Agriculture has worked with and for the agricultural and dairying interests of the State of Wisconsin to the fullest possible extent. The result is that Wisconsin has the reputation of being the greatest dairy state in the Union, and the College of Agriculture is recognized as outstanding.

Through the close cooperative efforts of President Fred, the Board of Regents, the deans of all divisions of the University, and interested alumni, the University of Wisconsin recently has instituted a program of much closer cooperation with all phases of business and industrial enterprise, particularly small businessmen and small manufacturers. The University is extending a helping hand and assuming an attitude of service, encouraging business and industry, as well as agriculture, to bring their problems to the University for solutions and recommendations.

We must have the help of all alumni, particularly those residing in Wisconsin, to bring the business and industry of our State closer to our great State University. Alumni, industry, and the University must go forward hand in hand. Nothing can be achieved by proceeding independently.

During the past year, a small group of loyal alumni, cooperating with President Fred and the Board of Regents, has been working on a program of proposed improvements of the University campus. New buildings which are proposed will make Wisconsin the most beautiful university in the country. The enlarged campus, with magnificent buildings on the "hill" and beyond it, flanked on one side by lovely Lake Mendota and on the other by tree-lined streets, will surpass anything of its kind, anywhere in the world. The complete program will involve the construction of an auditorium, a museum and cultural buildings which will extend the University's service to and influence the community. Included also in the planning, is an imposing Memorial Building which will be a shrine to the memory of the men and women of the University who



JOSEPH CUTTER

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## Honored ---

(Continued from Page One)

industrialists, paid tribute to the distinguished Regent at the dinner, held at the North Shore Country club at Neenah.

Mr. Sensenbrenner received special praise for his support of the University policy which is expressed in the phrase—"the boundaries of the University are the boundaries of the state"—the policy of University faculty and research serving not only an educational purpose but also serving agriculture, business, industry, and homelife of the state of Wisconsin.

Since resigning as chairman of the board of directors of Kimberly-Clark Corporation, Mr. Sensenbrenner has devoted his energy toward the improvement of the colleges and universities of Wisconsin, especially the State University.

The Regent president has the four essential qualifications for a regent: successful accomplishment, regard for scholarship, social vision, and a determination for greater service to the state by the University," declared Frank O. Holt, University director of public service. "The objective is the largest effective service that teaching and research can bring to the people of the state."

M. J. Cleary, Milwaukee, President of the Northwestern Mutual Life Insurance Co., and a regent, said "we are fortunate in having such a man of practical experience as counsel on the new building program."

"The pioneering spirit always evident at the University of Wisconsin will be continued," said George I. Haight, Chicago attorney and Wisconsin alumnus. Speaking for the Wisconsin Alumni Association, John Berge, its secretary, presented a certificate to Mr. Sensenbrenner in appreciation for "distinguished, unwavering loyalty and excellent leadership."

## State Water---

(Continued from Page One)

the water drops in the wells increased pumping costs become very evident. We believe this is a good time to start an investigation — before an emergency is encountered."

The study will entail charting existing water tables in Wisconsin, and the quantity of water being tapped from each.

"We don't know if recharge waters are balancing the outgo, or whether we are drawing more than is going into these regions or localities," Bean said. "In addition, we must find if the lowering of the water table is a local matter — whether the wells are responsible or whether it is regional. These are

died in our country's wars. The funds to pay for these buildings will be contributed by alumni, friends of the University, and business concerns. Additional buildings, containing classrooms and laboratories, will be built with money provided by the State Legislature. The entire program should be completed in a period of ten years.

It is apparent that a large organization of loyal and active alumni can be an effective moving force in bringing these programs of advancement to complete fulfillment. Definite progress has been made, in recent years, in interesting more and more alumni in working for the betterment of our University. In fact, there probably never has been a period in our history when alumni were so enthusiastic about the University and its future. Today, there are more alumni devoting their time—and, yes, their money—to these activities than ever before.

How can alumni be of service? The first, and probably most important step, is to join the Wisconsin Alumni Association and to become active in its work. It is important that local units, University of Wisconsin Clubs, be formed in every important area, from coast to coast. As the Association grows, it will be possible to extend the services which it renders. For example, more literature now is going out from the alumni headquarters in Madison than ever before. To promote further interest and to correlate the activities of the Association, it is hoped that arrangements soon can be made for a representative from the University to make annual visits to the local groups throughout the country.

Plans for the Centennial Celebration, in 1948, now are under way. In order to make the program a complete success, cooperation between the Wisconsin Alumni Association and the University administration is necessary, to the highest degree. **YOUR MEMBERSHIP** in the Association and your active interest is needed! Won't you join, right now?

## Lower Campus

(Continued from Page One)

Hagenah said, "that has done more in the fields of human relations, in the social and economic spheres, nor one that has a more impressive future. Other schools look upon Wisconsin as the laboratory of advanced social and economic thought.

"But it is now crowded and wanting to break over—when a city is approaching metropolitan status there is an area, a fringe, where the old straggler to preserve itself and the new is struggling for assertion," he said.

"This area is now crowded and compressed, with danger of fire and improper facilities," Hagenah continued. "There has been a failure of the legislatures and the people of Wisconsin to understand the problems of the University—and the time has come for such an understanding. There is an outlet needed, both in physical space and cultural activities, which the University does not have."

"Here is an opportunity to make a leader of both the University and of Madison—for Madison does not belong to itself, but, with the University, belongs to the entire state," he added.

The center for "continued study," as it is now known, to be located near the corner of Langdon and Lake streets, and toward Lake Mendota, would in addition to improving a center for research and study of the state's industry and agriculture, serve to accommodate the conventions and meetings of the groups which look to the University for help in the solution to their problems.

"It would be the link that binds the industry of the state to the University," Hagenah said. "You well know the position it could play. I know of no institute that

## Enrolment ---

(Continued from Page One)

be seen that the current campus population of approximately 9,200 is far above wartime registrations and approaching normal peacetime enrollment. Students attending the State University are expected to reach 15,000 or more within the next few years.

At present there are 1,136 students enrolled in the engineering courses on the campus, 7,779 in the regular University classes, and 130 in the special eight-weeks session. This total of 9,045 is increased another 164 by Navy engineers and medical students, bringing the Wisconsin enrollment to its highest peak since the 1941-42 school year.

important facts for both the people of Wisconsin and for the state's industry."

Officers and directors of the group which has undertaken this responsibility include George I. Haight, Chicago, chairman of the board; Howard I. Potter, Chicago, president; Harry A. Bullis, Minneapolis, vice-president; William S. Kies, New York, vice-president; George B. Luhman, Milwaukee, vice-president and treasurer; Ray M. Stroud, Madison, secretary, and Howard T. Greene, Genesee Depot; T. J. Sensenbrenner, Neenah; Herman L. Ekern, Madison; Clayton F. Van Pelt, Fond du Lac; A. J. Horlick, Racine; Glen V. Rork, Eau Claire; M. J. Cleary, Milwaukee; Walter J. Hodgkins, Ashland; William J. Hagenah, Chicago; Robert A. Uihlein, Milwaukee; Lieut. Gov. Oscar Rennebohm, Madison; Reuben N. Trane, La Crosse; William D. Hoard, Jr., Fort Atkinson, and John Berge, Madison. Many other distinguished men are associated with these officers and directors in the work of the foundation which was organized earlier this year.

The new plan is in several respects different from the general plan which was accepted in principle by the Regents, and which provided a new library to be located on Lake st. directly opposite the present State Historical library, and, in addition, is much more extensive. It is not anticipated, of course, that the new plan will take precedence immediately over the old. It is, as Pres. Edwin B. Fred stated, a "long-range" plan.

The University already owns or controls a large part of the area already described. It is planned, according to Pres. Fred, that the entire project will be determined with two thoughts first in mind—that of convenience in building location, and efficiency without changing the beauty of the campus.

Joseph A. Cutter, '09,  
Vice President, Wisconsin  
Alumni Association

## Living Memorials --

(Continued from Page One)

University Board of Regents, and administrator of the University's trust funds along with Business and Finance Director, A. W. Peterson, under the supervision of the University's governing Board of Regents.

Including grants from groups and organizations, there have been hundreds of gifts and bequests given to the University by public-spirited citizens since James T. Lewis, a former governor of the state, gave the University its first gift, a \$100 government bond, way back in 1865. The gifts range from a few dollars upwards to the two and a half million mark.

The largest bequest was disclosed only recently when the will of the late Kemper K. Knapp of Chicago was filed for probate. Knapp, an alumnus and corporation lawyer, left the bulk of his estate to the University. Its exact size has not been determined, but cautious estimates put its value at about \$2,500,000.

Knapp, who took his law degree at the University in 1882, died in 1944 at the age of 83. He was a law partner of the late Judge Elbert H. Gary before Gary became chairman of the board of the United States Steel Co., and headed the firm thereafter. He received the honorary degree of laws from the University in 1930, and before his death made student aid gifts totaling \$25,000.

\* \* \*

The only comparable bequest was made by the late Col. William Freeman Vilas, one of the state's most distinguished citizens. Vilas, who became professor of law at the University at the age of 28, amassed a fortune in lumber operations and became United States postmaster general, secretary of the interior and a United States senator. When he died in 1908, he left a will under which his entire estate, then valued at \$1,812,293, was to go to the University upon the death of his immediate heirs, who were to receive life incomes. The estate is now valued at about \$3,500,000.

Vilas' will was widely publicized. One of those who read accounts of it was J. Stephens Tripp, a banker at Prairie du Sac. Impressed with Vilas' benevolence, he went to Madison and spent a day tramping about the campus. None of the University officials knew he was there. He had no known connection with the University.

When Tripp died in 1915 at the age of 87, it was discovered that he had left his entire estate of \$595,000, aside from a few small bequests, to the University. No strings were attached.

The bequest was the largest ever received up to that time in full by the University. Out of the estate which included many property holdings, the University has taken \$510,000 in cash for a freshman dormitory, for Tripp commons in the Memorial Union, and a scholarship. The remaining \$85,000 was in assets which were considered to be on the "questionable" side not many years ago. But with those "questionable" holdings, the University has been able to strike deals through which it has acquired \$3,000,000 of land. Much of the land has been used for the University's huge arboretum project in conservation and wild life study. The land adjoins the campus in Madison.

\* \* \*

At the close of the last fiscal year the general trust fund held assets totaling \$1,376,141. In addition, about \$4,000,000 in funds benefiting the University are in the hands of private trustees.

The funds in the hands of private trustees which benefit the University of Wisconsin include the Vilas estate, the Jennie Bowman Cancer Research Fund, and the Thomas E. Brittingham estate.

The Brittingham estate has financed a wide range of activity. Brittingham, a Madison businessman and former regent who died in 1924, left a fund of \$200,000 for the University, to which his widow subsequently added \$50,000.

In addition, Mrs. Thomas E. Brittingham left \$10,000 for research in internal medicine. Some of this has been used for cancer research.

Cancer research has been fostered also by a \$450,000 bequest made by Miss Jennie Bowman, who died in 1934. Miss Bowman was a member of a pioneer Wisconsin Dells family.

\* \* \*

Benefactions have raised many

of the impressive buildings on the campus, in addition to the McArdle laboratory and Tripp hall.

Small gifts from alumni, students and others built the Memorial Union. Only a few of the contributions were larger than \$1,000. The Memorial Union has cost \$2,461,953, of which only \$440,000 represents borrowed money still unpaid. Gifts from graduating classes, supplemented by a small PWA grant, paid for the \$42,827 carillon tower, dedicated in 1936.

The Washburn Observatory was a gift of the late Gov. Cadwallader C. Washburn. It was completed in 1878, but was later enlarged, and its cost was \$40,000, in addition to \$31,400 which Washburn spent for its equipment. The Bradley Memorial hospital and student infirmary was built with \$75,000 contributed by Dr. Harold Bradley, \$25,000 by the late Thomas E. Brittingham and \$25,000 by the late Carl A. Johnson, all Madison residents.

The Wisconsin Utilities association gave the University \$33,650 to build and equip the home economics practice cottage. The infantile paralysis house on the campus was constructed with \$15,000 given by Wisconsin Alumni Research Foundation.

Some of the moneys which have come directly to the University from individuals and organizations have been preserved intact, except for use of some of the income they yield. The business manager's reports indicate consistent increases in their value under the regent committee's management. The University's first gift—the \$100 bond which the late Gov. Lewis contributed—now amounts to \$891, for example, although income has been used to purchase scholarship medals. Other funds are spent soon after their receipt, as determined by the wishes of the donors and the needs of the University.

\* \* \*

Occasionally a gift multiplies almost magically before it is spent. One such case was a bequest made by M. W. McArdle, president of the Chicago Flexible Shaft Co., and owner of a Door county resort. When McArdle died in 1935, he left the University a fund for cancer research, estimated to be worth \$10,000, plus one-fifth of the residue that accumulated in the settling of his estate. In that period the value of Chicago Flexible Shaft stock held by the estate increased from \$5 to \$49 a share by the time it was turned over to the University in 1936. The University held the stock for four years, selling it in 1940 for from \$70 to \$77.25 a share. As a result, the University received \$136,582.56 from the estate, including interest and dividends, and which, together with a public works administration grant, was used to construct the \$240,000 Michael W. McArdle Memorial building where very valuable cancer research work is now conducted on the campus.

The University has had many financial benefactors among the men and women on its faculty. Regents also have made gifts and bequests.

The late Charles Kendall Adams, president of the University from 1892 to 1901, left his entire estate to the institution, subject only to a life interest for his wife.

His will provided for the eventual establishment of 15 fellowships. Thus far seven have been created of \$10,000 each, with more to be set up as the residue increases.

When the estate was closed the fund amounted to \$30,000. It now amounts to about \$90,000. The fellowships are in English, Greek and history.

Faculty members who left bequests include Stephen Moulton Babcock, inventor of the butterfat test now standard in the dairy industry; William B. Cairns of the English department; R. H. Whitbeck, professor of geography; F. L. Musbach, who had charge of the University's soils stations and lived at Marshfield; J. J. Davis, former Beloit physician and curator of the herbarium; Katherine Allen, assistant professor of Latin, and Edward Kremers of the school of pharmacy, and Benjamin "Benjie" Snow, of the physics department.

**DO YOU KNOW THAT—**

During the ten-year period from 1935 to 1945, farmers in the central light soils area of Wisconsin planted approximately 15 million trees in shelterbelts for wind erosion control and snow traps.

## Rundell Named Law School Dean of University

Oliver S. Rundell, for 35 years a member of the University of Wisconsin Law faculty, is the new dean of the Law school at the State University.

Appointment of Prof. Rundell as dean of the Law school was ap-

proved by the University Board of Regents on recommendation of Pres. Edwin B. Fred. During his many years of service on the State University's law faculty, Rundell has become known to thousands of Wisconsin law students, alumni and lawyers of the state. Among his many friends and colleagues, he is known familiarly as "Judge."

A committee appointed by the president of the State Bar Association to recommend a Law School dean reported: "... We are so favorably impressed by Acting Dean Oliver S. Rundell that we wish to individually urge his appointment as Dean."

The committee's letter continues: "Prof. Rundell has been Acting Dean on two occasions. He has had experience in the administration of our Law School. He has an intimate knowledge of the present faculty, its capabilities and weaknesses. He is acquainted in Wisconsin and with the Wisconsin Bar. He has spent his life in this state. He has the respect of the Bar. He has hundreds of old students practicing law in Wisconsin who have a real affection for him and would rejoice in this recognition of his ability and his faithful service. He has an excellent reputation in his profession—teaching law. He is an excellent teacher. He has an excellent reputation all over this country in his particular field—property law. We believe that from every standpoint he is the man who best meets our needs."

Rundell succeeds Lloyd K. Garrison as dean of the Law school. Resignation of Garrison, who is now serving as a member of the War Labor Board in Washington, and its acceptance, were announced recently by Pres. Fred. Garrison had decided to remain in the East where he came from when he was named dean of Wisconsin's Law School in 1932.

The deanship of Wisconsin's Law School is no new position to Prof. Rundell, since he served as acting dean from 1929 to 1933, and again since 1943 when Garrison began his leave of absence to serve the federal government with the War Labor Board.

Dean Rundell was born Oct. 6, 1881, at Rewey, Wis., and was graduated from the state normal school at Platteville in 1905, receiving his law degree from Wisconsin in 1910. He taught in Wisconsin schools at Osseo and Lyons prior to receiving his law degree, and following his admission to the state bar in 1910 he practiced law at Monroe, where he served as city attorney in 1913-14.

He also began his teaching career in law at the University as an instructor in 1910, became an assistant professor in 1914, and associate professor in 1916, and has been full professor of law since 1918. He was acting professor of law at the University of Chicago in 1924-25; at the University of Michigan in 1940-41; and served as adviser to the reporter for the subject of property of the American Law Institute from 1926 to 1936 and since 1940, to the associate reporter for property from 1936 to 1939 and since 1941, and adviser to the associate reporter for torts from 1934 to 1939.

Dean Rundell is a member of the American, Wisconsin, and Dane county bar associations; American Law Institute; American Association of University Professors, and is the author of a volume on "Cases and Materials on Rights in Land."

## U. W. Medical School Given Navy Award

A Certificate of Commendation has been presented to the University of Wisconsin Medical School by the United States Navy for the school's outstanding contribution to the war effort and to medical education, it was revealed by Pres. Edwin B. Fred of the State University.

Wisconsin's Medical School has been a training center for medical students for the Navy as well as the Army during the war years, and has graduated 161 men for the Navy and Army.

The Navy Certificate of Commendation was extended to the Wisconsin Medical School by Vice Admiral Ross T. McIntire, surgeon general of the Navy.

In a letter accompanying presentation of the Certificate to Dr. Walter J. Meek, who served as acting dean of the Medical School during the war years while Dean Middleton was on leave in war service, Admiral McIntire declared:

"The Bureau of Medicine and Surgery wishes to take this opportunity to congratulate you and the members of your faculty for your outstanding contribution to the war effort and to medical education. It has realized the extreme difficulties and obstacles that had to be overcome in accelerating instruction and changing methods in teaching with a faculty depleted by demands of the Services. The Medical Department of the Navy greatly appreciates your continuous cooperation and assistance in all matters of vital importance to this Bureau. I am proud to present to you a Certificate of Commendation. I want you to know that the personnel of the Medical Department of the Navy joins me in expressing sincere appreciation of your splendid cooperation and assistance in handling our medical personnel war problem."

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## Wisconsin Alumni Mag Wins National Award

Winning in nationwide competition among hundreds of alumni magazines, the Wisconsin Alumnus was recently awarded the 1945 Alumni Council Award for the best editorial page. The Wisconsin Alumnus, official monthly publication of the Wisconsin Alumni Association, was chosen for its editorials which are planned and written by John Berge, executive secretary of the association. These editorials ranged in subject matter from the encouragement of alumni support of the University of Wisconsin building program, to the welcome of spring graduates of the University into the Alumni Association. Over 400 universities and colleges throughout the country, including the largest schools in the nation, submitted their magazines to the American Alumni Council competition.

**Sarles Named Assistant to Pres. Edwin B. Fred**

Appointment of Dr. William B. Sarles, associate professor of agricultural bacteriology, as a half-time assistant to Pres. Edwin B. Fred, was approved by the University of Wisconsin Board of Regents at its recent meeting. His new appointment, requested by Pres. Fred, also includes promotion to a full professorship.

Prof. Sarles is a native of Wisconsin, born in Viroqua in 1906. He received his bachelor and master of science degrees from the State University in 1926-27, and his doctor of philosophy degree in 1931.

He was an instructor in agricultural bacteriology at Kansas State college in 1927-29; dairy bacteriologist in the department of dairy industry at Iowa State college in 1930-32; and has served on the agricultural bacteriology staff at Wisconsin since 1932, with an associate professorship since 1937.

He is a member of the American Society of Bacteriologists and the Wisconsin Academy of Science, and has worked in the fields of sterilization of dairy equipment,

## Radar --

(Continue from Page One)

sors are natives of the state and graduates of the University. Prof. Herb was born at Navarino and took his B. A. at Wisconsin in 1931 and his Ph. D. in 1935.

Although Prof. Rollefon was born in Chicago, his family moved later to Superior, Wis., where Rollefon graduated from high school and the State Normal school. He acquired a B. A. at Wisconsin in 1926, an M. A. in 1927, and a Ph.D. in 1930.

Prof. Whitford was born at Milton, Wis., and graduated from Milton College in 1926. In 1928 he took an M. A. at Wisconsin and four years later a Ph.D. Prof. Guerlac was born at Ithaca, N. Y., and in 1932 took a B. A. at Cornell, in 1939 an M. S. at Harvard, and in 1941 a Ph. D. also at Harvard.

In 1940 the British brought to this country the story of their latest developments in radar, particularly of the cavity magnetron, which made micro-wave radar practical for the first time. The opening up of the micro-wave region (radar working on higher frequencies), revolutionized the techniques and extended the applications of radar equipment.

The Radiation Laboratory recruited the best physicists in the country, an estimated 20 per cent of the nation's top-rank men for the job of intensive research. The Laboratory operated under contract with the Office of Scientific Research and Development, supervised by the Radar Division of the National Defense Research Commission. On November 11, 1940, the new group got its first specific assignment: design of an improved night-fighter radar.

Early in the testing of the night-fighter radar, Laboratory workers noticed that the set had many unsuspected advantages over previously known sets in spotting ships on the surface of the sea. So work was begun on a "sea-search" modification of the night-fighter set.

The Laboratory had also begun work on a radar set that could follow aircraft with sufficient accuracy to permit effective blind anti-aircraft fire. This set turned out to be one of the most useful radar sets of the war. It was used for control of aircraft, for shooting down buzz-bombs, and for other purposes. Finally the Laboratory began to redesign radar's basic parts to produce wavelengths even shorter than the British had achieved.

In the summer of 1942 the Laboratory's "sea-search" radar was patrolling the Atlantic in U. S. and British planes. The sets are credited with 50 per cent of the U-boat detections in the Atlantic. During 1943 a Laboratory branch was established in England, to provide closer liaison with the British.

The Radiation Laboratory developed a mobile radar equipment to track enemy aircraft automatically and to aim anti-aircraft guns, and in February of 1944 the equipment was used successfully on the Anzio beachhead. Many sets were used in England to protect the vast stores of equipment, and to defend London and the coast of England from buzz-bombs. They were used on D-Day to repel enemy aircraft.

Another gadget known as the GCA or Ground Controlled Approach was invented to enable planes to land with very low ceilings. "Mickey" sets were devised to permit bombing of targets by radar. The bombing efforts of the 8th AF became dependent to a high degree on radar, and the "Mickies" were used later by the 15th AAF in the Mediterranean theater and in the pre-invasion bombing of the French coast. They proved also to be valuable navigational instruments, and allowed bomber formations to thread their way between flak areas while flying to and from the target.

The Laboratory's last major project will be a series of books covering the progress in the field of electronics which wartime radar work has brought. It has been estimated that in the five years of the Radiation Laboratory's existence, the scientists engaged were able to push research in the field ahead by 25 normal peacetime years.

fermentation of cellulose at high temperatures, and root nodule bacteria and leguminous plants.

## U. W. Alumni In Milwaukee Have Varied Program

University of Wisconsin alumni in the Milwaukee area are being offered a full and varied program of events and activities by the Wisconsin Alumni Club of Milwaukee. A folder recently mailed to Milwaukee alumni reveals an expanded year's program for 1945-46.

The club holds monthly luncheon meetings at which outstanding Wisconsin faculty members are guest speakers. H. J. Schwahn is chairman of these meetings. During the football season they held football movie luncheons on the Thursdays following games. End Coach George Fox described the games and showed the movies. Lloyd Larson handled arrangements for these football luncheons.

Largest of the club's social activities is their annual Founders' Day dinner which is held in February, and which this year will mark the University's 97th anniversary. Erwin Zentner, chairman of this Founders' Day meeting, has announced that a prominent University alumnus will be the guest speaker.

A traditional party on the Milwaukee yearly calendar is the Suds party which will be held on Dec. 11. Both alumni and alumnae are invited to this affair which will be held in the Pabst Blue Ribbon hall, under the chairmanship of Einar Gaustad.

The Women's group of the Milwaukee Alumni club has regular monthly luncheon meetings on the second Saturday of each month at the Pfister hotel. The group also plans special events including a tea to welcome recent graduates, bridge parties, theater parties and lectures. Chairman of this group is Mary Louise Freyermuth.

Projects sponsored by the Milwaukee club which are designed to benefit the University on the whole and to reflect University support by all Milwaukee alumni include the scholarship fund and the University relations committee.

Seventy-five cents of each member's dues are automatically placed in the Milwaukee alumni club Scholarship Fund in Madison. Loans from this total are available to any worthy students from the Milwaukee area who are upper-classmen at the University of Wisconsin. Ernest Rice is chairman of the committee handling the fund for the club.

The Milwaukee Alumni club meets with University leaders to plan how the University of Wisconsin may render a greater service to the State and to Milwaukee in this post-war world. Cooperation and loyal support from the alumni make this aim possible.

This full and varied schedule is a good example of the type of yearly program which can be worked out by alumni clubs all over the state and the country. Ray E. Meyers is president of the Milwaukee club.

## War Records --

(Continued from Page One)

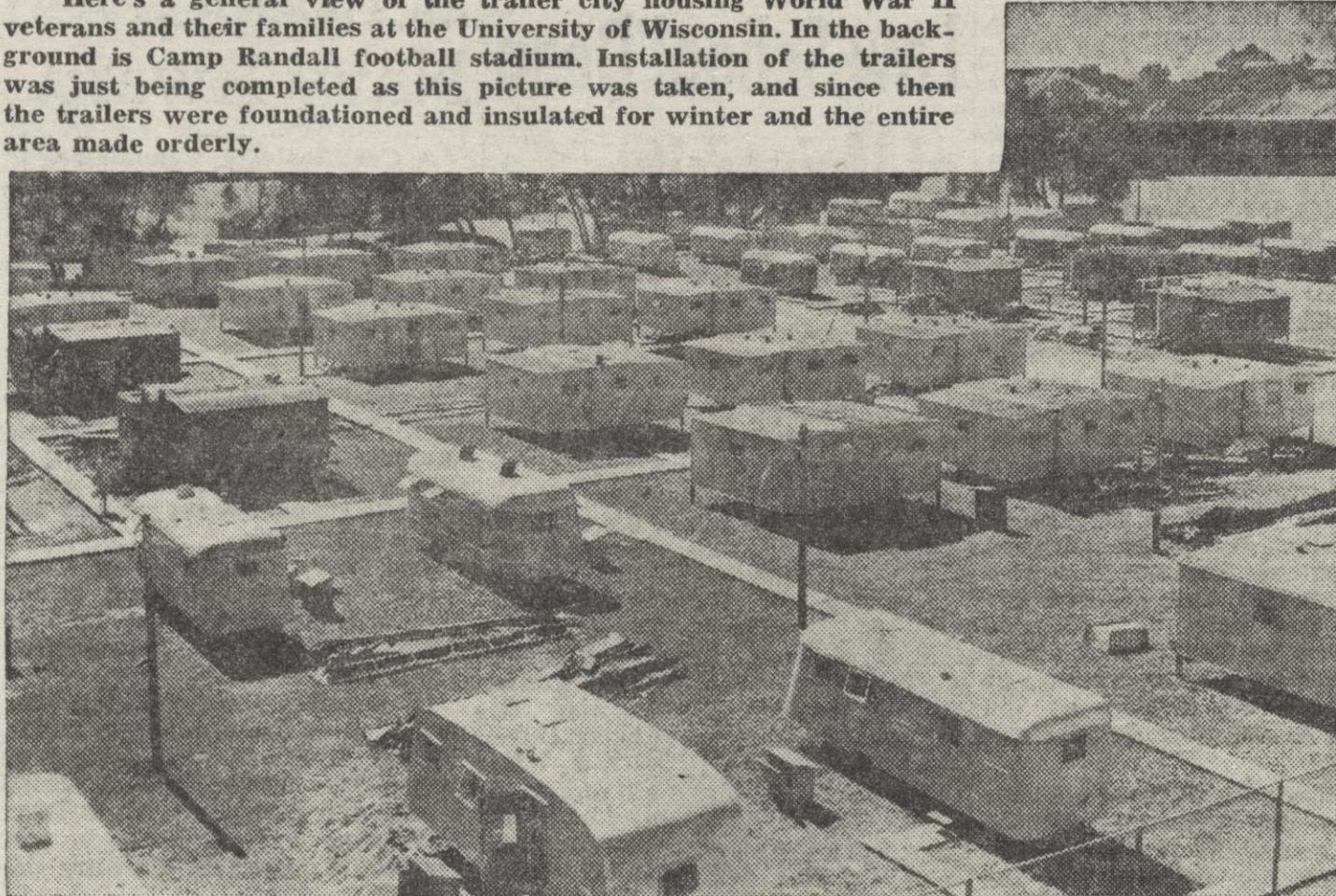
consin Alumni association or the War Records department, Memorial Union, Madison 6, will be greatly appreciated. Factual information, news releases, clippings, pictures and stories of experiences are of particular importance.

The possibility that the University of Wisconsin may publish a directory of all Fighting Badgers and their service records is one now under discussion. In order that the military files may be complete both for the record and in the event that a directory is published, each serviceman and woman who has ever attended the University of Wisconsin is asked to submit his or her personal information.

If any alumnus knows the name of a Fighting Badger whose name is not now included in the file of the War Records department, this name should be submitted to the department as soon as possible.

## Veterans' City, Home Life at Wisconsin U.

Here's a general view of the trailer city housing World War II veterans and their families at the University of Wisconsin. In the background is Camp Randall football stadium. Installation of the trailers was just being completed as this picture was taken, and since then the trailers were foundation and insulated for winter and the entire area made orderly.



A picture of family contentment is offered by this group in a corner of one of the large trailer units. While ex-Air Force Bomber Pilot Gunnar Nilsen peruses one of the physical education texts he uses in his studies, Mrs. Nilsen feeds 8-months-old Gail.

## From World War II to Wisconsin's Campus: 1,200 Vets Doing Another Good Job Now

To the veterans returning to American campuses, college means two things—a chance to get back into the civilian swing of things without immediately bucking swift commercial currents, and more important, seriously going about getting that education which has now become such an important factor in finding good employment and living a full life.

This attitude, of course, has made some great changes in the "college" life on campuses over the nation. At the University of Wisconsin, for example, many steps have been taken which are designed to be helpful to the veteran. The general scolastic attainment of veterans has been above the average, and in instances where former students have returned, a decided uplift in interest and attainment in college work has been shown. It is due largely to the maturing influence of their military experience.

Other than this, however, veterans have shown themselves to be no different than the regular run of students—they mix freely, go to the same classes, indulge in the same entertainments, and sink almost immediately into the campus life—but, inevitably, of course, lending to it a great deal of their newfound interest and sense of the importance of their work.

\* \* \*

To help veterans make the difficult transition from the rigors of war to the peace for which they fought, the University of Wisconsin has thoroughly oiled the gears of its educational machinery and added new parts to increase the efficiency of its services to the veterans of World War II. At the present time more than 1,200 veterans are enrolled in classes at Wisconsin's University.

Chosen as one of the first three vocational and educational centers to be established for veterans in the nation, the University has so far set up an 11-point program to assist veterans in their pursuit of an education. The University of Wisconsin has:

1. Appointed some 40 faculty advisors thoroughly informed on veteran's agencies, federal and state legislation affecting the veteran, and the methods best suited to help him adjust to civil life, to give guidance and occupational diagnosis to veterans. The veteran is encouraged to take basic vocational aptitude and intelligence tests to determine the course best suited to his talents and his ambitions.

2. Set up refresher courses for men who need re-training in the fundamentals of subjects they have studied but may have forgotten during their years of service. These include general refresher courses as well as specialized refresher courses in the Medical and Law schools.

3. Gave the veteran permission to take a light schedule until such time as he feels capable of taking a full educational load.

4. Waived the required grade point average of 1.3 usually required of students entering the Law School without a bachelor's degree.

5. Established an eight-week term to run concurrently with the last half of this semester, to enable veterans returning to the campus too late to enroll in the regular classes to get started on their education.

6. Waived the customary fines for late registration in the case of veterans who are prevented

from enrolling on regular registration dates by reason of late discharge from service.

7. Temporarily solved the housing shortage for the veteran by setting up a trailer village in Camp Randall, conveniently adjacent to the campus. In addition to the 91 trailers now set up at Randall Park, more than 100 trailers will soon be moved into the area to house additional veterans. These are all made available to veterans on a pure cost basis. Arrangements are also under way with the FHA to house veterans at Badger village near Baraboo with transportation provided to and from Madison.

8. Extended University extension course to hospitalized veterans throughout the country through the Armed Forces Institute.

9. Set up a separate fund for Wisconsin veterans in which is placed all fees collected in excess of the regular Wisconsin resident fee. Under the G. I. Bill of Rights, the federal government pays the full cost of veteran's tuition, which approximates the out-of-state tuition fee charged students. Should the cost of the veterans' tuition be deducted from any future bonuses declared by the federal government, the University thus stands ready to reimburse the Wisconsin veteran the amount in excess of the regular in-state fee.

10. Special efforts are made to insure disabled veterans a job after graduation.

11. Voted a credit bonus towards credits required for graduation, of 15 elective credits for both enlisted men and officers, to veterans of the United States and its Allies.

The "refresher courses" are the

only instruction given veterans which differ from usual classroom work. They are designed to give the veteran a chance to "bone up" on technical material which he may have studied in past years but which he may largely have forgotten by the time he finds his way back to the campus. In addition, the University has offered vocational aptitude tests which any veteran may take and which give an indication where his abilities and interests lie.

\* \* \*

The veterans are given more consideration, during their first few semesters on the campus because of adjustment difficulties toward studies, than regular students, but the University has in no way lowered its standards to accommodate them. It is realized that it is quite a jump from a bomber to a classroom, and for this reason veterans are given a few more semesters to get into the "groove" than other students coming to the University.

The only example visible on the Wisconsin campus of veterans living a life removed from the usual student life is the Camp Randall Trailer camp, in which, due to housing shortages, married veterans and their families live in an attractive group of trailers.

The University of Wisconsin was the first college to set up a trailer camp. Since the construction of permanent housing has not been possible during the war there was no way to turn except to some type of temporary housing. Almost every university has become interested in the Wisconsin plan and many have followed in the idea of trailer camps.

\* \* \*

The first unit of trailers numbering 91 for married veterans are all rented and the University is now setting up 100 additional units, to be ready for the second semester. Pres. Edwin B. Fred and University officials realized in July, 1945, that quick action would be necessary to meet the housing need for the fall term. The trailer camp was possible through the cooperation of the Federal Public Housing authority and state officials.

The cost of moving, renovating, and repairing the trailers as well as the cost of installing sanitation, water mains, walks, street lights, roads, electrical wiring, and of replacing some of the furniture amounted to approximately \$300 per unit or a total of \$27,400. The FHA agreed to lease the trailers at a nominal fee of one dollar per unit per year.

The State Emergency Board underwrote the cost of installation, but the University is expected to amortize the amount as far as possible. It is estimated that about \$9 per month of the \$25 rent will be used for amortization and that the cost of utilities will amount to about \$16 per month. Thus, the G. I. is paying only for the cost of operation and his share of the amortization.

The veterans living in the Randall camp even have their own government—the first mayor is Clifford J. Hicks, of Wauwatosa, Wis., who until last August was a second lieutenant in the U. S. Army. Hicks attended the University in 1939-41, and during his army career participated in the bitter fighting at Anzio, entered Rome, and took part in the Southern France engagements. Wounded after 14 months overseas, he was taken prisoner and held for four months by the Germans.

\* \* \*

The newly-formed government of the trailer camp holds weekly meetings, at which all the veteran families can gather to plan social affairs and community projects.

The trailers, located adjacent to picturesque and historic Camp Randall, are equipped with the most modern of furnishings, including studio couches, electric stoves, ice boxes, and attractive furniture. Monthly rental rates for the standard units are \$25, and for the expandable units—"three room" trailers with kitchene—\$32.50, on a bare cost basis only.

Twenty of the families have one child, three others have two; and three veteran's wives are enrolled at the University, thereby assuming the dual responsibility of housekeeping and class attending. Laundry facilities and showers and toilets are centrally located, and water stations and garbage disposal depots are easily accessible.

## These Minnesota Youngsters Help U. W. Scientists Fight Cancer



Kenneth Swanson



Kleve, Meta, and Elva Anderson



Marlys Swanson, Carone and Donna Flan



Beverly, Arlys and James Farden



Joel Johnson Richard Witsoe

### Give Play, Send Proceeds to Aid Research

A little group of rural youth whose homes are in west central Minnesota have extended a helping hand to University of Wisconsin medical scientists in their fight against cancer, dreaded disease which now ranks second as a killer of mankind, it was revealed recently at a meeting of the State University Board of Regents in Pres. Edwin B. Fred's office in Bascom hall on the Wisconsin campus.

Among gifts and grants tendered to the Regents by President Fred for their acceptance at the meeting was one amounting to \$12 from the Central Little Sauk 4-H

Club of rural route 3, Osakis, Minnesota. Members of this public-spirited club are shown in the pictures surrounding this story.

The gift was recently received by Dr. Harold P. Rusch, director of research at the McArdle Memorial Cancer Research Laboratory at the University, and was transmitted by him and Dean W. S. Middleton of the University Medical School to Pres. Fred and the Regents.

In a letter tendering the gift to Wisconsin's University, Arlys Farden, treasurer of the 4-H club, wrote to Dr. Rusch:

"Our 4-H Club decided to give

a play and send the proceeds to your University for cancer research. Enclosed is a check for \$12.00 for same. Could I please have a receipt for this to keep my book clear?"

Not only the receipt, but the deepest thanks of the University of Wisconsin was sent to Arlys Farden and the members of the Central Little Sauk 4-H Club, Pres. Fred reported. The gift is being added to the dozen other gifts and grants which provide funds with which University of Wisconsin medical scientists are making progress in their research on the dread cancer disease.



Marian Farden Ina Johnson

### Nitric Oxide --

(Continued from Page One)

farms every year—a 90 per cent increase over the amount currently used, according to University agriculture figures.

Known as the Wisconsin process for nitrogen fixation, the method was developed under the direction of Farrington Daniels of the University chemistry department. Daniels was assisted in this work by Nathan Gilbert from 1939 to 1942 and by William G. Hendrickson since 1942. Hendrickson has been in charge of the development since 1944 in Daniels' absence. The fundamental theoretic concept was proposed first by F. G. Cottrell, and the patent applications are held by the Wisconsin Alumni Research Foundation, a non-profit organization.

Practical research was begun suddenly in 1939, with the thought that the process would be of enormous value in case of war because of its potential importance in the manufacture of explosives. If successful, it was realized, the process would replace the electric-arc and the German Haber methods of nitrate production, both very expensive and requiring huge capital investments.

The hurdle facing all nitrogen researchers is the extreme temperature which must be reached before nitrogen will combine with oxygen. Although both gasses are present in the air in large quantities, a temperature of 4200 degrees Fahrenheit must be reached before they will combine to form nitric oxide—and then, even more difficult, to make them stay combined they must be cooled almost instantaneously to at least 2800 degrees.

The only previous method of obtaining such an extremely high temperature was the electric-arc process, in which the air was passed through a high-voltage current leaping across the gap between two electrodes. As can be imagined, this method entails an expenditure of electrical energy that is prohibitive in regions where power is expensive. Norway, where water-power is used to generate electricity cheaply, is the only country where this method has been used with any great degree of success.

The Haber process, developed in Germany, utilizes ammonia as the go-between for the production of nitric oxide, but this method is also costly, and, in addition, the

capital outlay required for the factory is enormous.

At the present time the modified Haber process accounts for approximately 95 per cent of the synthetic nitrate production. But it had become apparent by 1939 that should America become embroiled in a war it would be of tremendous advantage to have a new, inexpensive, and more direct process for the fixation of nitrogen.

Other countries were vitally interested in the Wisconsin experiment also. China, for example, was severely handicapped by lack of facilities to manufacture ammunition.

\* \* \*

The Wisconsin method, once developed, appears deceptively simple. It consists of blowing large quantities of air through a hot bed of refractory pebbles to pre-heat the air, then through an extremely hot gas-fired furnace, and finally through a second pebble bed where the gas is chilled very rapidly and the heat is released and stored for use in pre-heating the incoming air when the flow is re-

versed.

"In effect, the plant is a two-way gas furnace," said Hendrickson. "It was previously impossible to get this extremely high temperature because the flame temperature of fuel gases burning in ordinary air is much less than 4200 degrees.

"By pre-heating the air in a pebble bed, however, we found that the flame temperature of the gas rose to 4200," he said, "and at the same time two other objectives were accomplished—one bed of the furnace was cooled and the opposite one heated, so by periodically reversing the stream of air we could heat the nitrogen and oxygen to the temperature at which they would combine and almost immediately chill the resulting nitric oxide to prevent decomposition.

"In the process the nitric oxide is chilled to 2800 degrees or lower in less than one-tenth of a second," he emphasized. "That is a chilling rate of 100,000 degrees per second."

\* \* \*

Any scientist will agree that this

is quite a feat, especially unusual in so simple a manufacturing unit as the furnace the Wisconsin researchers have designed.

As the nitric oxide leaves the furnace it further combines with the oxygen of the air to produce nitrogen dioxide, a brown gas, which forms nitric acid if dissolved in water, or calcium nitrate if placed in contact with limestone. Nitric acid is necessary for the production of TNT, and calcium nitrate is more widely known as a nitrate fertilizer.

"What we do, essentially," Hendrickson said, "is utilize the principle of the arc process—the principle that at high temperature nitrogen and oxygen will combine—without the expense of electricity.

"By using the pebbles, air can be pre-heated and the nitric oxide can be chilled almost instantaneously," he added. "Our cost analysis indicates that this method could appreciably undersell any other—principally because of the direct conversion of nitrogen and oxygen of the air into nitric oxide."

The small pilot plant at the University of Wisconsin makes enough nitrogen dioxide each day to manufacture two tons of nitric acid.

Scientists and economists believe that the Wisconsin process, with six plants throughout the state, could produce not only the fertilizer currently being used but the fertilizer that should be used throughout the state for Wisconsin farms to reach their maximum productivity.

\* \* \*

"If it works as we expect," Hendrickson stated, "it will be, by far, the most efficient method of nitrogen fixation and nitrate fertilizer manufacture yet developed."

"One of the striking advantages," he added, "is that the manufacturing unit can be built on a small scale and still operate to an economic advantage—while all other methods need large scale plants requiring huge capital investments.

"In addition," he continued, "there will be a greatly increased demand for fertilizer if brought within a price range satisfactory to the farmer, who can now buy only small quantities at a time. Though the use of fertilizer is now economically sound, its use will result in a production increase sufficient to overcome cost.

One thing is certain without elaborate cost analysis—the new process of nitrate fertilizer manufacture developed at the University of Wisconsin, when put into practical operation, will be a long step toward placing fertilizer within a price range where state farmers will be able to use the optimum amount for Wisconsin agriculture, 150,000 tons per year, to the economic advantage not only to the state but to the country as a whole.

### Badger Quarterly

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EXECUTIVE EDITOR—

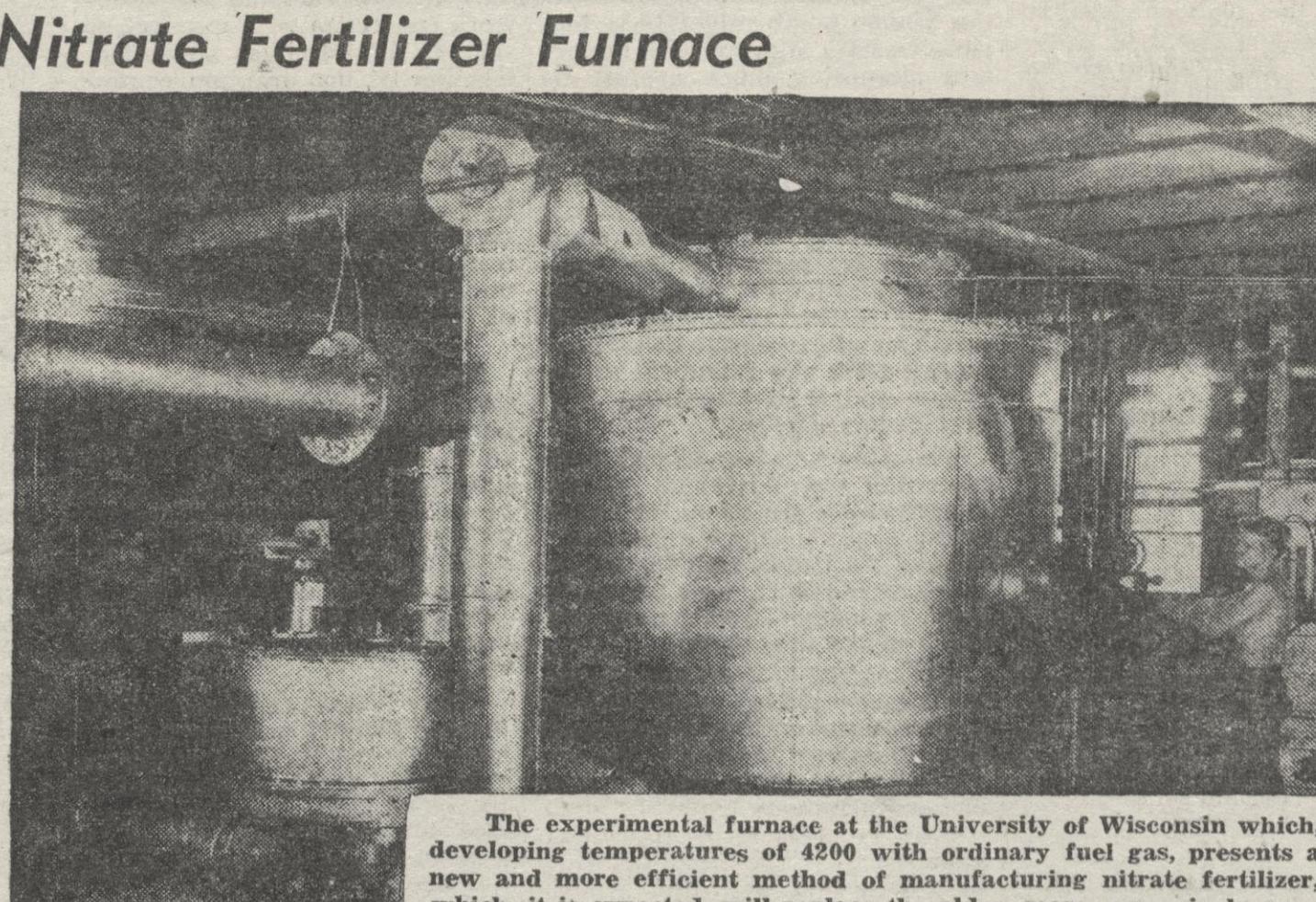
ROBERT FOSS

ALUMNI EDITORS—

JOHN BERGE

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Publication office: 711 Langdon Street, Madison, Wisconsin



The experimental furnace at the University of Wisconsin which, developing temperatures of 4200 with ordinary fuel gas, presents a new and more efficient method of manufacturing nitrate fertilizer, which, it is expected, will replace the older, more expensively processes. The new method, one put to practical use, may enable Wisconsin farmers to utilize the maximum productivity of their farms by providing nitrate fertilizer at a low cost never before equalled.

## Atom Bomb---

(Continued from Page One)

many atomic particles per second as the 4 million volt atom smasher.

At this time we were still at peace and the 4 million volt generator was engaged in pure atomic research. The 2 million volt generator under Dr. McKibben's direction was doing an extremely interesting job with the biologists of the University, known as tracer work or atom tagging. With the atom smasher, certain atoms of an element were made radioactive. Then, this harmless element could be fed to an animal or person and the path of radioactive atoms thru the animal's body could be followed very easily with special equipment sensitive to the radioactivity of the tagged atom.

\* \* \*

While this research was being carried out, Prof. Gregory Breit of the University physics department was devoting his time to coordinating the efforts of a group of scientists trying to interest the high officials of the nation in the possibilities of the atomic bomb. Because of the foresight of Prof. Breit and his associates, the foundation of the atomic bomb project was laid, and in February, 1942, the National Defense Research Council asked Dr. McKibben to head a research program of measuring certain properties of the atom heretofore unknown. For this work, the pressure electrostatic generator as developed by Herb was essential. The generators at the University of Wisconsin were particularly well adapted because they had been so carefully designed by Prof. Herb and associates that they were capable of nearly 24 hour-a-day operation. Among present day atom smashers this was unusual.

By this time Prof. Herb, on leave from Wisconsin, was busy heading a research division on

The University of Wisconsin's valuable atom-smashing equipment, which did so much to help America develop the atom bomb, will soon go underground and back into use again on peace-time atomic research on the State University campus. At its recent meeting the University Board of Regents voted \$20,000 for the construction of an underground room adjacent to Sterling Hall on the Wisconsin campus to house the University's atom-smashing tanks, which have been on loan to the federal government at Los Alamos, N. M.

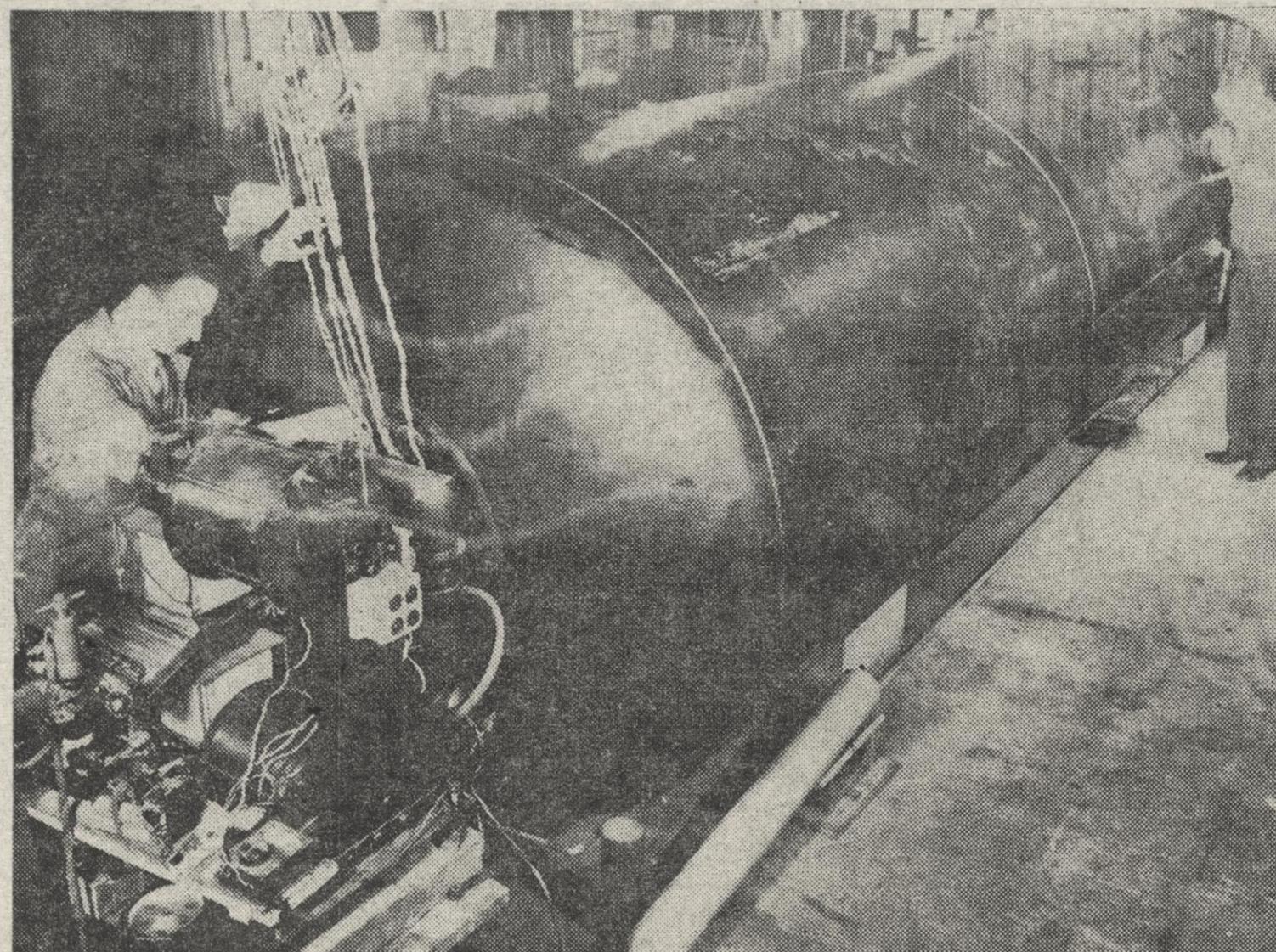
radar development at the Massachusetts Institute of Technology, so Dr. McKibben formed two groups to tackle the research problems. Dr. A. O. Hanson headed one group to operate the 4 million volt atom smasher and Dr. McKibben headed the other to operate the two million volt generator. This program was carried on in the basement of Sterling Hall on the Wisconsin campus behind locked doors and in complete secrecy until April, 1943.

\* \* \*

In April, 1943, the government asked the University's permission to move the atom smashers to a secret laboratory—now disclosed as Los Alamos, N. M. The University of Wisconsin atom smashers were so built that they could be moved with relative ease and were the best suited in the nation for the purpose. The well-trained staff was to go with the machines. The moving of the atom smashers was kept as secret as possible, but to move two 5x1/2 ft. diameter, 20 ft. long tanks and a hundred large boxes of auxiliary equipment in complete secrecy was difficult. As far as is known, however, the enemy never learned of the move. The University of Wisconsin men who went with the electrostatic generators as associates of Dr. McKibben and Dr. Hanson were J. Morris Blair, David Frisch, James Hush, Robert Krohn, Rolland Perry, Worth Seagondollar, Dr. R. Taschek, and Dr. C. M. Turner.

In atom bomb research, certain properties of atoms must be observed under controlled conditions. The Herb pressure electrostatic generator makes this possible. For example, if it is desired to observe the fission of uranium 235—the splitting of the uranium atom in which 200 million electron volts of energy are released—a

## U. W. Scientists With Atom Smashers



Above: Prof. R. G. Herb at the target end (left) of the 4 million volt atom smasher with most of the equipment housed in the tank. Below: Dr. J. L. McKibben at the target end of the 2 1/2 million volt atom smasher.

neutron is sent speeding into the U 235 atom and splits it. To do this the electron is first stripped from a hydrogen atom in the high voltage part of the atom smasher. Then, under the influence of the millions of volts of the atom smasher, the hydrogen nucleus is sent down an evacuated tube at a controlled speed as high as one-tenth the velocity of light. This hydrogen nucleus speeds into a target of lithium metal and when it hits a lithium atom, a neutron is ejected. If a U 235 atom is in the path of the neutron a fission may occur releasing energy just as in the atom bomb. Of course, this is done on a small scale with a small amount of uranium and is perfectly safe.

\* \* \*

The use of the cyclotron as an atom smasher has already been well publicized and the difference between a cyclotron and a Herb pressure electrostatic generator should be pointed out. Although the cyclotron will impart higher velocity to the particles, this velocity is essentially fixed. Because the voltage of the electrostatic generator can be easily varied from 200,000 volts to 4 million volts, the velocity of the particle can also be easily varied.

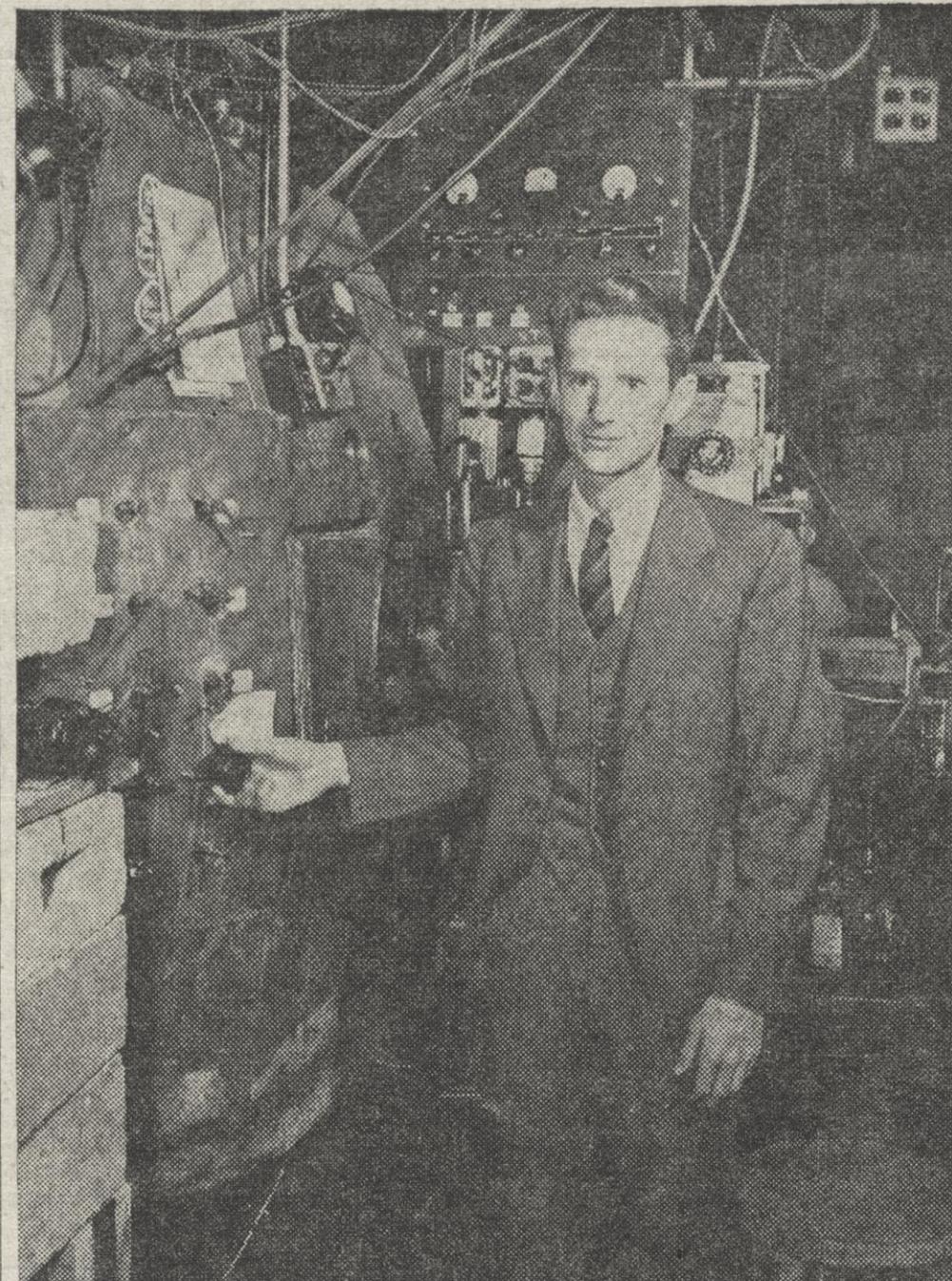
Also, the velocity of each individual particle is very closely the same—a feature that leads to precision research, for in the investigation of conditions under which U 235 or plutonium will fission it is most important to know the energy of the neutron being used. In this respect, atoms are much like billiard balls. A hydrogen nucleus hitting a lithium atom at a certain speed will knock out a neutron at a lower but known speed. If the hydrogen atom is going faster, the neutron will be faster just as the speed of a billiard ball is determined by the speed of the cue ball that hits it. So, the need for a controlled precision voltage is evident. With the use of controlled speed neutrons, it was determined how probable it would be for a U 235 atom to undergo fission for different neutron energies. In this case, slow neutrons will more likely cause fission, just as a baseball player has a better chance of catching a ball thrown slowly.

Because of Prof. Herb's foresight and ingenuity, the atom smashers were built before we were engaged in war and were ready for use when our government saw the need of working on the bomb. Although German scientists were working on the bomb, one of the difficulties they faced was that they did not have atom smashers as good as the type built by Prof. Herb, who hopes to return the atom smashers to the University of Wisconsin shortly to continue peacetime research to reveal more secrets of the atom. With contributions of this nature we may some day have peacetime atomic power for humanity's welfare.

\* \* \*

The following statement by Dr. McKibben expresses his views on the urgent problem of forming a world control for the atom bomb:

"We well realized in 1942 that



the atomic bomb might be a terrible weapon and the only important stumbling block against its use by any nation was separation of uranium 235 from 238. We were anxious to be first. The United States and England now have a monopoly on the atomic bomb; this monopoly will not last many years. It is urgent that the problem of effective international control be worked out. The urgent problems of the atomic bomb have passed from the scientists to the people and their statesmen. May they decide wisely."

The atom smasher did not alone represent the Wisconsin physics department's efforts on the atom bomb project. Many other problems of the bomb, both theoretical and experimental, were solved by faculty members and former students of the department.

At the start of the bomb project, the theoretical considerations were of extreme importance as it was necessary to decide the experimental program on the basis of theoretical results.

Prof. Gregory Breit, theoretical physicist on leave from the University of Wisconsin, has already been mentioned in connection with the atom smasher. Professor Breit also did much work of a theoretical and administrative nature on the bomb itself. In April, 1940, he was made chairman of a committee to control publication of

work concerned with uranium fission. In 1941 he was appointed a member of the uranium committee of the National Defense Research Council and was active in obtaining material for large scale experiments. Professor Breit was in charge of early planning of the bomb itself and initiated experimental programs in many universities including the University of Wisconsin.

\* \* \*

Early in the research work of the atomic bomb, Prof. E. P. Wigner—formerly of the University staff—was among the nation's scientists who were instrumental in obtaining government support for the bomb research. He supervised the early experiments on the absorption of neutrons. Professor Wigner was in charge of the design of certain chain reacting units.

Other Wisconsin men, including Francis Friedman, E. Cashwell, R. Purbrick and H. Ibsen worked on theoretical problems also, and Dr. Robert Serber, now Professor of physics at the University of Illinois, did very important theoretical work.

The experimentalists are the people who do the laboratory research and they prove or disprove the theory. The University of Wisconsin physics department with its varied research program has tried to train graduate students

exceptionally well in experimental physics. Besides the atom smasher workers there are many experimentalists who certainly deserve mention for their contributions to the atomic bomb.

Prof. J. E. Mack took leave of absence from the University in 1942 to work at Princeton University. In March, 1943, Professor Mack moved to Los Alamos and took charge of the optics group. Former students from the University working with him are F. E. Geiger and D. M. Livingston.

Dr. Elda Anderson, who is professor of physics on leave from Milwaukee-Downer College, was one of the outstanding women scientists on the atom bomb project. She received her B. A. degree from Ripon College and Ph. D. from the University of Wisconsin where she did research work in spectroscopy.

Dr. E. C. Creutz, Wisconsin graduate, was for a time in charge of the Princeton cyclotron while it was being used in the early research work on uranium properties. His wife, Lela Rollefson Creutz, and Dr. Helen Jupnik, are former graduates of the University who aided in the research program.

In May 1942, Dr. and Mrs. Creutz went to the University of Chicago Metallurgical Laboratories. There Mrs. Creutz aided in nuclear research studies and for a time headed a group which were engaged in important metallurgical studies. Later Dr. Creutz moved to Los Alamos.

The writer of this article is Robert Krohn, who was graduated from the University of Wisconsin in 1941 as an electrical engineer, and on the strength of his University record, was recommended for work on the atomic bomb project. This article was written at Los Alamos, N. M., where Krohn was stationed, and was released by censor there. From an observation point only 17,000 yards away, Krohn was one of the few American scientists to watch the first explosion of the world's first atom bomb.

Prof. H. B. Wahlin of the University associated himself with the problems at this time and did valuable work in his laboratory on the University campus.

While Prof. Wahlin was engaged in this research he was still busily teaching regular courses in such subjects as electronics and advanced developments in physics. Among the members of Professor Wahlin's group were Robert Krohn, Budd Russell, Worth Seagondollar, and Homer Welch.

Prof. Edward Bennet of the Electrical engineering department and Professor Wahlin also contributed knowledge on another phase of the work.

Dr. Saxon, Harry Heskett, R. Edmundson, Arthur Breslow, and Joan Hinton are other former Wisconsin students who did work in experimental physics at the bomb project.

Prof. D. W. Kerst of the University of Illinois and Dr. L. D. P. King, who both received their Ph. D. degrees from Wisconsin, have been doing work at Los Alamos. Dr. Kerst is well known as a physicist for his invention of the betatron—an x-ray producing machine that emits x-rays ten times as penetrating as the most powerful x-ray machine of any other type. Jerome Johnson, mechanician at the University for 19 years, has also been at Los Alamos.

## Birthday ---

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alumni club programs on this 97th Founders' Day.

All clubs of University of Wisconsin alumni are urged to make this day an important one in their annual program of events, and to celebrate the University's birthday appropriately. Program chairmen who are desirous of obtaining Founders' Day speakers are asked to contact one of the members of this special committee listed above.

## DO YOU KNOW THAT?

The first doctor's degree in the field of speech granted by any University in the United States was awarded to Sarah Stinchfield in 1922 by the University of Wisconsin. Since that time the University has granted 60 doctorates in the field of speech, in number second only to those granted by the University of Iowa.