

Summer 1958

FROM YOUR UNIVERSITY OF MINNESOTA



Here comes the showboat, the Minnesota Centennial Showboat on which the University of Minnesota Theater is presenting an old-time melodrama this summer.

University Contributes to State Centennial

THE 107-YEAR-OLD University of Minnesota has played an important role in the observance of its "younger brother's" one-hundredth birthday.

Early in 1958, a University Committee on the State Centennial was formed to facilitate participation which would emphasize Centennial contributions with continuing impact—youth programs, educational short courses, programs and projects in the creative arts.

The University radio station KUOM, for example, produced a series of 39 Centennial radio programs designed for in-school listening. This series stressed important events in the historical development of the state.

Also in commemoration of the Centennial, the University of Minnesota Press published John Szarkow-

ski's highly-praised pictorial book *The Face of Minnesota*.

In the areas of music and the theater, University students and staff members have made significant Centennial contributions. A number of compositions by Department of Music staff members have been written expressly for Centennial programs, and the University Theater is currently presenting one of the most colorful and widely-publicized productions of the entire Centennial observance.

This production, *Under the Gaslight*, an old-time melodrama, is being presented on the Minnesota Centennial Showboat which is visiting Mississippi river towns this summer.

A special centennial contribution from the Department of Horticulture is the new Centennial apple-crab. (See page two.)

Because the entire Centennial program is emphasizing opportunities

for Minnesota's future, education activities have been a vital part of the over-all observance. In April, a Centennial Conference on College Teaching was held on the Minneapolis Campus; during July the University sponsored a Centennial Institute on Minnesota Government.

The entire University observance of the Centennial was highlighted by a special convocation in Northrop Auditorium in May. This program honored visiting royalty and top government representatives from five Scandinavian countries.

Before 1958 comes to a close, the University of Minnesota will be participating in additional Centennial programs still in the planning stages, programs which will enrich the lives of all Minnesota residents—through arts, music, the theater, agriculture, science, education, sports, business, and government.



Princess Chrysanthemum



Radiant Flowering Crab



Minnehaha Chrysanthemum

Horticulturalists Introduce New Fruits and Flowers

MINNESOTA GARDENERS are adding new fruits and ornamentals to their lists this year, thanks to the University's Department of Horticulture.

The new fruits (the Welcome gooseberry, the Centennial apple-crab, and the Northland apple-crab) are the result of years of breeding work done at the Fruit Breeding Farm under the direction of A. N. Wilcox, professor of horticulture, and T. S. Weir, assistant superintendent of the Farm. Associate Professor J. D. Winter and Instructor Shirley Trantanella have been responsible for testing these fruits for their freezing and canning qualities.

The Welcome gooseberry has two characteristics which will make it especially appealing to gooseberry growers. The spines have been so reduced in size and number that the fruit can be picked with comfort and safety, and the bushes are relatively resistant to disease. The mildly-tart large red berries make excellent jam and are also suitable for pies.

The two new apple varieties have been named "apple-crabs" because they are larger than crab apples and are more like apples in taste. The Centennial, appropriately named for

the state's one-hundredth birthday, bears heavy crops of fruit which ripen during late August or early September. Because the trees are semi-dwarf, they require less planting space than most apple trees. The spring blossoms are profuse, and the tree itself is winter-hardy, even in the northernmost areas of the state.

The Northland apple-crab, a medium-size tree, is also suited to northern Minnesota, for it is hardy and very productive. The fruit, which begins to ripen in mid-August, is bright red and good for sauce, jellies, and pickles.

Ideally suited for landscape purposes, the recently-developed radiant flowering crab apple tree is small and compact. Its spring and early summer foliage has a bright reddish cast. Flower buds are deep red, opening to deep pink flowers which make a brilliant display for about 10 days. These flowers are followed by small, bright red fruit which stays on the trees all winter.

With the introduction of two new garden chrysanthemums, the number of this type of flower introduced by the University now totals 37.

The New Princess chrysanthemum

is a carnation-flowered variety. The double, two-inch flowers are old-rose in color, with deeply-forked, gold-tipped petals. The well-rounded growth pattern of this flower makes it very suitable for window boxes as well as for the center areas of flower borders. Blossoming starts in early August, and within a few weeks, the plant is covered with a profuse display of blossoms which continues until frost.

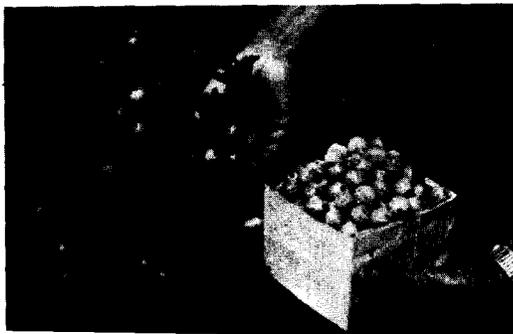
The Minnehaha chrysanthemum is a medium-tall, upright bush plant with salmon-colored, rose-tinted, double flowers. Blossoming starts about mid-September and continues until killing frost. This flowering plant is most appropriate for the center or rear of flower borders, and the stiff quality of the stem makes the flowers especially adaptable for bouquets and floral arrangements.

Miscellaneous Report 29 ("New Ornamentals for Minnesota") and Miscellaneous Report 30 ("Three New Fruits") give complete descriptions of these new varieties. The publications may be obtained from the Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1.

Centennial Apple-Crab



Welcome Gooseberry



Northland Apple-Crab



League Plus Reference Bureau Equals Effective Government For Minnesota Municipalities



*Officials from Ada to Zumbrota
Benefit from League Membership*

C. C. Ludwig, seated, director of the Municipal Reference Bureau and executive secretary of the League of Municipalities, studies a map of member-communities with Orville C. Peterson, League attorney, and Bernice Fairfax, office manager.

MAYORS AND COUNCILMEN, as well as city managers, police chiefs, assessors, attorneys, and city engineers from 655 communities in Minnesota expressed a collective "thank-you" to the University of Minnesota recently.

The occasion was the forty-fourth annual convention of the League of Minnesota Municipalities; the "thank-you" resolution adopted by the group was, for 45 years of University service to the League, which is the official association of municipalities in Minnesota.

Of the 43 state leagues in the United States, the Minnesota organization has one of the closest ties to a state university. Since its very inception, the bond between the League and the University of Minnesota has been strengthened through the existence of the Municipal Reference Bu-

reau of the General Extension Division.

This Bureau offers information and research services to city and village officials throughout the state. Its director, Mr. C. C. Ludwig, an expert in the field of municipal government and city management, is also executive secretary of the League.

The services provided by his Bureau and League staffs make the Minnesota League an important force in the effective functioning of local government in the state.

The inquiry service probably ranks first in importance, for each year hundreds of questions on municipal problems are received, investigated, and answered promptly. During the past few years, questions on revenues and traffic probably rate number one and two positions in quantity of inquiries received.

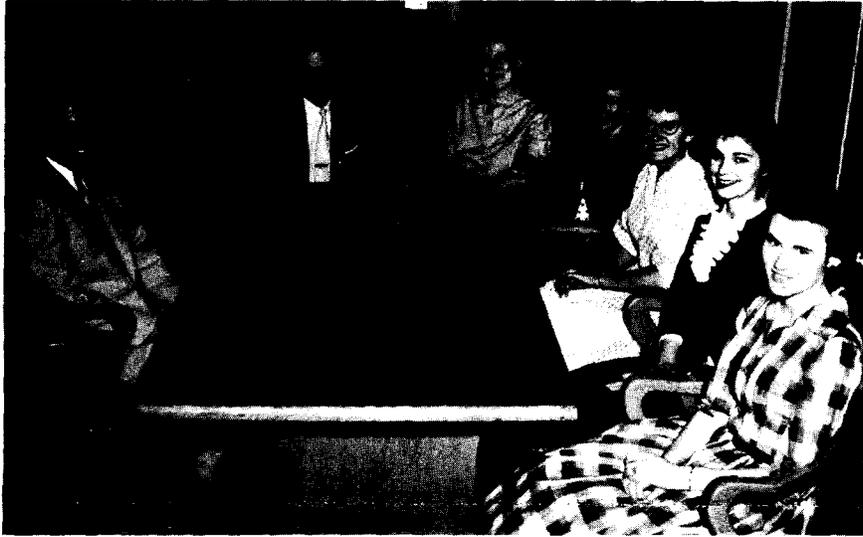
Legislation is also of great concern to the League, yet the organization is

not interested in questions as political or party matters, but only as they may affect municipal welfare.

League members are kept informed on such matters as legislation through the monthly publication *Minnesota Municipalities*, which has a circulation of about 8,500.

In addition, the various schools and short courses co-sponsored by the League, the Center for Continuation Study, and various state agencies bring up-to-date and pertinent information and instruction to such individualized municipal officers as police chiefs, assessors, engineers, new mayors and councilmen, and juvenile officers.

Because of the training and information these men and women receive not only through these courses, but through various regional conferences, League study committees, and personal consulting services, they are able to serve their communities and their fellow citizens more effectively.



1957-58 recipients of the Twin Cities Carpenters District Council scholarships are pictured with University representative Vance Jewson, second from left, and union representative Steve Ihrig.

EXPANDING TRADE UNION SCHOLARSHIP PROGRAMS AID INCREASING NUMBER OF PROMISING STUDENTS

SONS AND DAUGHTERS of many Minnesota trade union members are potential recipients of a growing number of scholarships made available each year by a variety of union groups throughout the state.

The University of Minnesota, through the Bureau of Student Loans and Scholarships, the Industrial Relations Center, and the Greater University Fund, is cooperating with a present total of 11 labor organizations sponsoring scholarship programs.

Not only is the number of these groups increasing each year; the established sponsoring union groups are increasing the number and amount of their scholarships.

The first such group to establish a scholarship (in 1951) was the International Brotherhood of Electrical Workers State Council of Minnesota. During the past seven years, the following groups have been added to the growing list of sponsoring organizations: the Minnesota AFL-CIO Federation of Labor; the Construc-

tion and General Laborers No. 563; the Twin Cities Carpenters District Council; the Machinists State Council; the Cooks, Waiters, and Waitresses No. 458; the St. Paul Trades and Labor Assembly, and Local No. 1140 of the International Union of Electrical, Radio, and Machine Workers, AFL-CIO.

Scholarships on the Duluth Campus have been made available by the Duluth AFL-CIO Central Body, the United Steelworkers Local No. 1026, and the Duluth Newspaper Guild No. 8.

The sponsoring labor group selects whatever name it wishes for its scholarship, the amount and number of awards to be granted, and the qualifications for prospective recipients. These are usually based on the individual student's scholastic ability, character, leadership potential, and vocational promise.

The scholarships may be handled in one of four ways: directly through the Bureau of Student Loans and Scholarships, jointly by the Bureau and the Industrial Relations Center, by a scholarship committee established jointly by the sponsoring union group and the University or, at the Duluth Campus, by the Director of Student Personnel Services.

Anyone interested in further information on any or all of these labor scholarship programs may write to the Bureau of Student Loans and Scholarships, University of Minnesota, Minneapolis 14.

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REPORTS . . .

St. Anthony Falls Hydraulic Laboratory

*In Teaching, Research, and Public Service,
A World-Renowned Water Clinic for 20 Years*

THE UNIVERSITY'S St. Anthony Falls Hydraulic Laboratory is a center for advanced study, research, and public service. Here, the University of Minnesota collaborates with American and foreign governments and authorities of their creation, as well as with private business organizations, in fundamental designs of water and water-control systems, in the dissemination of scientific data, and in advanced research. All of this makes possible the instruction of advanced students in hydraulics and fluid mechanics.

Projects are diversified, ranging from those concerned with culverts, sewers, and erosion, to those concerning river revetment, locks, dams, and spillways. For example, the Laboratory aided in the design of the Mangla Dam in Pakistan and the Guayabo Dam in El Salvador, as well as in solving sedimentation problems in the Mississippi River, under St. Paul's High Bridge.

There are 39 full-time University staff members at the Laboratory, 16 of whom have been there over 10 years. Of these, four assisted with the original design work or construction of the Laboratory. In addition, several cooperating agencies maintain full-time staffs at the Laboratory. They include: the Corps of Engineers, the U. S. Geological Survey, and the Agricultural Research Service.

Lorenz G. Straub, director, established the plans and managed the original construction of the Laboratory, which was a WPA work project. When the job was completed in 1938, Dr. Straub took over the directorship.

Operating costs are paid, in part, through Legislative appropriations and, in part, by project sponsors.

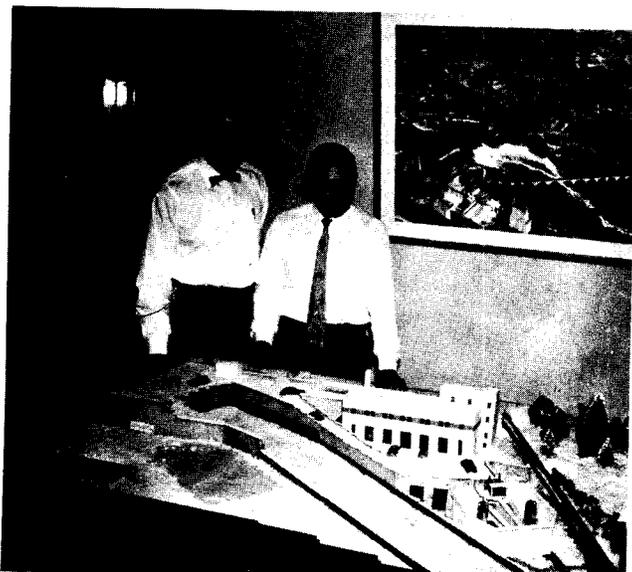
The Laboratory is built against the stone ledge which forms the head of St. Anthony Falls in Minneapolis.

Most of the floors of the Laboratory are below the headwater level of the river; this means that full advantage can be taken of the natural power that is created in the drop of approximately 50 feet. Once used, the water runs back into the river.



This is a scale model of the Priest Rapids project on the Columbia River, Washington, one of many project models planned and built by Laboratory personnel. Models are used for tests preliminary to actual construction at the site.

This scale model of the Laboratory is located in the lobby. The photograph in the background is an aerial view of the site.





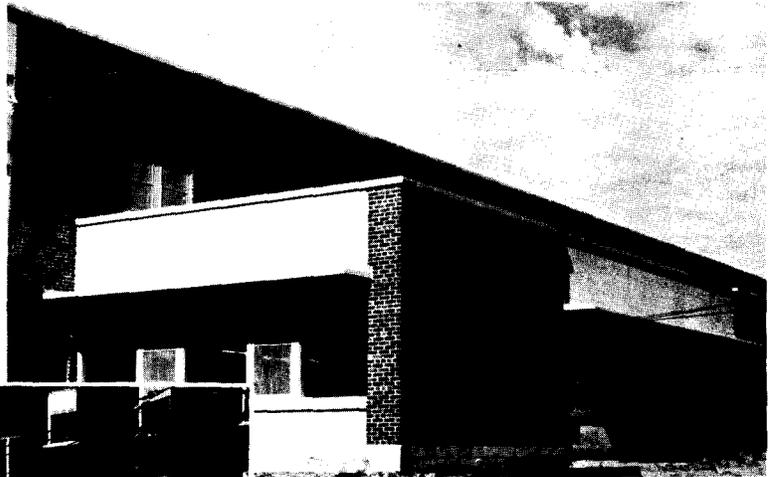
Variety Club Heart Hospital Receives Gift

ABOVE: Tom Burke, chairman of the contributions committee of the Variety Club, gives Gerard Frawley, assistant director of University Hospitals, a check for patient care in the Variety Club Heart Hospital. This hospital, a continuing gift of the Variety Club of the Northwest (an organization of people in show business), the U. S. Public Health Service, and the University, is a heart research as well as a clinical center.

University Research Facilities Increase

THE GENEROUS SUPPORT of organizations within the State and Northwest makes possible these additions to the research and service facilities of the University of Minnesota.

BELOW: The Masonic Memorial Hospital was dedicated October 4. This hospital for the care of patients with advanced cancer and other serious chronic diseases was made possible through the generosity of the Masonic bodies of Minnesota which raised \$1 million for construction. Training of professional personnel as well as cancer research will also be conducted here.



Exterior of the Masonic Memorial Hospital

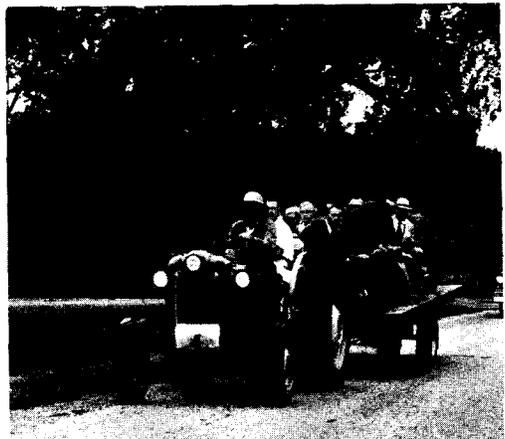


Ground Breaking for the VFW Cancer Research Center

LEFT: Mrs. Bernard Banks, VFW auxiliary president, operates a shovel under the direction of Dr. Robert Howard, dean of the College of Medical Sciences, at the ground-breaking ceremonies for the VFW Cancer Research Center on September 29. The Center will house various investigative laboratories and research facilities for studying both the effects of cancer on the body and body responses to various treatments. More than \$300,000 was raised by members of the Veterans of Foreign Wars and their auxiliaries in 315 Minnesota posts. The Federal Government provided \$172,000 of supplementary funds.

RIGHT: Tours via tractor and hay rack were conducted at the dedication of the Minnesota Landscape Arboretum, September 6. The deed to 160 acres of land, a gift of the Lake Minnetonka Garden Club, and the initial and continuing financial support of the Minnesota State Horticultural Society and the garden clubs of the State, will make possible displays of well-arranged ornamental plants as well as research, testing, and development of trees and shrubs.

Touring the Minnesota Landscape Arboretum



Winter 1959

FROM YOUR UNIVERSITY OF MINNESOTA

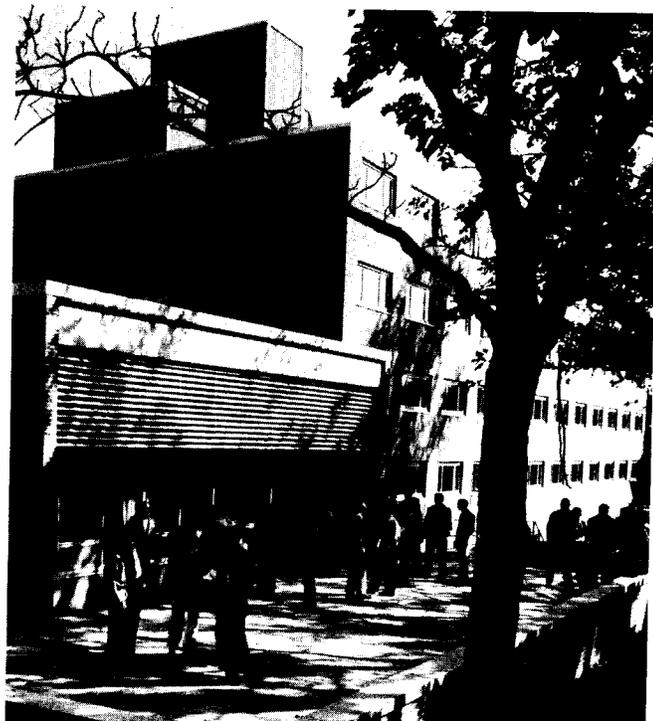
University-Owned Residences House Over 4,000 Single, Married Students

“WE MUST MAKE IT possible for a student to live decently on three dollars a week,” said University of Minnesota President William Watts Folwell in 1870.

President Folwell was clearly of the opinion that the University, as he put it, “would gain greatly if it could offer a considerable number of lodgings at low or nominal rates.”

Eighty-nine years have passed, and that “considerable number of lodgings” now includes the residences for both men and women on the Minneapolis and St. Paul Campuses which accommodate over 3400 students and the married student housing units which accommodate over 750 students and their families.

Residents of Bailey Hall, new residence hall on the St. Paul Campus, are pictured just outside the entrance to the common lounge and lobby which serves both the men’s wing, seen at right, and the women’s section (left of entrance) which forms a right-angle to the rest of the structure. This new hall was named in honor of Clyde H. Bailey, dean emeritus of the Institute of Agriculture.



Purpose of Residences

The main purpose of these University-owned residences is not merely to “house” University of Minnesota students. The residence halls, particularly, are intended to be true residences in every sense of the word: places for people to live, their temporary homes.

Residence hall rooms, both singles and doubles, are bright, airy, and attractively-furnished.

Each residence hall has game room facilities and lounges for TV, reading, and record playing; some have pianos. The buildings are fire-resistant and well-constructed.

Graduate Student Counselors

Each residence hall has a head counselor who is in charge of a well-qualified group of graduate student counselors, each responsible for approximately 50 students. These men and women, who live in the same corridors, wings, or “houses” as do their students, help guide social, athletic, and student-government programs. Social activities include open houses as well as various other parties and dances and meetings of groups organized for students with special interests.

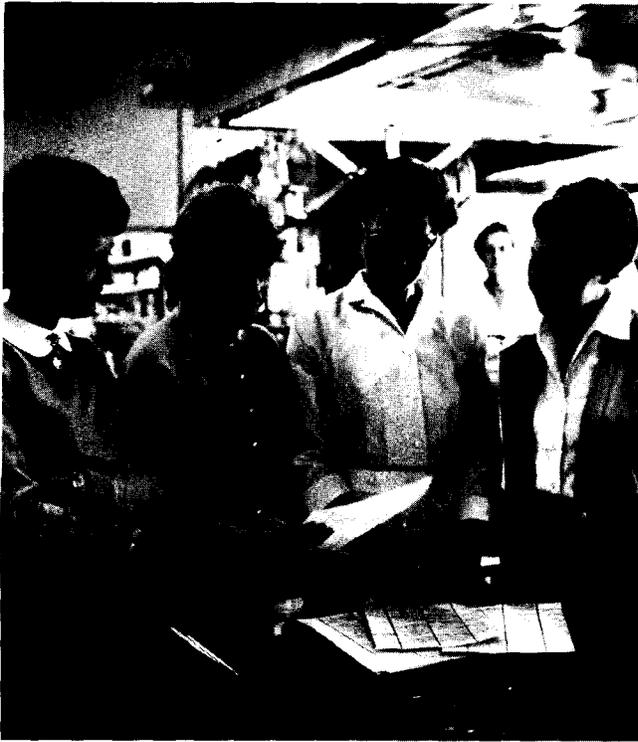
Athletic activities include various competitions between halls or “houses.” These “houses” are sections of residence halls set aside for smaller and more cohesive groups of students with similar interests.

Student Government

Students in residence halls serve on many different kinds of committees. In this way they learn principles of good leadership and cooperation, not only through their social functions, but in matters affecting student government and discipline. Each hall has an effective student government organization. In addition, students form their own judicial groups to take care of disciplinary matters such as infringement of rules.

Residence hall students maintain over-all high scholastic averages. For example, nearly one-half of the Comstock Hall residents were honored for outstanding achievement

(Continued on page two)



Refreshments for a Comstock Hall party are planned by a student committee and a Comstock dietician. From left to right are Carol A. Timmons, Glenwood; Grace D. Hillstrom, Co-kato; Helen Kantan, senior dietician; and Linda S. Smiley, Mason City, Iowa.



Comstock Hall housekeeper Rebecca Vandermoon helps students make plans for one of the hall's regular "open houses."

(Continued from page one)
last spring at the annual recognition dinner ceremonies.

Economical Living

This well-balanced residence hall life has an additional advantage; it is economical living for the average student. True, it cannot be had for the "three dollars a week" envisioned by President Folwell in 1870, but it does follow his desire for "lodgings at nominal rates."

All University-owned housing facilities are completely self-sustaining, that is, they must operate within their own income, with no assistance from legislative sources.

The average cost per quarter for a student living in a residence hall may be anywhere from \$229.00 to \$266.00, depending on the size of the room (single or double); this amounts to anywhere from \$3.04 to \$3.53 per day. This total covers room and board (21 meals per week) and all operat-

ing costs such as salaries, utilities, repairs, and maintenance.

Costs for married students are reasonable, too. The monthly rental for the temporary structures at University Village and at University Grove East is \$45.00, including utilities; monthly rates for the new Commonwealth Terrace Apartments are \$70.00 for the one-bedroom apartments and \$80.00 for the two-bedroom units, including all utility charges; refrigerators and stoves are furnished.

List of Residence Halls

Residence halls on the Minneapolis Campus include Pioneer, Centennial, and Territorial, all for men, with a fourth men's residence, Frontier Hall, scheduled to open next fall. Minneapolis women's residences are Comstock and Sanford Halls and the Winchell "cooperative" Cottages.

St. Paul Campus residences include Bailey, Brewster, Meredith, Dexter,

Dining, and Thatcher Halls. Brewster (for men) and Meredith (for women) are residences for college students; Dexter and Dining are reserved for School of Agriculture students.

Facilities for married students include Thatcher Hall, which has apartments for graduate students, the two areas of "temporary" buildings (the Quonset-type structures at University Village and the metal barracks units at University Grove East) and the new Commonwealth Terrace Apartments on the St. Paul Campus.

Student Jobs

Nearly 600 students hold part-time jobs in residence halls; they may be switchboard operators, food service workers, clerks, or night watchmen. Each student may work only two or three hours each day; this system gives work to a greater number of individuals and helps many students pay for their living expenses.

Child Psychiatry Service Studies, Treats Patients' Emotional, Mental Ills



Service Provides Clinical Experience for Students; Develops Programs of Research; Aids Young Patients

FOUR SPIRITED teenagers playing a game of volley ball, a small boy skipping down a corridor, two young girls painting—the activities are not unusual, but the setting is.

These Minnesota boys and girls, who are having difficulty adjusting to their life situations, are patients on the children's psychiatry station at University Hospitals. These quarters, which can accommodate 23 boys and girls under the age of 16, include recreational rooms and lounges, an arts and crafts workshop, and an outdoor play area.

Representative Patient Group

Because psychiatric training for medical students is of primary importance on this station, an effort is made to keep the patient group representative of the usual behavioral disturbances of children. The average stay of a patient is 28 days. This provides a continuous flow of patients who represent a broad spectrum of emotional and mental disturbances, augmenting both the teaching program of the Medical School and the services the University Hospitals provide to communities throughout the state.

While a child is in residence, he is under observation, study, diagnosis, and treatment. He is given a battery of psychological examinations. A physician visits him each day, and his case is discussed periodically by staff members at case conferences.

Follow-up Studies

When the study of the child is completed and he leaves

Occupational therapy may be both therapeutic and diagnostic. In this picture, Helen A. Larson, general staff nurse, and Nadine Sweney, St. Paul, occupational therapy student, help a patient with a woodworking project. Such tasks enable staff members to observe how well children use their minds and their hands.

the hospital, an effort is made to assure a continuing program of management. A detailed letter is sent to his referring physician, and as many children as possible are followed on an outpatient basis. Encouraging results have been obtained from follow-up studies made on the first 200 admissions.

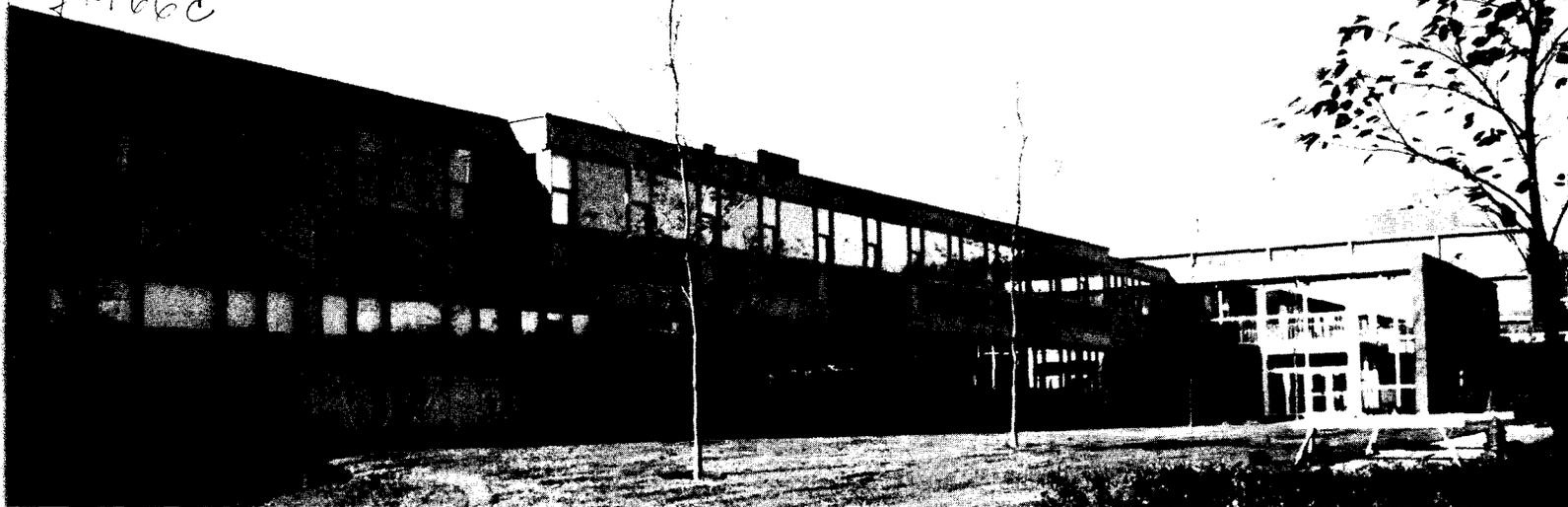
The primary objectives of the child psychiatry service are to teach medical students who will be practicing in Minnesota communities that basic principles of psychiatry are an integral part of a medical practice, to provide clinical experience for them, to develop a program of research, and to provide a service to the state. Each year, more than 200 junior and senior medical students have contact with the division, and between 12 and 15 residents specializing in psychiatry or pediatrics are assigned to the service. Other professional workers such as nurses, occupational therapists, group workers, and teachers also receive training.

Research Activities

Current research conducted by the staff is aimed at discovering some of the "whys" of children's mental disturbances. Parents and many of the children take the Minnesota Multiphasic Personality Inventory and other tests. Each child has an electroencephalograph, a test which records graphically the electrical activity of the brain. The division is using these tests to determine whether or not there are organic disturbances related to the patients' abnormalities.

Staff members anticipate increased activities in research, in service, and in the expansion of the training program to include career child psychiatrists.

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Pictured above are the new Duluth Campus Humanities Building, left, and the Tweed Gallery, right. The glass-and-aluminum entrance at right serves both structures.

New Duluth, Minneapolis Campus Facilities Dedicated

• Tweed Gallery

DEDICATION CEREMONIES for the new Fine Arts Center on the Duluth Campus were held last fall. This center, which includes the Tweed Gallery and the Humanities Building, was made possible by what President J. L. Morrill termed a "happy partnership" of public and private funds.

The 1955 and 1957 state legislatures appropriated \$1,120,000 for the Center, and Mrs. Alice Tweed Tuohy of Santa Barbara, California, and her daughter, Mrs. Bernice Tweed Brickson of Duluth, gave \$228,000 for the Gallery as a memorial to George Peter Tweed, Duluth industrialist.

• Diehl Hall

DIEHL HALL, named in honor of Dr. Harold S. Diehl, dean emeritus of the College of Medical Sciences, was dedicated January 22.

This building, which will be completed late next fall, will house the biological-medical library and additional medical research facilities.

An \$832,000 appropriation from the state legislature plus \$311,900 from the University are making possible the library portion, and a grant of \$787,500 from the U. S. Public Health Service matched by \$827,738 from private sources is making possible the research portion of the building.

• Arthur W. Anderson Floor of the Variety Club Heart Hospital

A FIFTH FLOOR ADDITION to the Variety Club Heart Hospital was dedicated January 12 as the "Arthur W. Anderson Floor," named in honor of the man who was chairman of the Variety Club Heart Hospital Committee from 1945 to 1955 and a past chief barker of the organization.

Funds for building and equipping the new floor, which will be devoted to heart disease research, totaled \$530,658, with \$250,000 from the Variety Club of the Northwest, \$229,321 from the U. S. Public Health Service, and \$51,337 from private sources.

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Spring 1959

FROM YOUR UNIVERSITY OF MINNESOTA

Taconite Studies Brighten Economic Outlook for State



Each day on the various University campuses throughout the state, research is conducted in a variety of fields. The effect of this research on the lives of Minnesotans is incalculable. An example of how intimate are the ties between the University and the welfare of the state is the development of the taconite process. It is this process which is enabling Minnesota to continue as an important producer of iron ore, thus improving the economic well-being of the entire state.

FIFTY MILES NORTH of Duluth, on Minnesota's scenic North Shore Drive, is the thriving community of Silver Bay. This community of approximately 5,000 people is one of three towns which has been added to the map of Minnesota as a result of the infant taconite industry.

In addition to the new towns, the taconite industry has created more than 5,000 new jobs and consequently brightened the economic outlook for the entire state.

The story of taconite, from its discovery in 1872 to its present role as a significant part of the iron mining industry, is a story of University service to its state.

The 100-mile-long iron range in northern Minnesota was named the "Mesabi" or "Giants' Range" by the early Indian tribes. For the better part of a half century, the Mesabi, along with the Vermilion and Cuyuna Iron Ranges, was truly a giant in the iron mining industry.

During the early years of mining in Minnesota, only high grade ores—those which could be scooped from the huge open pits and shipped directly to the steel mills and those requiring relatively simple treatment, such as the removal of fine sand by washing—were utilized.

Two world wars and an expanding industrial economy increased the demand for iron ore, so that today Minnesota's reserves of high grade ore are rapidly diminishing.

The hopes for the future of iron mining in Minnesota rest on taconite, a low grade ore which was once considered useless rock. As a result of the long years of devoted study and research by the staff of the Mines Experiment Station, taconite, the ore from which deposits of high grade ore were formed by nature, can now be processed by man. Where nature took millions of years to make



The Erie Mining Company owns and operates this taconite plant at Hoyt Lakes, Minn. Taconite pellets produced here are shipped to Taconite Harbor on Lake Superior, and from there, to the nation's steel mills.

useless taconite into useful ore, men and machines can now complete the process in a few days.

The story of the University and taconite began in 1912 when a University Regent, John G. Williams of Duluth, sent a sample of taconite to the then one-year-old Mines Experiment Station on the Minneapolis Campus.

Edward W. Davis, now professor emeritus of mines and metallurgy, then an instructor in mathematics, became interested in the taconite studies. Until his retirement in 1955, these studies were conducted under his direction.

Taconite, as it occurs in nature, normally contains 25 to 30 percent iron in the form of oxide. The balance is largely silica. For this material to be useable, the silica content must be reduced to about eight percent. This means that for each ton of useable ore, about three tons

(Continued on page two)



Hoyt Lakes is one of three towns in northern Minnesota created by the taconite industry.

must be mined, crushed, and concentrated, the siliceous waste material discarded, and the iron-bearing material recovered.

In magnetic taconite, a large portion of the iron is present as the mineral magnetite. University studies showed that this iron could be separated from the useless part of the pulverized rock by strong magnets. The taconite rock is first crushed into fragments smaller than $\frac{3}{4}$ inch and then ground in water to a muddy pulp. Next, it is passed through a magnetic separator, and pieces of rock with little or no magnetic iron are discarded. The magnetic pulp—or taconite concentrate—is rolled into small, round pellets which are then hardened by burning. The finished product contains 62.5 per cent iron.

It is this process which is used by the Minnesota taconite industry. Two huge processing plants—one at Silver Bay, owned by the Reserve Mining Company, and one at Hoyt Lakes, owned by the Erie Mining Company—are now in operation. Also, the Oliver Iron Mining Division of the United States Steel Corporation operates experimental plants at Mountain Iron and at Virginia.

It is estimated that there may be roughly 5.5 billion tons of magnetic taconite relatively close to the surface now available on the Mesabi Range. From this material somewhat more than 1.5 billion tons of concentrate could be produced.

Currently, University staff members under the direction of Henry H. Wade, a member of the Experiment Station staff since 1915, are working on the problem of converting nonmagnetic iron minerals to magnetite.

It is known that the quantity of nonmagnetic taconite on the Mesabi Range is very large. If the means for treat-

ing this material are provided, the reserves are sufficient to sustain a high level of production for many generations.

The Station's work on nonmagnetic taconite was greatly stimulated in 1957 by a research grant from the Great Northern Railway Company. This company, visualizing a future decrease in shipments of the normal type of iron ore from the Mesabi, is interested in encouraging the utilization of low grade materials. Its grant, together with appropriations made by the State Legislature, is making further studies possible in this field.

Studies conducted by the Experiment Station staff have shown that it is possible, by heat treatment, to convert the iron oxide minerals in nonmagnetic taconite to magnetite. The roasted taconite can then be treated by the processes that have been worked out for the magnetic taconites. The metallurgical and mechanical problems yet to be solved are many, but even now, methods exist for the satisfactory treatment of some of the nonmagnetic taconites.

Minnesota ores are now facing keen competition from high grade ores which have been developed in foreign countries. The situation is such that future large-scale development can be made either in Minnesota or in any of a number of foreign locations.

Mr. Wade in a recent article written for the *Duluth News-Tribune*, listed the following factors which favor the establishments of plants in Minnesota:

1. "Minnesota reserves of raw materials are large enough to assure a long operating life for a considerable number of plants;

2. "The reserves are of such a type that high quality concentrate can be produced to meet the specifications of the ore consumers;

3. "The reserves and the plants will be located within the borders of the United States where they will not be subject to the uncertain policies of foreign governments or to the dangers of wartime ocean travel;

4. "Minnesotans have had experience in building and in operating mines and plants of the general type that will be required;

5. "Two large magnetic taconite plants now in operation have demonstrated the feasibility of treating this type of material;

6. "Iron mining communities from which skilled workmen can be recruited, and where housing, stores, and schools are established and equipped with all the necessary utilities exist in the state;

7. "Transportation facilities are unusually good."

If methods for treating nonmagnetic taconite can be developed, Minnesota's chances for future iron mining development will be further enhanced. Perhaps someday the work of the University's Mines Experiment Station will lead to the building of additional new communities and will enable the Mesabi Iron Range to continue as a giant of the mining industry.

Special Offerings Encourage Superior-Ability Students

WHAT SPECIAL opportunities does the University of Minnesota offer to students of outstanding ability? Recently this inquiry was circulated throughout the University. The response from the various colleges indicates that the University is indeed giving particular attention, ranging from counseling services to special assignments and incentives, to students with demonstrated or potential superior ability.

University counseling services play a special role, both in identifying the superior student and in helping him select and plan the program which will enable him to get the most out of his college experience.

Many colleges offer special assignments to the gifted student. For example:

The School of Dentistry provides arrangements for qualified students to be excused from regular classes to assist in teaching and research;

Also: three professors from the Institute of Technology have, for several years, given time in addition to their

regular duties to teach special classes in freshman mathematics. Top high school seniors in the Twin Cities area are invited to attend these classes.

Special recognition and awards are part of the University's program to encourage superior students. For example, last year the College of Science, Literature, and the Arts experimented with a specially selected group of 25 of the highest ability freshmen who met once a week. The purpose of these meetings was to introduce the students to several distinguished staff members, to help them to get some basic understanding of some of the subject matter areas in the University, and to stimulate them to an interest and concern for educational and intellectual matters.

These special offerings are a small sample of the many opportunities available to the gifted student at the University. As the summary of the response to the inquiry states: "It is encouraging to representatives of the University to note that even in a period of increasing enrollments and larger class sizes, careful attention is being given to the conservation of our best human resources."

'M' Club Public Relations Consultant Resigns

The following letter of resignation was submitted recently to the "M" Club by Paul A. Severeid, who had been employed by the "M" Club to handle its public relations program.

April 1, 1959

Mr. Norbert T. Koch, Jr.
Vice President, The "M" Club
Dear Norb:

Following long and careful examination of conscience, I must advise that this letter constitutes my notice of resignation and disassociation from affiliation with "M" Club public relations.

It was my hope that your cause could be advanced effectively and with purpose for the common good. It has become apparent that such is not possible under existing circumstances, for pronouncements from members of your board of directors, as quoted in the press and in other media, give evidence that your people and those dedicated to your purpose are unwilling to accept any position other than your own.

As a personal matter, I have a deep and lasting loyalty toward my University, and I am unable to subjugate professional accomplishment in another direction.

It is my sincere hope that you and your members will find some means through which you will be able to solve your problem.

I regret that I can assist you no further.

Cordially,
Paul A. Severeid

V. F. W. Research Center Nears Completion

The cornerstone laying ceremony for the V.F.W. Cancer Research Center on the Minneapolis Campus was held Saturday, April 11.

Preceding the ceremony, V.F.W. marching units assembled on Northrop Field and marched to the site of the Center.

The Center, which adjoins the Masonic Memorial Hospital, will be used to analyze all aspects of body functions of cancer patients and to study both the effects of the disease on the body and also body response to various treatments.

Members of the V.F.W. and their auxiliary in 305 Minnesota posts raised over \$300,000 for the Center. In addition, a federal grant of \$172,000 provided the remaining funds needed for its construction.

The new Center will include 14 general investigative laboratories, a small animal research section, a radioactive isotope laboratory unit, a controlled temperature laboratory, a clinical investigative unit, administrative offices, a waiting room, and a conference room.



Representatives of the V. F. W. and of the University of Minnesota participated in the cornerstone laying ceremony.



Staff members of the Bureau of Field Studies and Surveys check a map of Minnesota showing communities they have served.

Bureau Serves as Clinic for “Ailing” School Districts

A CLINIC FOR AILING school districts—this describes the Bureau of Field Studies and Surveys of the College of Education.

The Bureau serves Minnesota school districts by studying and recommending solutions to their specific problems which may range from financial difficulties to outdated or limited curricula. In this day of rising enrollments, however, the most common school “ailment” is inadequate plant facilities.

In making a school building survey, the Bureau staff studies the economic and historical background of the community, the population trends of the school district, and the financial condition of the district as it relates to its ability to support an educational program and the necessary buildings. It also analyzes the educational program of the district as a background for determining school

building needs, studies all the school buildings in the district, and makes recommendations for the rehabilitation of existing buildings and the construction of new buildings.

Finally, the Bureau recommends a program for financing the rehabilitation of the existing plant and any necessary new school building construction.

The Bureau has made approximately 100 surveys in communities which vary in size from the city of St. Paul, with a population of over 300,000, to the community of Holdingford, with a population of about 500. In making surveys, the Bureau works closely with the superintendents of schools, the school boards, and the people of the communities served.

The Bureau has also conducted surveys on a state-wide basis. In 1956 it made an extensive study of state

aid to public schools in Minnesota. Acting on Bureau recommendations, the 1957 State Legislature approved a new aid program which is based on the financial resources of the districts. Under the old program, the state paid each school district a fixed amount for each pupil enrolled. The new program guarantees a sum of money for each pupil, and the state pays the difference between this sum and what the individual school district can provide. Thus pupils in districts with limited financial resources are not penalized.

An article appearing in the *American School Board Journal* in 1951 stated that there was probably no single field of research and service where the University could make a greater contribution to the future of the state of Minnesota than through research and field services to boards of education. Certainly this is true in this day of rapid growth and changes.

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