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FROM University Relations
The University of Toledo

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FOR RELEASE UPON RECEIPT

Since its origin six years ago, the department of geology in the College of Arts and Sciences has been one of the fastest-growing areas at The University of Toledo.

Only this fall a master of science program in geology and geochemistry was embarked upon with approval of the Ohio Board of Regents.

J. Ward Keener, one of the regents, called the program "...one of the best proposals the board has received in the sciences."

Dr. William A. Kneller started the department under the sponsorship of Dr. William S. Carlson, University president, who brought him to Toledo. Dr. Kneller is associate professor and chairman of the department.

During the last three years, Dr. Kneller reported, the department obtained $250,000 in gifts, contracts, and grants.

Equipment capability of the department was termed excellent in an evaluation of the master of science program by Reynolds M. Denning of the University of Michigan department of geology and mineralogy. Major equipment on hand probably exceeds $180,000 in value, Dr. Kneller said.

Some of the major equipment includes an electron microscope, an X-ray emission-type spectrometer, an XRD-6 X-ray diffractionmeter and accessories, and a 15,000 psi mercury-penetration-type porosimeter and accessories. All have been acquired in the last three years.

In addition, the department is setting up an extensive geological museum with study and reference collections of rocks, minerals, and fossils in its area in University Hall.

Though the equipment has been called outstanding, the department's quarters are inadequate.

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Sought for the 1969-71 biennium capital improvements program, however, is a geology facility that would be the second phase of a physics-geology building. The first phase for physics would cost $3,875,000 while the second phase for geology is estimated at $2,805,000.

Provided for geology would be 40,000 square feet of usable area.

In its statement of justification to the Ohio Board of Regents, the University said that while some expansion is possible in University Hall, "it will be necessary by 1970 to provide separate, enlarged facilities for this department which are specifically designed and thus better-suited to the instructional and research programs in geology."

It added that the full-time faculty is expected to reach 14 by 1974 and the number of students is expected to more than double. There are 30 majors currently enrolled. The first geology degree was granted in 1963, the same year the undergraduate degree program was approved.

Dr. Kneller takes great pride in strides by his department stating that it is gaining national stature through research efforts.

He estimates that while it ranked last in the state a few years ago it now is among the top four or five in Ohio.

All of the five department members are publishing, while four hold doctorates in geology. The fifth, Mrs. Margaret A. Kitchen, holds a law degree. Mr. Denning, in his evaluation of the department, said Mrs. Kitchen is highly qualified on the legal aspects of the geology profession and that her "virtually unique" qualifications should be utilized in that area and should be of interest to local industry.

For several years, Dr. Kneller's department, plus the department of civil engineering, have been engaged in research seeking longer life for concrete highways. The study, which began in 1964, has involved research into the basic properties of cherts, which are harmful impurities found in aggregate used by Ohio concrete producers.

A common indicator of the presence of cherts in concrete are "popouts." These occur when the cherts freeze or thaw and literally pop out of the concrete. When this happens, the force of the popout creates a hole that may range in size from as small as a dime to as large as a dinner plate.

Thus far the research, sponsored by the Ohio Department of Highways in cooperation with the U.S. Bureau of Public Roads, has totaled $63,000 and further research funds are sought.

Dr. Kneller said that the investigation, which he heads, has found that cherts exhibiting smaller pore densities have shown greater durability. This is in line with the view that some cherts have exhibited good service records and may not be harmful. Thus, indentification of both harmful and nonharmful cherts may enable producers to use some aggregate directly from quarries, eliminating further refining costs.

Others on the geology department faculty are Dr. Craig Hatfield, Dr. John Wilband, Dr. George Kunkle, all assistant professors, and Mrs. Kitchen, instructor.

Dr. Hatfield carries on detailed studies of the depositional environments of sedimentary rocks while Dr. Kunkle is concerned with hydrology, the study of ground water.

Dr. Wilband has been assisting Dr. Kneller with X-ray analyses of cherts in concrete. Other research is in characterization of glassy and crystalline phases by X-ray absorption-edge-fine structure spectrometry and in major and trace element distribution in metamorphic processes.

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Photos available on request of students and faculty with geology department equipment.