EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

NEWSLETTER

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NEWS OF THE INSTITUTE

ANNUAL MEETING

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EMPLOYMENT

EERI is now searching for a permanent, full-time Publications Manager to assume responsibility for the production and promotion of the publications of the Institute including the monthly Newsletter, the quarterly journal and other technical reports. The position requires demonstrated experience in writing, editing, and production of technical and general interest publications. Experience with design and layout of newsletters and journals is strongly preferred.

Versatility is extremely important. The position will require the ability to work effectively with several volunteer editors and balance the varying demands that arise in a small nonprofit organization.

The Publications Manager will be responsible for recommending and implementing strategies for expanding sales and subscriptions.

The position is demanding but offers challenge and variety. Contact Susan Newman, Association Director, (415) 848-0972, for details and a copy of the job description.

NEWS OF THE PROFESSION

The percentage of unfilled full-time engineering faculty positions at U.S. universities grew from 7.9 percent in fall 1982 to 8.5 percent in fall 1983, according to the American Society for Engineering Education's (ASEE) survey on engineering faculty and graduate students. The 8.5 percent figure represents a shortage of 1,234 faculty members at the responding schools, or nearly 1,600 when extended to include all engineering schools in the U.S.

The proportion of unfilled positions soars to more than 23 percent when based on the number of faculty the schools said they need to "maintain or restore quality" in their programs. The 8.5 percent figure is based only on existing, authorized positions.

The survey's results were drawn from 186 responses to 279 questionnaires sent to deans of schools offering bachelor's or higher engineering degrees. The response represents nearly 80 percent of the total graduate and undergraduate enrollment in the nation's engineering schools.

The schools reported that the number of industry and government employees joining their faculties is exceeding the number of faculty leaving for jobs outside academe. Most of these new faculty members fill positions at the associate or full professor rank, however, and not at the assistant professor level where the shortage is most severe.

The shortage continues to be more acute at public institutions, but both public and private schools reported an improved ability to hire new faculty, primarily because more attractive salaries were available from regular university resources.

The 1983-84 survey, fourth in an annual series, was partially funded by a $20,000 grant from the National Science Foundation. A complete report of the survey appears in the October issue of ASEE's journal, Engineering Education.

EARTHQUAKE NOTES

New York Earthquake a year ago.

(The following news of last year's Blue Mountain Lake earthquake in upper New York State is extracted from a U.S. Geological Survey news release on the anniversary of the earthquake.)

The Blue Mountain Lake earthquake in New York a year ago, on Oct. 7, 1983, was felt in all or parts of nine states in the northeastern United States, according to a map prepared by the U.S. Geological Survey.

"The magnitude 5.1 earthquake was felt over an area of nearly 100,000 square miles in New York, Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, Connecticut, Pennsylvania and New Jersey," said Carl W. Stover, a geophysicist at the USGS National Earthquake Information Service in Golden, Colo., who compiled the map. There also were isolated reports that the earthquake was felt in some towns in Maryland, Michigan, and Ohio, as well as over a wide area in Canada. The felt area within the United States covers the largest land area in the northeastern part of the nation since a magnitude 5.8 earthquake near Massena, N.Y., Sept. 5, 1944, which was felt over an area of about 280,000 square miles. The published record of seismic activity in the Blue Mountain Lake area began with an earthquake swarm in early May 1971 and has continued at lower levels to the present. The 1983 earthquake a year ago was the strongest recorded in that area.

The new USGS isoseismal map shows varying levels of Modified Mercalli intensity of the earthquake. Isoseismal lines on the map divide three different zones of intensity -- VI, V and II-IV. No major damage resulted from the earthquake, although there was some minor damage, especially in a small area mostly immediately south of the earthquake's epicenter in northwestern Essex County about 10 miles northeast of Blue Mountain Lake. The map was prepared from data collected with a questionaire mailed to postmasters and police departments within about a 100-mile radius of the earthquake's epicenter, supplemented with information from various newspaper reports. Although there was no major damage, even in the epicentral area, most questionaires returned from the epicentral region mentioned reports of moderate to loud earth noises during the earthquake. The types of damage reported by questionaire respondents in the Intensity VI area included cracked chimneys, bricks knocked from chimneys, cracked dry walls in buildings, cracked foundations and, in one case, large cracks in an exterior cinderblock wall.

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EARTHQUAKE NOTES

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Stover emphasized that the isoseismal map is preliminary and will be updated as more detailed information comes in. A later version will include Canada, where the earthquake was also felt.

Inspection of this isoseismal map, plus similar maps for the magnitude 5.8 earthquake near Massena, N.Y., Sept. 5, 1944, and another one in New Hampshire Jan. 19, 1982, showed that all three earthquakes were felt farther west than toward the east.

The map and an accompanying report were released as USGS Open-File Report 84-263. Copies can be purchased from the Open-File Services Section, Western Distribution Branch, U.S. Geological Survey, Box 25425, Federal Center, Denver, Colo. 80225. Prices are $1 for each paper copy and $3.50 for microfiche. Orders must be accompanied by checks or money orders payable to the Department of the Interior-USGS.

RESEARCH NEWS

David Jarmul is a staff writer for the National Research Council's "News Report," and writes in the Aug-Sep 1984 issue:

Improving Earthquake Engineering

The next time an earthquake hits a populated area of the United States, many contemporary structures may not survive, a new Research Council report finds. (Earthquake Engineering Facilities and Instrumentation. Commission on Engineering and Technical Systems, 1984, 33 pp.). The report says these building failures could be among the major causes of as many as 23,000 deaths and $50 billion in damage from a large quake.

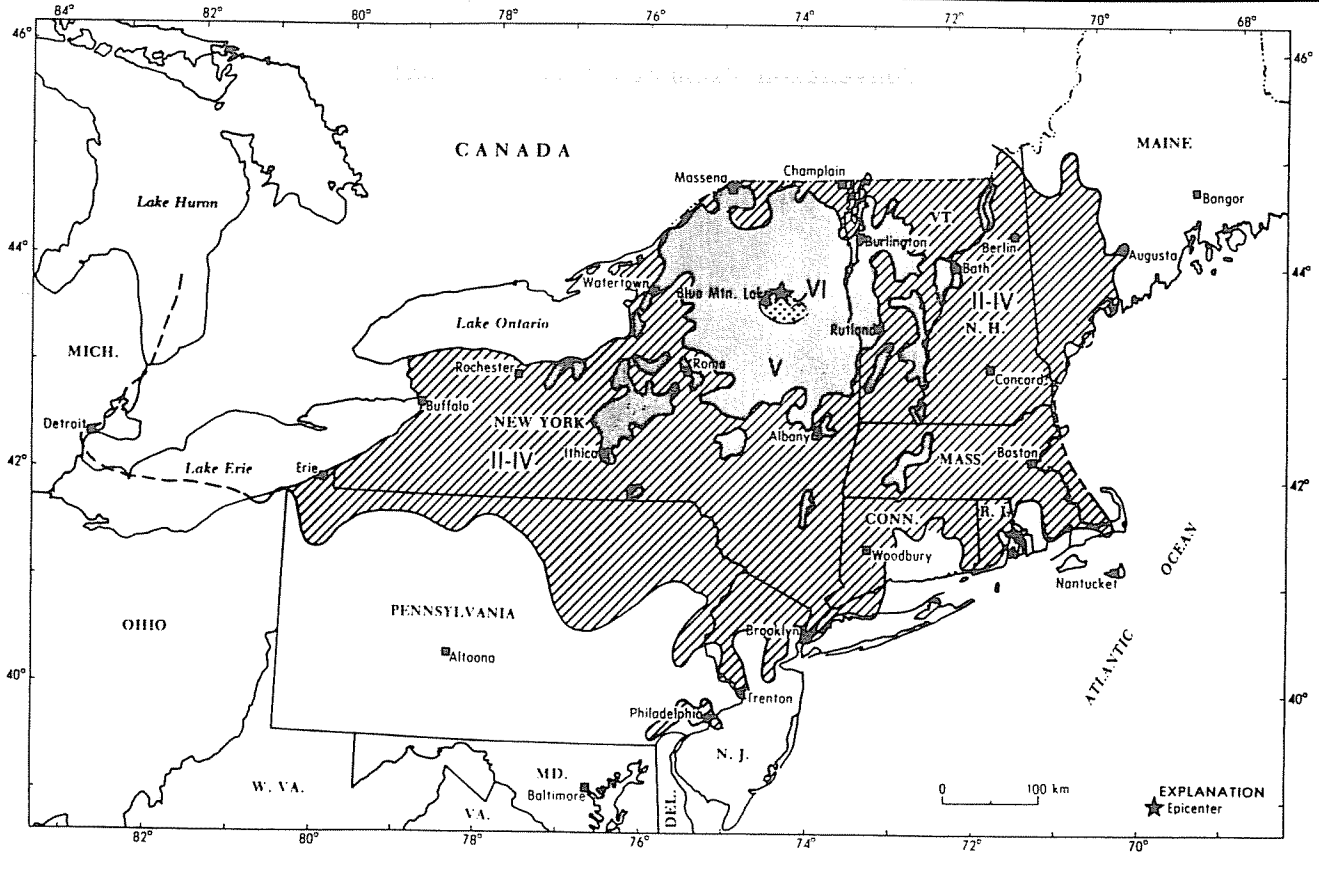
This is not only a problem for California and other areas with publicized geologic faults. As many as 70 million Americans in 39 states face the threat of damaging earthquakes.

The report recommends the federal government establish a national earthquake engineering test center with facilities to subject full-scale buildings to simulated earthquake forces.

The goal would be to advance engineering know-how in designing and building safe structures. A number of buildings created to be seismic-resistant failed in earthquakes much less intense than those anticipated in the future. On the other hand, structures have performed remarkably well in earthquakes without special design.

A primary reason why researchers have not had more success learning to build seismic-resistant structures, the report says, has been their inability to test their ideas. Although researchers can use data from past earthquake sites, computer models, and small-scale experiments, they typically must wait until an actual earthquake strikes to learn how a specific building performs. Full-scale experiments are needed to enable researchers to improve existing computer models.

The committee, chaired by H. Norman Abramson of the Southwest Research Institute, said a large facility was needed to complement research being done at smaller U.S. shaking tables and at a major facility in Japan. A large-scale facility capable of testing full- or nearly full-scale buildings might cost anywhere from $125-$500 million, the committee said.



This map shows the effects (in U.S. areas only) of the magnitude 5.1 Blue Mountain Lake, N.Y., earthquake of Oct. 7, 1983, as indicated on the Modified Mercalli (MM) scale of intensity, which ranges from I (not felt) to XII (almost total damage). The black star shows the earthquake's epicenter. The small dotted area is where the MM intensity was VI, the solid gray area is where the intensity was V and the shaded lined area is where the intensity ranged from II to IV. (Map was prepared by the U.S. Geological Survey.)