

Electron Microscope

If you've been up on the third floor of the Physics building recently you will have noticed the small sign on one of the doors: ELECTRON MICROSCOPE. If the door was open, you might have caught a glimpse of a room with gray plastic walls, with a tall, very scientific-looking instrument in the middle of the floor. That would have been the electron microscope.

Merely stating the facts about the magnification and so forth of this microscope doesn't really convey much idea of its power, just as you can't really imagine the speed of light. To say that it gives magnifications of fifty to one hundred thousand diameters, as compared to two thousand diameters for a light microscope, doesn't mean much. But think of this:—The specimens to be looked at are placed on a wire screen. This screen has **two hundred lines per square inch**. The screen and specimen are placed in the microscope and the image is viewed on a fluorescent plate in the bottom of the instrument. By means of fine-pitched screws, the screen and specimen can be moved about so that different parts appear on the plate. Now the specimen moves along the plate at a fairly rapid rate, yet it takes about a minute to get across one of the squares in the screen, as projected on the plate, a distance of about one two-hundredths of an inch. Of course, that's not at all a quantitative indication of the magnifying power, but it might help you get some idea of what the microscope can do.

One of the questions which people most frequently ask is "Can you see molecules with the microscope?" From theoretical considerations, it doesn't seem very likely, but some of the men working with electron microscopes have reported seeing certain large organic molecules. That is one of the many things which will be found out when more is

known about the instrument. At the present time, the men who work with it are spending their time getting acquainted with it and finding out just what it will do. For the microscope has been perfected only in recent years. There are only about thirty-four in the country, but the microscope has already made important contributions in biology, chemistry and metallurgy as well as in physics.

And on the subject of contributions to biology, many people ask whether viruses, and heretofore unseen germs are made visible. Some work has been done on this subject, and it is believed that many diseases, about which little is known at present, will be conquered by means of the research done with the electron microscope.

Right now, Dr. Copeland, who has charge of the microscope here at IIT, and Francis Breeden, who has been assigned to the microscope laboratory, are making a chamber for the preparation of metal specimens. Anything which is viewed with the microscope must be exceedingly thin. To get metal specimens thin enough, the metal will be evaporated, in a high vacuum, onto a collodion film (which is transparent to the electrons).

Engineer honored at WSE meeting

On Wednesday night, February 24, the Western Society of Engineers held its annual Washington Dinner at which the outstanding engineer of the year, Dean Potter, of Purdue, was awarded the Gold Plaque. The guests were entertained by the Glee Club and Orchestra of Illinois Tech, under the leadership of its director, Mr. Erickson. Many letters of congratulation commending the excellence of the Music Club's performance have been received by Mr. Erickson from attending engineers.

War affects mech department

Dr. Yellott able head of mechs

Heading this week's featured department is Professor John I. Yellott, guiding hand of the mechanical engineering curriculum. When Dr. Yellott came to this school and joined the mechanicals he was the youngest department head at IIT. He started the safety school, instituted the ordinance inspection program and has been in charge of the ESMWT program since its conception. In January, Dr. Yellott was named as the outstanding young man of the year in the Chicago area by the junior Chamber of Commerce.



John I. Yellott

Another member of the ME department is Professor Stanton E. Winston who handles the arrangements for the Western Power Conference and is chairman of the freshman scholarship committee.

Rounding out the department are Loyd Donnell, Frederick England, Albert Gail, Max Jacob, Joseph Kozacka, William Pearl, Walter Seegrift, and Messrs. Alexander Cowie and Roland Budenholzer.

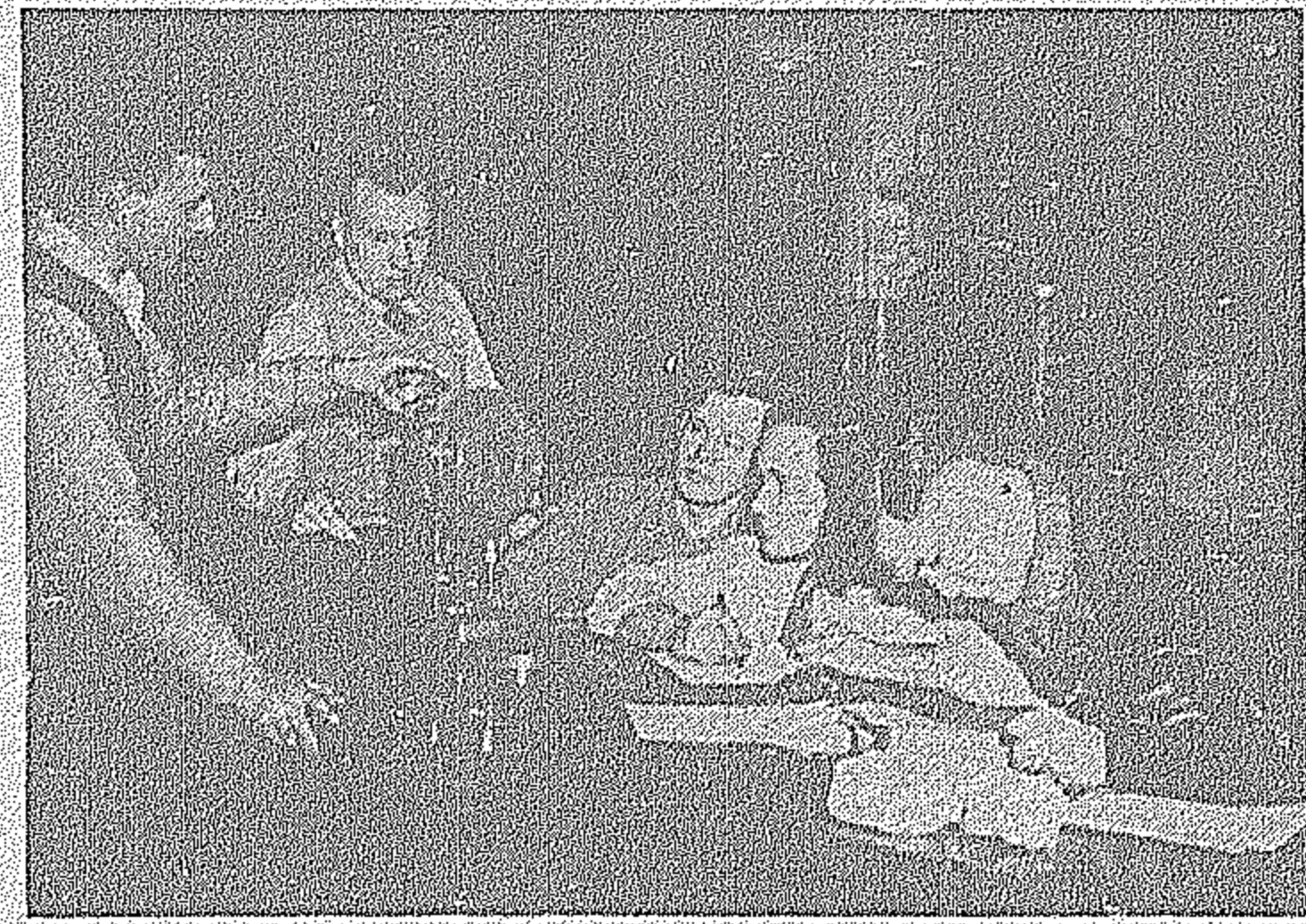
• Navy

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candidates will be interviewed by committees from the Office of Naval Officer Procurement. These selection committees, whose decisions in choosing students for the training program will be final, will consist of an educator, a representative civilian, and a Naval officer.

The Navy is entering into contracts with selected colleges and universities for the training, housing, feeding and medical care of its students. Colleges will be required to accept all men sent to them for training, and may use their own discretion in giving academic credit for the courses taken. Curricula are prescribed by the Bureau of Naval Personnel.

During their college training, Navy students may take part in all college athletics and other campus activities, provided such activities do not interfere with the prescribed hours of study. Any student who is able to meet the requirements of the curriculum and is able to devote time to extra-curricular activities, will be permitted to do so. Navy students will also be permitted to join all previously established campus organizations and fraternities. Under the V-12 program, students will be required to maintain the Navy's standard of discipline, although military activities will be kept at a minimum and will be subordinated to academic training.



Mechanical engineering students experimenting in the steam laboratory at IIT.

By Bill Burkhart

War has had its effect upon all the departments of IIT, but its influence is especially apparent in the department of mechanical engineering. War has brought new problems and increased responsibilities to the department. John I. Yellott, head of the department, has stated that whatever is necessary to the war effort and can be accomplished by the existing staff, will be done.

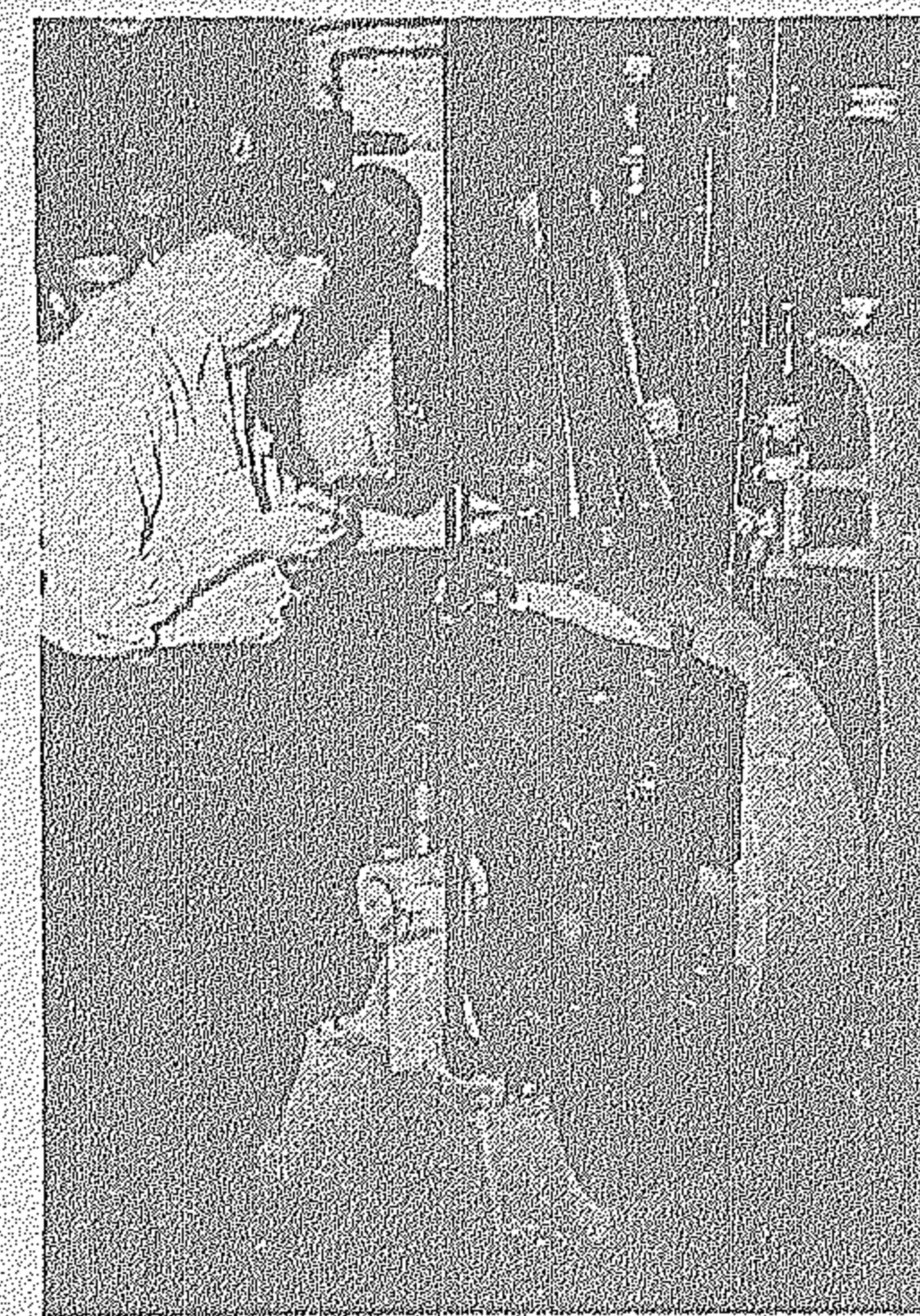
Bearing out this statement, the ME department is working both day and night in the training of engineers and technicians for industry and the armed services. The war training program, now one of the largest in the country, is ever expanding.

This increased activity of the department made it imperative that additional office space be provided. Professor Martin analyzed the traffic in the welding laboratory and found that the tool crib could be moved to a more convenient location. The space formerly occupied by the tool crib was then made into a new office for Professors Winston, Nachman, and Budenholzer and Professor Yellott's office was enlarged to accommodate the numerous staff conferences connected with the operation of the department. A reception room was added, and now visitors to the ME department can wait in comfort.

units which the students are not allowed to operate. The steam lab has been modified with the view of making it safer and broadening the facilities available for experimentation. Apparatus has been set up for the testing of steam flow through nozzles, as well as other projects. Equipment also has been added to the internal combustion engine lab and a wind tunnel is under construction and expected to be in operation before long. An X-ray inspection machine has been purchased for the war training program and space provided for it in the welding lab. Much of this equipment will not be available to the regular engineering classes until after the war.

New equipment cannot always be bought, so the old must be repaired. Accordingly, the machine shop on the Lewis campus is now being modernized. Safety hazards in the form of unguarded belts and gears exist, but are on their way out. It is expected that the Lewis shop will soon be made into a model of industrial safety, showing that old machinery must not necessarily be unsafe.

The armed services will soon make use of the M.E. department's facilities when enlisted personnel will be sent to follow engineering courses. The Navy has announced that it will follow the existing courses, but the Army has not released its plans as yet. When they are announced, the department will have one more war job to do. Plans for the future are of necessity in a state of flux, but when Victory arrives, the department of mechanical engineering will be ready to swing back to the peacetime production of trained engineers.



Action in mech labs

Improvements have been made in the department's equipment, and others are on the way. The department's policy is one of acquiring a wide variety of small pieces of equipment, rather than a few large



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