

## EDUCATION

# Need Brains for Science

DR. SYDNEY B. INGRAM, vice-president of the Engineering Manpower Commission of the Engineers Joint Council, has reported that America's shortage of engineering and scientific manpower is not temporary; it is chronic, continuing and permanent.

There just are not enough men with the gray matter necessary for first-rate scientific work, the New York scientist said.

"Our technical manpower has a definite limit," Dr. Ingram said. The United States thus must determine how to make maximum use of this manpower.

To successfully complete engineering studies, a student generally needs an IQ of 120 or better, Dr. Ingram said. Less than 20% of the population has this kind of brainpower. The engineering schools already get about one-fourth of the men in this group. The other professions must share the rest.

Dr. Ingram did not mean to say America should give up attempts to get more and better scientists and engineers. The United States must increase these attempts to get all who have the IQ to consider the sciences as a career.

"The idea that we've muddled through before and will again just won't work this time, because this problem is absolutely unique in the history of the world."

Dr. Ingram urged the best use of the engineers and scientists America can produce. At present, many engineers are forced to do the work they should have qualified technicians to do for them. The number of workers supporting the engineers and scientists must be increased.

Dr. Ingram also proposed:

1. Government and business should survey their use of their top manpower.
2. Public schools and colleges must offer improved teaching for the top students to maximize their usefulness.
3. High school guidance programs must

be kept up to date on opportunities in science and engineering. Today, institutions for training engineering technicians are partly empty because many persons without the highest IQs are not informed of the opportunities in this work.

Dr. Ingram said the brainpower of America's women is not being directed into scientific and engineering fields, but he saw little chance of this being done within the United States' present social structure.

Science News Letter, February 20, 1960

## PSYCHIATRY

## "Happy College Days" Are Not So Happy for All

COLLEGE DAYS are not the carefree days most persons believe, a psychiatrist reports.

Many students find college life full of mentally disturbing problems. Furthermore, Dr. Melvin L. Selzer of the University of Michigan says, the public is not aware of the seriousness of such mental disturbances among the nation's college students.

The public's misconception may be due to the myth of "the happy college student" based on the superficial impression that everyone on campus is having a wonderful time, Dr. Selzer reports in the American Medical Association Archives of Psychiatry, Feb., 1960.

However, data accumulated at the University's mental hygiene clinic show that eight percent of the total student body visit the clinic annually. Of 506 students interviewed, 35.4% were psychoneurotic. These students suffered from combinations of anxiety, phobias, compulsions, obsessions and a tendency to shift mental conflicts to organic areas.

Of the remaining students, 24.5% had personality disorders while 21.7% were schizophrenes. Only 8.3% of the patients came to the clinic because of problems of

adjusting to college environment.

Thus 81.6% of the patient group fell into the three major psychodiagnostic categories. Dr. Selzer says his survey indicates that students at college mental hygiene clinics are often underdiagnosed. This may be due to several reasons. For one, the busy therapist, in concentrating on the immediate precipitating complaint, may obscure the presence of underlying pathology.

Other misleading factors may be the patient's youth, intellectual ability and academic prowess. It may be difficult to accept the idea that members of this group are emotionally ill.

Finally, there is the popular myth that college students are happy, the belief that campus life is a series of parties and games attended by a carefree, irresponsible student body.

Science News Letter, February 20, 1960

## ENGINEERING

## Electronic Spy Quickly Produces Aerial Photos

A FAST, sharp-eyed electronic spy has been developed for military reconnaissance aboard airplanes or missiles, and an advanced version may some day be blasted off in rockets.

The Photoscan System can produce within seconds an aerial picture measuring 2¼ by 2¼ inches with such sharpness that a ½-by-¾-inch area can be enlarged photographically to an eight-by-ten-inch size with a high degree of recognizable detail.

The view seen by the device can be transmitted by radio either directly or through a relay to the sender, or it can be stored until a more convenient time. The special receiver reproduces the "spy" picture almost instantly for viewing and storage on film.

Developed by CBS Laboratories at Stamford, Conn., Photoscan works this way: A camera shoots the picture on a strip of film which runs through a quick-development process and then in front of a photomultiplier tube.

Photoscan's heart is a T-shaped tube that contains within its vacuum a spinning phosphor-coated drum. This spinning drum is bombarded by a high-powered beam of electrons to produce a brilliant phosphorescent spot. The spot sweeps the spinning drum from end to end. If the drum did not spin, the phosphor would be worn out promptly under the intense bombardment.

This brilliant spot is focused on the film by a moving lens, causing the spot to sweep the picture. The photomultiplier tube reacts to the changes in light it receives through the film and thus sends out an electrical version of the picture. This is amplified and radioed to the receiver on the ground.

Dr. Peter C. Goldmark, the Laboratories' president and director of research, said a visual reconnaissance payload for use in a reconnaissance rocket system has already been proposed.

Science News Letter, February 20, 1960



**ELECTRONIC PHOTOSCAN**—High resolution photographic or other visual information can now be transmitted nearly instantaneously from manned or unmanned aircraft to near or distant receiving stations by the use of the Photoscan System device developed by CBS Laboratories, Stamford, Conn.