



Fremont Davis

FORTY AT CAPITOL—A visit to the Capitol was included in the Science Talent Institute activities for the 40 winners during their stay in Washington (See p. 166; also, SNL 83:150, March 9, 1963).

TECHNOLOGY

Monitors to Detect Germs

► **MONITORING** devices currently under development by the U.S. Army Biological Laboratory will do for chemical and biological war threats what radar has done for nuclear dangers. When completed, they will be put into operation on a 24-hour-a-day, seven-days-a-week basis, just as our early warning systems now function.

Laboratory scientists at Fort Detrick, Frederick, Md., are working on systems that will automatically detect and warn against the presence of toxic chemicals and damaging nerve agents directed against civilians or the military by an enemy. One detector uses a white paper tape, part of which is chemically treated. If nerve agents are present in the air, the chemical will turn pink.

Light reflecting from the tape onto two photoelectric cells will be of different intensities—stronger from the white section than from the pink. The difference in intensities will unbalance the cells, causing a buzzer to sound.

Various systems may be used for the detection of biological agents. One is a monitoring device that analyzes the air for protein content, sounding an alarm when it rises

significantly. Another device, working on a light-reflecting principle, counts and determines the size of airborne particles.

Biological agents can cause anthrax, diphtheria and cholera, to name only a few human diseases, and can greatly damage or destroy crops and food-providing animals. The nerve gases, a dreadful group of chemical agents, which cause uncontrolled muscular contraction, result in paralysis, prostration and death. Because warfare utilizing these agents would have such devastating effects, the Government's Chemical, Biological and Radiological Agency has long been engaged in efforts to protect the public both by basic research and resulting practical developments.

From the Agency's work have come vaccines against anthrax and tularemia, rinderpest and foot-and-mouth disease. A mechanism for use in air-pollution control has been developed; so has a greatly improved contagion mask. A number of other safety devices, worked out in the course of research, are now common in chemical and biological laboratories all over the country.

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EDUCATION

New Tests Needed In Picking Students

► **IT TAKES** more than an I.Q. score to pick out a talented student, Dr. John M. Stalnaker, president of the National Merit Scholarship Corporation, said in Evanston, Ill.

No single test can show all types of talent. Tests of scholastic aptitude and educational development are fine in their place, but more information about ambition, originality, independence and other "characteristics that affect human achievement" is needed, he said.

The Merit Program gives college scholarships to outstanding high school seniors. The students are chosen by competitive examinations, and the amount of the scholarship is based on individual financial need.

The program was set up in 1955 through Ford Foundation and Carnegie Corporation grants. A new Ford Foundation grant, made in April 1962, will carry the scholarship program through to 1970 and will provide for continued research and experimental programs.

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PSYCHOLOGY

Optical Illusions Fool Some, Sometimes

► **OPTICAL** illusions fool some of the people some of the time, but not all of the people all of the time, scientists have found.

Psychologists and anthropologists showed two types of optical illusions to groups of people all around the world—from Africa to the Philippines.

The European or Western groups, which included South African Europeans and American college students, were susceptible to one type of illusion. Non-Westerners such as the African Zulu and Senegalese fell for another.

The groups did not perform differently because one was "civilized" and the other "primitive." Their differences on optical illusion tests stem from differences in their ways of life, Drs. Marshall H. Segall of the University of Iowa and Donald T. Campbell and Melville J. Herskovits of Northwestern University reported in *Science*, 139:769, 1963.

The West is a "carpentered" world, full of man-made corners and other right angles, Dr. Segall told *SCIENCE SERVICE*. Westerners are used to looking at corners from all sorts of perspectives, and they always come out seeing a right angle. It is a good thing, because the Western world is full of rectangles, Dr. Segall commented.

Westerners make mistakes with optical illusions that have oblique angles, because they are used to seeing angles in perspective, like the corners of a room.

Non-Europeans who have experience with open plains and far-stretching fields, but not with rectangles, make visual mistakes with forms that have right angles.

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