

GENERAL SCIENCE

Scientists of the Future

With the war over, youth is anxious to get on with its work of building a greater America and a more livable world through science.

By MARGARET PATTERSON
and FRANK THONE

► THE DEFEAT of Japan is attributed by Hirohito to the greater scientific achievements and resources of his enemies.

Exactly what the Mikado may have been thinking when he made this statement is of course his own secret, but it is fairly safe to conjecture that the poor little man's ears were still ringing from the atom-bomb thunderclaps in which two of his cities had instantly vanished, with the paralyzing fear that many others could be blasted in like manner at any moment.

He may also have had echoing about in his head other key-words of modern applied science, representing things that have contributed directly or indirectly toward the overwhelming technical superiority of the United States and other nations arrayed against him—words and symbols like radar, pentolite, high-octane, nylon, sulfa, penicillin, DDT.

All these things came out of the laboratories of the West, and found their way into use in planes, on warships, among the advancing ground troops, in hospitals where his enemies' wounded and sick recovered to return and fight again. It was truly a dismaying array of knowledge and skill to have to face, while his own universities and high schools had to be emptied into the armed forces, and even grade-school children were at last desperately drafted into the island empire's dwindling war industries.

Look at Our Record

Before we Americans accept this reluctant compliment too smugly, we had better take a good look at our own record. True enough, we have in the past few years wrought scientific miracles in war, and expect to go on working them in peace. But what have we paid? Are the brains that made these miracles possible still on the job? Will they be, for the no less exacting demands that peace will bring?

We have been warned lately, and from most responsible sources too, that in our

eagerness to swell numbers in the armed forces we have been stripping our own laboratories and universities and even high schools of exactly the type of intellects and skills that has made our hard-won victory possible at all.

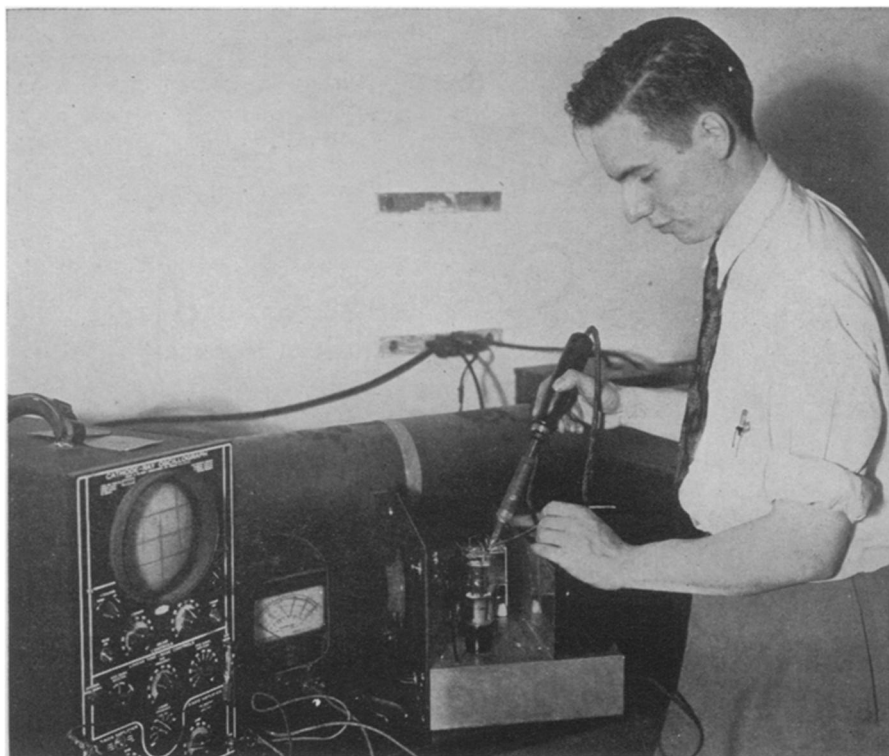
The now much-quoted report of Dr. Vannevar Bush, head of the Office of Scientific Research and Development, pointed out that because of the indiscriminate drafting of young scientists to serve in the ranks of infantrymen—and in barracks as KPs—we now have 150,000 fewer college graduates with degrees in the sciences than we normally should have, and a further deficit of 17,000 in the elite corps of research men—those who have piled another three or more years on the four-year college course and are ready to carry on independent investigations and to train others in their advanced fields.

These are dismaying deficits for the most powerful nation in a science-ruled world to face. Because they are so big they have a tendency to dull the mind to their real significance. So let's take a look at a smaller sample—one where individuals may be seen and counted.

During the past four years, the Annual Science Talent Search has been conducted by Science Clubs of America, among high school seniors all over the country, to select 40 exceptional boys and girls who will be brought to Washington, D. C., as finalists in competition for honors and substantial Westinghouse Science Scholarships. The fifth of these searches is now in progress and will end Dec. 27.

Of the total of 160 students who have thus far reached the finals in the four annual searches, 43 are girls. Since they are not subject to the draft and most of them are too young to be accepted for uniformed service women's organizations, they have gone on with their college courses.

Of the 117 boys, 59 have been called



SECRET PROJECT—Irving W. Rozian of the University of Michigan is shown working on the audio-oscillator which he assisted in building for a war-secret project for NDRC of OSRD.



CANCER STUDY—Virginia March, working at McArdle Memorial Laboratory for Cancer Research, University of Wisconsin, is shown giving a mouse its semi-weekly painting with hydrocarbons to induce tumors to aid in the study of cancer.

to the colors and thus have had their scientific training interrupted more or less seriously. Some of the other boys were under military age or were deferred for one reason or another.

Of the 59 called up for service, 33 were permitted to continue their medical, dental and engineering courses under Army and Navy training programs. Some of the others were sent to serve with the infantry and other Army and Navy combat outfits, where their scientific background was of little or no use. Others were rushed through short training courses and assigned to duty as specialists in communications, laboratory technicians and so on. Two were later invalided home. One of these, wounded in some of the toughest infantry fighting in Germany, received his discharge just before V-J Day and is now ready to resume his study of chemistry where he had to drop it a couple of years ago. Up to now, fortunately, none of the 59 young men in the fighting services has been reported killed.

However, some of them have been able to work along lines in which their special talents have been partially utilized in the war effort; and in a few instances their war experience has even opened up new outlooks or given new opportunities.

For instance, Cpl. Allan E. Voigt of Salem, Ore., set to work in an Army

hospital, developed certain laboratory techniques useful in the study of malaria. He was also permitted to make a malaria survey of Germans in a prisoner-of-war camp. Lately he has switched his attention to the effect of penicillin on bacteria in myelitis cases. He is pointed straight for medical school at Northwestern University as soon as he gets his discharge.

Cpl. Barton Brown of Sea Cliff, N. Y., after a year of chemistry at Massachusetts Institute of Technology, was put to work on some hush-hush communications equipment at Mitchell Field. As a result of this experience he intends to return to that school with electronics as his major.

German Interpreter

Pfc. Robert L. Folger of Winter Haven, Fla., is getting a fine edge on his knowledge of German, which will continue to be an important language to scientists because of the immense amount of important research results published in Germany before the Nazis brought ruin to that country. He has been teaching a class of his fellow GI's, and is also chief interpreter for his battalion. But he is anxious to get back to his chemistry laboratory at the University of Illinois.

Students who were permitted to pursue their college courses undisturbed by calls to the armed service have not been out of the war picture altogether. Some of them, indeed, have been very much

in it. Just a few examples:

John W. Michener of Pittsburgh, studying physics at the Carnegie Institute of Technology, has found time also to work on several secret OSRD projects in communications.

Richard Hinkle of San Francisco, student at the University of California, has served as a human guinea pig in high-altitude tests in the pressure chambers of the Donner Research Laboratory.

Rodman Jenkins, pointing for a career in chemical engineering at the Massachusetts Institute of Technology, has helped to make a new synthetic anti-malarial drug similar to atabrine. Along with many other Science Talent Search winners there, he is a member of the M. I. T. Rocket Society.

The girl winners in the various contests haven't been living in ivory towers while the world was at war, either. First girl to take first honors, Marina Prajmovsky of Farmingdale, N. Y., has now received her bachelor's degree *magna cum laude*, with a Phi Beta Kappa to boot. She is taking a year out before she starts toward her Ph.D., to put in full-time work on a regular laboratory job at Harvard, investigating the physiological effects of DDT on nerves.

Evelyn Pease of Evansville, Ind., chemistry student at the University of Indiana, has spent her summer vacations working in a laboratory in her home town, helping in the synthesis of new

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Do You Know?

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There are 2100 species in the *carrot* family.

Permanent *magnets* have been used as compass needles since 2,600 B. C., according to legend.

Citrus juices are America's favorite fruit drink, and account for about 80% of the canned fruit juices consumed.

India has large supplies of iron ore, manganese ore and coal, so is in a position to become a heavy producer of steel.

A new process in *magnesium casting*, in which stirring replaces superheating, has been developed in University of California laboratories.

An *underwater spotlight* for deep-sea diving operations packs 1,000 watts inside a bulb the size of an ordinary 40-watt type; if lighted where there is no cooling water pressure, it would fail in a few minutes.

sulfa drugs. For relaxation she takes flying lessons.

Two girls have taken over tasks set aside by male members of the Harvard College Observatory when they went into war work. The girl astronomers are Anne Hagopian, first-place winner in 1944, who is a student at Radcliffe, and Constance Sawyer, who commutes from Smith College for her nocturnal job in Cambridge. Photographic plates taken by these girls through the big Harvard telescope show the outburst of the latest nova, or exploding star, found in the constellation Aquila.

Patricia Dunkel of Rochester, N. Y., Wellesley student, got her summer sun-tan the hard way. She gained practical experience by taking an outdoor job on the farms of a seed company, where she did everything from transferring pollen to swinging a hoe.

Wartime college life has been real and earnest for these ambitious young scientists, but it hasn't been without its share of regular student fun. Nor have they been pale young intellectuals, either: football, basketball, wrestling, pulling an oar on the varsity and other strenuous forms of sport have split time with swimming, tennis and sailing. Two things that might set them slightly apart from the pre-war "College Joe" are a

rather general interest in chess and a decided liking for the more serious type of music. A number of the young men and women are themselves musicians; the violin seems to be the most favored instrument.

Now that the war is over they are champing at the bit to get on with their real occupation, which is preparation for doing their part towards the building of a greater America and a more livable world through science. They take a decided interest, too, in plans for the first peacetime Science Talent Search, which will culminate in the early spring of 1946.

They are urging their younger school-mates, now seniors in high school, to get into the contest. Science Service, in Washington, D. C., which administers the annual Science Talent Search, is already beginning to receive inquiries from interested teachers and school officials.

Science News Letter, September 22, 1945

CHEMISTRY

Chemical Industry Medal Awarded to Editor

THE CHEMICAL Industry Medal for 1945 has been awarded to Sidney D. Kirkpatrick, editor of *Chemical and Metallurgical Engineering*, a McGraw-Hill publication, by the American Section of the Society of Chemical Industry. It is an annual award, made for contributions to the advancement of chemical engineering and research.

The presentation of the medal will be made in November. Selection of recipients is made each year by the society's executive committee.

Science News Letter, September 22, 1945



"Fingerprints" of Colors

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