

cannot be made on demand by any system of training. However, the British editorial argues, Sir Lawrence Bragg's definition of a good physicist as "a man capable of independent thought, with a flair for his subject," has set the standard too high. Many of the tasks for which physicists are required can be very adequately performed by men and women less gifted.

There has been a very substantial increase in the size of the physics classes

in British universities and colleges. While this may not add materially to the numbers of "good physicists" it will add substantially to the numbers available for the more routine but no less important posts for which originality of a high order is not necessary. And this will enable the strictly limited number of men with a real flair for research to be assigned to the tasks which they alone can do.

Science News Letter, October 3, 1942

EDUCATION

Victory Corps Planned

Enlistment of 6,500,000 girls and boys in secondary schools for voluntary war service training is announced as a national war policy. No uniforms to be worn.

➤ A U. S. HIGH SCHOOL Victory Corps in every high school, enlisting 6,500,000 girls and boys volunteering for war service training, was announced in Washington as a national war policy.

Resulting from recommendations of the U. S. Office of Education's Wartime Commission, the new plan is being urged upon all secondary schools, private and public, by War Manpower Chairman Paul V. McNutt and Commissioner of Education John W. Studebaker, acting through state school systems.

Accelerated special training of youth for war service is the major objective of the High School Victory Corps. Active participation in the community's war effort is another aim.

There will be activities of the HSVC in classrooms and after school hours

as well in the nation's 28,000 high schools.

These are among the projected activities:

Guidance of youth into critical services and occupations.

Wartime citizenship training to insure better understanding of the war, its meaning, progress and problems.

Physical fitness.

Voluntary military drill for selected boys.

Competence in science and mathematics.

Pre-flight training in aeronautics for those preparing for air service.

Pre-induction training for critical occupations.

Community service including training for essential civilian activities.

"The high school can't go on doing

business as usual," said the Policy Commission's recommendations that brought forth this new plan for high school education. "High School youth are impelled by patriotic considerations to point their training to preparation for war work, to tasks requiring skill of hand and strength of body, coupled with intelligence and devotion."

Every student who will complete high school within two years will have the opportunity of enrolling in one of five divisions: Land Service, Air Service, Sea Service, Production Service, and Community Service.

Special insignia will be worn by the HSVC and each of its divisions. In general, uniforms will not be worn but there will be a special cap of overseas type that may be made at home.

The basic idea of the Victory Corps is the cutting down of the time needed to train men and women after they have enrolled in the armed forces and in war industries. Special pre-induction courses prepared in cooperation with the War Department will bulk large in America's new educational program.

Science News Letter, October 3, 1942

ASTRONOMY

Mexican Postage Stamps Have Astronomical Theme

**By DR. HARLOW SHAPLEY,
Director, Harvard College Observatory**

➤ A LIMITED ISSUE of postage stamps portraying astronomical features was issued by Mexico in connection with the dedication of that nation's new astrophysical observatory at Tonanzintla in the State of Puebla this year.

Shown at the extreme left, in the illustration on this page, is the 2-centavo stamp. The dark nebulous cloud be-



tween the belt stars and the sword stars in Orion is sometimes called the Bay Nebula, sometimes the Horsehead. It is a mixture of dark and bright nebulosity, clouds of dust and gas. Distance about a thousand light years.

Next is the 5-centavo stamp showing the total eclipse of the sun. The shape of the corona depends on the time of the eclipse in the sun's eleven-year sun-spot period. Recent investigations have indicated that highly ionized atoms of iron, nickel, and calcium are responsible for the brighter radiations of the sun's corona.

At the right is the 10-centavo stamp showing the spiral galaxy in the Hunting Dogs, Messier 51. The spiral is seen face on, and above it is a great gaseous nebulosity, at the end of one of the spiral arms. The system is composed of billions of stars, and the whole group is separating from our somewhat similar galaxy at the rate of about 160 miles a second.

On this page, the first stamp shown, is the 20-centavo stamp. The spiral galaxy NGC 4594 is an enormous flattened system of stars about seven million light years distant. The individual stars cannot be seen with the most powerful telescopes. The spiral is receding from our galactic system with a speed of 700 miles a second—a local indicator of the expansion of the universe. The dark line across the galaxy is produced by clouds of absorbing dust in its Milky Way plane, dust of the same sort that makes the Bay Nebulosity on the 2-centavo stamp.

The 40-centavo stamp, next, shows the famous Ring Nebula in Lyra, visible with a moderate-sized telescope. The Ring apparently is a part of the

central star, a great shell of atmosphere that blew off long ago, making the star temporarily a "nova." The four stars outside the Ring belong to the field and have nothing to do with the Nebula.

On the one-peso stamp at the extreme right is what may be one of the first scientific plottings ever to appear on a postage stamp. It is the famous Russell

diagram and shows the observed relation between the candlepowers of stars and their surface temperatures, or in other words, between their absolute magnitudes and spectral classes. The sun's place is in the middle of the longer sloping streak—a star of average color and average candlepower.

Science News Letter, October 3, 1942

ENGINEERING

Save Waste Light

Illumination falling on dark surfaces in war plants must be salvaged for victory. Brighter color contrast may double visibility with same light.

➤ **VISIBILITY** in factories may be greatly increased, sometimes even doubled, without any change in the lighting system, by the use of high-reflecting paints and contrasting colors. This was described at the meeting of the Illuminating Engineering Society in St. Louis by Arthur A. Brainerd of the Philadelphia Electric Co., and Robert A. Massey of E. I. du Pont de Nemours & Company.

Light which falls on dark walls, floors and ceilings, or escapes to the rafters, is waste light which, along with other industrial wastes, must be salvaged for victory, in the opinion of these engineers.

By painting these surfaces, as well as bench and table tops with light-colored high-reflecting paints, this light may bounce from the surfaces many times and thus be used several times over. By making these changes in a small test room, the visibility was increased from an original 27% to 55%, a 100% improvement. Similar changes made in

a number of factories gave very satisfactory results, it was reported.

Particularly important is a ceiling under the rafters. A light colored floor also adds visibility to all sides of a machine.

These background colors should be weak colors, such as horizon gray, and cream, the engineers said. Also they should be matt or dull finish, since it is the diffuse light that makes objects visible.

Since surroundings will be bright, color contrast must be relied on, rather than brightness contrast, to bring out the machinery and work. These colors must be stronger than the background colors, but not too strong, for strong colors fatigue the eye. Rather they should be

HONORING ASTRONOMY — Mexico has issued this series of stamps of particular astronomical interest. The meaning of the stamps is described in the article on this page.

