

AVIATION

Streamlined College Course Recommended for Pre-Training

To Speed Training of Aviation Personnel, Committee Of Secretary of War Offers Plan for 12-Week Course

STREAMLINING of college courses in mathematics, physics, astronomy and weather science to offer pre-training for the 450,000 new aviation personnel required this year and next for President Roosevelt's expanded aviation program is recommended in the report of a committee appointed by the Secretary of War.

The committee, which was nominated by the American Association for the Advancement of Science, consists of Dr. William L. Hart, University of Minnesota, Dr. W. M. Whyburn, University of California at Los Angeles, and Dr. C. C. Wylie, University of Iowa. They studied the problem of the ground training and preliminary training that might be given in high schools and colleges to insure an adequate flow into the armed forces of properly trained pilots, navigators, bombardiers and other aviation personnel. They observed the training in progress at Maxwell Field and other fields in the Southeast Air Corps Training Center.

The magnitude of this job facing educational institutions is revealed in an announcement by Dr. F. R. Moulton, permanent secretary of the Association, of the planned streamlined curriculum for colleges.

"The program of production of military planes which President Roosevelt announced two or three weeks ago (50,000 planes in 1942 and 125,000 in 1943) calls for at least a trained aviation personnel of 150,000 men this year and 300,000 next year," he said. "An unknown fraction of these requirements will have had a considerable part of the necessary college training and will enter the service directly.

"It will be of very great aid to the national defense to give as many of the remainder as possible most of their pre-training in educational institutions. If the numbers to be trained in schools should be half of the total required, or 75,000 and 150,000 in the two years, the number of classes would necessarily be enormous and the facilities of the universities would be taxed. Consequently,

it is important to start the courses at once in as many institutions as possible, partly to prepare men for the air service as rapidly as possible and partly to gain experience for a greatly increased effort. It is likely that many changes and improvements will be made in present plans under the teachings of experience."

The new college course as outlined by the committee can be telescoped into 11 or 12 weeks for students who have had advanced high school algebra and some solid geometry, the committee believes.

Emphasis throughout is on practical applications and manipulation. Theory is kept to the minimum necessary for understanding of the work.

In the plane trigonometry course, students will use a slide rule and each is

expected to possess a cheap one of his own. In solid geometry, proofs will be held to a bare minimum; great emphasis will be placed on the drawing of figures and making simple paper models for three-dimensional situations. In spherical trigonometry, emphasis will be on problems of latitude, longitude and the astronomical triangle on the celestial sphere; examinations will be of the "open book" type, the object being to give the student confidence later in the use of navigation tables. Problems of the navigator will be kept in mind in the astronomy and weather course. The physics course will not be of the theoretical type.

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PHYSICS

Burning Diamonds Shows Why Some Fluoresce

WHY some genuine diamonds fluoresce or glow a brilliant blue, others a yellow and most of them not at all, when exposed to ultraviolet (or "black") light, was revealed by burning the precious stones in an electric arc.

This is the first time that so drastic a method has been used to determine the cause of fluorescence in diamonds



DRASTIC TEST

Burning a diamond in the electric arc to find out what it's made of. Standing, James M. Orr, and seated, Jack DeMent.

which milder methods had failed to disclose. The light from the burning diamond was analyzed by a powerful spectrograph, an instrument which sorts out the light of the burning diamond according to its various wave lengths, and tells what elements are present in the stone as impurities.

These impurities were found to be the cause of the various types of fluorescence. The blue-glowing diamond was

found to contain chromium and titanium as the principal impurities, the yellow-glowing gem contained aluminum, and the non-fluorescing stones were almost pure carbon.

The investigators were James M. Orr, spectroscopist, and Jack DeMent, chemist, both of Portland, Oregon, who report full details of the investigation in the current issue of *The Mineralogist*.

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PUBLIC HEALTH

Sugar Rationing Called a "Godsend" to National Health

Without Sugar, People Will Substitute Other Foods Containing Vitamins Lacking in Refined Sugar

MOST Americans have too sharp a sweet tooth, and a little sugar rationing will do them more good than harm, according to dentists and diet authorities.

Psychologists unofficially hint that millions of citizens who "have always intended to cut out sweets, some day," will now find the push from Uncle Sam most helpful.

M. L. Wilson, assistant director of nutrition, of the health and welfare defense program, declares:

"Sugar rationing certainly will harm

no one. People will meet the restriction on sugar by adding calories from other sources—sources which contain vitamins and minerals lacking in our refined sugar."

Dr. L. H. Newburgh, University of Michigan authority on diet, advises:

"Don't complain about sugar rationing; it will be good for you. As a matter of fact, it would be a Godsend if there were no sugar at all.

"For, if there weren't, we would be forced to eat more grains, meats, milk, green vegetables and other foods which

give us everything that sugar does plus much-needed B vitamins and minerals."

Dr. Newburgh points out that sugar's only importance to our diets is its fuel value, and this may be readily replaced by a host of other foods which provide more than mere fuel.

Milk is the best fuel substitute for sugar, he continues, since it also provides proteins, vitamins, salts and fats. One glass of milk, he says, is equal in fuel content to four teaspoonfuls of sugar.

Whole cereals are a much more wholesome food than sugar, since they provide, in addition to fuel, vitamins of the important B group and 10% of protein. An ordinary portion of oatmeal, for example, is equal in fuel value to four teaspoonfuls of sugar.

Dr. Russell Bunting and associates of the University of Michigan School of Dentistry state in a recent report that sugar is a very important causative factor in tooth decay.

"A remarkably low degree of (decay) was observed in children on a low-sugar diet deficient in calcium, phosphorus and vitamin D. Active caries (decay) was induced in children by increasing the sugar intake while they were receiving a diet that nutritionally was adequate." Low-sugar diets, they add, as a rule help keep children free of tooth decay.

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ENGINEERING

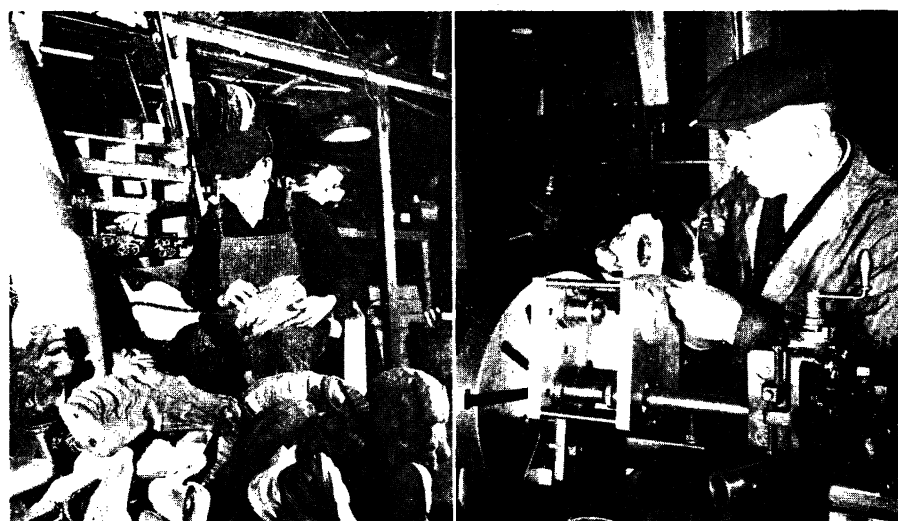
Merry-Go-Round Maker Converts Plant for War

WORKMEN who once made merry-go-rounds, chute-the-chutes and other thrill rides loved by every American from Coney Island to Los Angeles' Ocean Park, now are turning out implements of war, says the new War Production Board.

According to the WPB, one of the world's largest amusement park equipment makers has abandoned its peacetime business completely for war orders.

Craftsmen who for a quarter of a century carved wooden horses' heads for youngsters to clasp on the carousel, now are at work on a lathe. Artists who painted modernistic designs for "silverstream" rides, learned to make die castings.

Machines which shaped the tracks for roller-coasters, "whips," caterpillar rides, now bend hooks for airplane packing cases, while workers once used to building ferris-wheel towers, now build towers used by repairmen to reach the noses of giant bombers.



BEFORE

AFTER

The same skilled hands that carved the gay horses for merry-go-rounds are now applying their dexterity to making the implements of war. The conversion from peace to war is shown graphically in these official photographs of the Office for Emergency Management.