

ENGINEERING AND SCIENCE

Monthly



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The Month in Focus

TECHNICAL MANPOWER

AN EDITORIAL appeared in a June issue of the "Saturday Evening Post," pointing to a technological problem of a serious nature. This problem has to do with the effective creation of a shortage of technologists less than 30 years of age. Those who read these pages are undoubtedly cognizant of the scarcity of young engineers and scientists who should have been bringing into the field of technology the new life which is characteristic of youth.

In many cases, some of these younger men have been retained directly in the field of engineering or science for which they were trained by technological institutions. There is a large number, however, who have been required through selective service to enter the armed forces. One may argue that the armed forces as well as research and industrial organizations require the talent characteristic of men having engineering and scientific training. There would probably be somewhat less criticism of this policy of forcing a rather large number of individuals with this training into the armed forces if those individuals were given jobs commensurate with their training or in which their training could be fully utilized.

This country, being a democracy, may—and possibly rightfully so—take the attitude that professional standing should not place an individual in a special class which would be immune from regulations applied to all citizens of the country. All should be treated on an equal basis.

In the case of this war, we may ask has this been a rational approach to the solution of problems associated with a war which depends so much upon technological developments. During the past four years we have depleted the younger group of engineers and scientists. We find ourselves now, and shall find ourselves in the future, to have created a blank spot in our technological development. We may never replace the time lost. We will probably never know how much we may have slowed up scientific and engineering progress. One often hears that a war tends to accelerate technical developments. This is undoubtedly true, but will we have men who have been trained to carry on developments and to extend them

over a period of several years following the end of the war?

The men of military age who have had scientific training have not been derelict in their duty or disinterested in joining the armed forces. It has been the older men who have recognized the situation and who have made every possible attempt to hold the young technically trained men in the field of engineering and science in order that that field might contribute its greatest effective and concerted action in technological development for the war effort. Let us hope that these older men have been able to retain a certain group of the younger men, and that the situation may not be as bad as it may appear to some. It is certainly a problem worth thinking about.

Now that the war has come to an end, young engineers and scientists will be needed for work on peacetime activities. Before many of these men can be utilized most effectively, they will require a certain amount of refreshing in their respective fields. None can tell precisely what the demands for trained technical men will be, but the demand probably will be high since very little successful recruiting has been done by industry in the past three or four years.

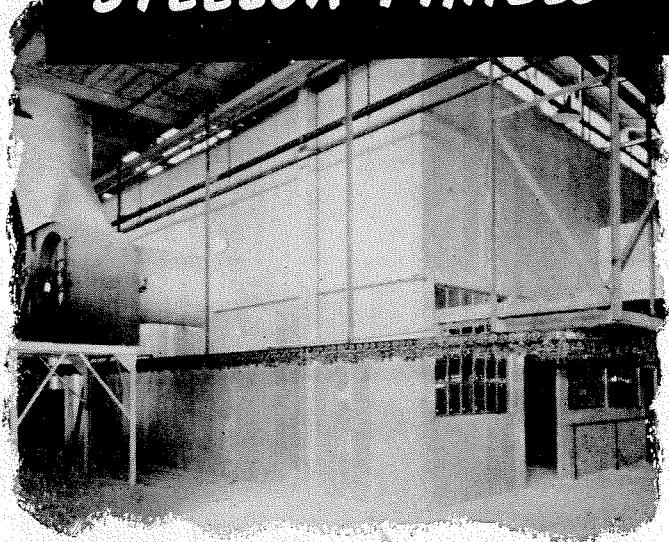
UNION PROBLEMS

In the past, engineers and scientists have not been particularly concerned or involved in labor union activities, except through their general interest as citizens of the country. Recently there have been efforts by some engineering groups to organize into what might be termed unions or professional organizations for the principal purpose of creating bargaining agencies. To many, it appears that the creation of such organizations has been made necessary for their own protection, by certain actions taken by existing labor unions.

One cannot help but note the attitude of some sections of the labor unions which comes very close to that of despotism. A union is supposed to be organized for the benefit of its members and to be controlled by the membership and to act in accordance with the wishes of that membership.

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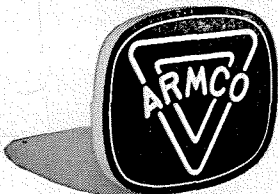


When peace comes and operations return to normal, more and more industries will be on the lookout for ways to improve their working conditions and increase output. Air conditioning will be used extensively to better control new products and processes in the postwar era.

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sonnel, mechanics, and inspectors, each independently carrying out his individual assignment. There is even activity in the wings, their unusual thickness permitting access to the engine nacelles in flight. As the airplane makes its circuit about San Francisco Bay, men crawl into the nacelles five feet in back of the propeller to make sure that everything there is in tip-top running shape. Should it be necessary to communicate with the pilot, the radio operator, or the flight engineer, push of a button will connect them via the interphone system with any of these men.

The test flight ends—it may be the middle of the night. Back on the ground, Inspection tells Planning what loose ends must be tied together and this information is passed on to those who will accomplish the necessary work involved with maximum speed. If calibration tests have been required, the performance engineer finishes the reduction and plotting of data obtained during the test flight and his conclusions are posted within the airplane for the use of the departing flight crew. Planning, estimating accurately how much time will be required to accomplish these finishing touches, has already called Operations, announcing just when the plane will be ready. The traffic department has notified the passengers and the loading crew is standing by.

BACK ON SCHEDULE AGAIN

At the time agreed upon, the airplane is released to Operations; and except for the beaching crew that does the casting off and the line crew mechanics and inspector who again warm up the engines, the maintenance department has already turned its attention to another airplane. The passengers' going aboard, the thundering taxi run, the ultimate take-off—features which still thrill the bystander—are now accepted as routine. That is the difference which numerous departures a day have made. If one were to desire additional evidence, he should note the passengers going aboard. Before the war began, it was orchids, dress clothes, cameras, flashlight bulbs, plus innumerable friends and relations. Now it is a group of military personnel, commissioned and enlisted, some of them in shirtsleeves, their luggage merely a khaki bag under their arm, their departure unheralded and unattended.

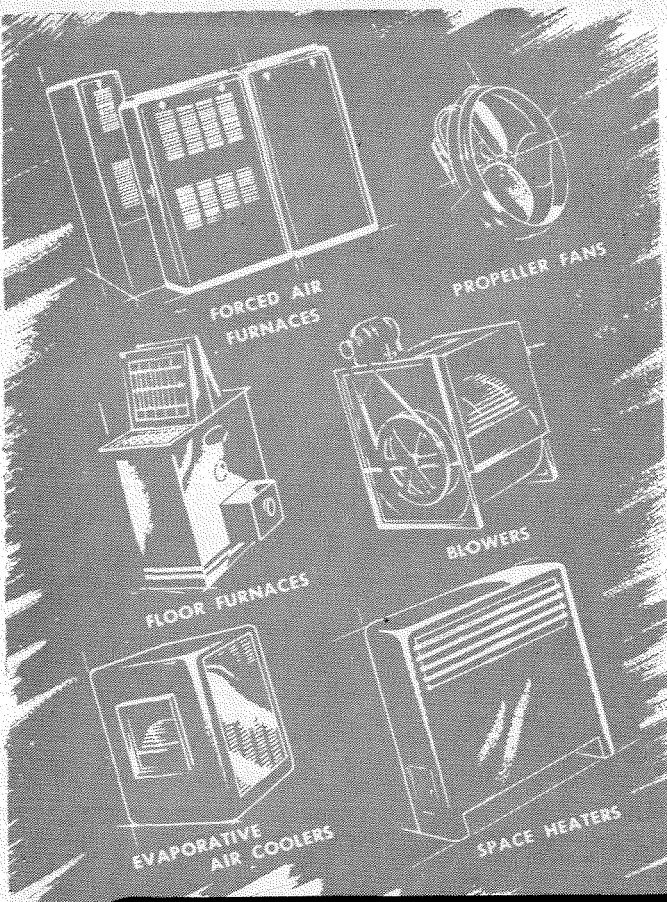
To summarize, it may be stated that for Pan American Airways' Pacific-Alaska Division, the net results and benefits derived from improved products and streamlined maintenance methods over a 10-year period have included a 250 per cent increase in utilization and a 30 per cent decrease in elapsed service times required. Such an increase in utilization is tantamount to almost tripling the size of the fleet on the basis of seat-miles and ton-miles made available. Finally, since the actual number of units operated has increased even more than this, it is evident that operations have been stepped up tremendously.

In this light, then, "Turning Them Around," while still retaining its adventurous side, is today a mature business.

Month in Focus

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Recently, and probably in the past as well—at least more obviously now—several cases have been observed in which the membership of a union organization have



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voted not to act in a certain direction. This action has not met with favor by some of the administering group who constitute a minority. The minority have attempted or threatened to cancel memberships.

Certainly unions can be of benefit to their members and to society as a whole, but they must be run on a democratic basis and not on that of dictatorship. When it gets to the point where no man can work where he chooses, vote as he chooses, financially support or not support political groups as he chooses, life in these United States ceases to be free. May we hope that the conditions which seem to be prevailing at present in connection with certain organizations will improve. Improvement can only come through the exercise of the democratic rights of each citizen. If these rights are not exercised, through laziness or disinterest, those rights will naturally be lost.

A few lines taken from "Autumn Leaves" by P. W. Litchfield seem appropriate:

"While there is one untrodden track
For intellect or will,
And men are free to think and act,
Life is worth living still."

Let us hope that we shall remain free to think and act and that the professional group will maintain themselves on a high democratic plane.

The United Nations Conference

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the greatest strength, now and in the foreseeable future, resides in Russia and the United States. Both of these powers are comparatively new to leadership in world affairs. It is to be expected that comparative inexperience in their new roles will make at first for some awkwardness. Understanding between them will remain more difficult because of the differences of their political heritage and their present economic and political systems. But neither country can lightly consider the alternative to successful cooperation.

C. I. T. NEWS

FOOTBALL

By HAL MUSSELMAN,

Director of Physical Education

BUCKLING down to work in mid-summer heat, the 1945 football squad of 45 men opened practice the middle of August in preparation for a six-game season. Games have been scheduled on consecutive weeks with Redlands, Occidental, Cal Poly, U.C.L.A. Junior Varsity, San Diego State, with a return game with Occidental concluding the season.

The new coach, Pete Brown, who has an enviable record both as a player and assistant coach at Colorado State, appears quite optimistic over the 1945 Tech team. However, it would be asking almost too much to expect the squad to duplicate the phenomenal record of the 1944 squad.