



Colleges are Learning from the War

OUR colleges are learning a good deal from their present war experience. Perhaps one might put it more accurately by saying that they are re-learning things which they were assumed to have learned from previous war emergencies. The older universities and colleges of the United States have had plenty of opportunity to learn what war means to them. At Harvard, for example, the facilities of the university have been taken over by the armed forces on four occasions—in the Revolutionary War, the Civil War, and the two World Wars. Under such conditions the impact of war on higher education becomes an old story.

Universities and colleges are in general rather conservative. They dislike to have their normal routine upset. Even those institutions that call themselves progressive do not make changes very often or very fast. The ordinary course of social or economic progress is likely to find some colleges lagging behind, and even at the onset of war there is an effort to keep on doing business as usual. But of course that can't be done; modifications have to be made at accelerating speed as the months go by. So one of the lessons that the colleges are now learning anew is that war inexorably demands not only a shift of emphasis in the curriculum but great readjustments in the social and athletic activities of the student body.

Members of the faculty are set to the teaching of new courses, or even new subjects—in some cases requiring a considerable display of versatility. Many of them are detached from teaching to handle research projects of military importance or are called into some branch of the public service. Civilian students, those of them that remain, are turned out of the dormitories and dining halls

*An address at the 1943 Commencement Dinner of the California Institute Alumni Association.

By WILLIAM B. MUNRO*

to make room for the boys in uniform. Intercollegiate games—at any rate the great commercialized spectacles—go into eclipse. Students in uniform find little time for social distractions after the heavy schedule of studies, drills, and physical training is finished.

The impact of war on the colleges has been greatly altered by the new methods of conducting warfare. Wars are no longer fought by volunteers, as were all the wars in which the United States participated prior to 1917. An army of eight or 10 million men cannot be raised by voluntary enlistment. Some sort of selective service system is essential to the raising of so large a force, and when drafting begins it cuts deeply into the college enrollments. Yet the public authorities realize that a general exodus of college students into the armed forces would be little short of disastrous in the event of a prolonged conflict. It would exhaust our principal reservoir of material from which a continuing supply of young officer-candidates must be drawn.

One does not need to argue the point that the highly specialized technique of modern warfare has now come to demand, as never before, a measure of training in mathematics and in the natural sciences which is far beyond what the average citizen realizes. There is hardly a single branch of either the military or naval service which does not now require, even on the part of its most junior officers, a considerable degree of proficiency in some one or more of the fields which come within the range of the college curriculum. So the Army and Navy turn to the colleges because these institutions are the

only ones which have personnel and facilities to give the instruction that is needed. Their action in filling the colleges with uniformed youngsters during the past few months is not, as some people have supposed, a measure designed to save the colleges from bankruptcy. It is a plan of mobilization, not of deferment.

One of the surprises which the colleges are encountering in this connection is the considerable emphasis which both the Army and Navy (the Navy especially) have placed on the desirability of training these young men in the humanities and in the social sciences, as well as in the more specialized fields. The Navy V-12 program, in fact, gives almost as much recognition to the study of literature, history, and economics as has been regularly given in the peacetime curriculum of the California Institute of Technology. The result is that only a relatively slight adaptation of the regular academic program has been required here. Some other institutions have not been so fortunate. In any event the colleges all over the country have learned that they possess considerable resiliency, and on the whole they have made the adjustment to the new conditions with surprisingly little difficulty.

Incidentally they have learned that great advantages to a student body can be derived from a well-organized and all-inclusive program of daily physical training. The Army and Navy are demonstrating to the colleges what physical training really means. It means vigorous exercise for everybody at regular hours every day under skilled supervision. The colleges are also learning from their experience with Army and Navy trainees that healthy young men can live and thrive under more Spartan conditions than civilian undergraduates have been asked to do. Reveille at 6 A.M., when these trainees tumble out of their two-decker beds, seems a far cry from the days (only a few months ago) when students grumbled at having to attend an eight o'clock class. Let us venture a hope that the standards of punctuality and diligence which the colleges are now enabled to maintain may be perpetuated after the war is over. It would be excellent training for the students concerned.

In some quarters fear has been expressed that what is commonly termed "a liberal education" may suffer an enduring setback as a result of this wartime experience, with its strong emphasis on those academic studies which are assumed to have direct military value. And if by a liberal education one means what undergraduate students have been getting at many American colleges in peacetime by taking a conglomerate of miscellaneous, unrelated courses, this fear may have some foundation. But such an education has been "liberal" only in the sense of not being intellectually exacting. If we have less of it after the war the loss will not be irreparable. Meanwhile the emergency is bringing home to thousands of young Americans the value of mathematics and other too-much-neglected studies in the curriculum of liberal arts colleges. Some of us have viewed with misgivings the steady decline in the popularity of mathematics as an elective subject during the pre-war years. This grand old channel of rigid intellectual discipline is now having its renaissance, and the momentum is likely to continue after the emergency is past. When college officials say, as some have done, that liberal education is being adjourned for the war period, they are giving a rather strained interpretation to this term.

Just as statesmen are beginning to think about what

problems will arise when the "duration" is past, so educators are wondering about their own transition back to peacetime routine. Will the Washington authorities continue to send young men to the colleges, at the public expense, after the war is over? Already there has been announcement from highly authoritative sources that young men whose education has been interrupted by service in the armed forces will be given an opportunity to complete it, without cost to themselves, after they are demobilized. It has even been seriously proposed that federal funds be appropriated after the war to provide a college education for deserving youth irrespective of their war service and purely as a means of affording equal opportunities to all. That idea will doubtless gain considerable public support, some of it from people who care very little about higher education but merely like to see governmental funds passed out broadly and on a generous scale.

There is danger, of course, that the colleges themselves will look with favor on some such plan of governmental subsidizing. They may feel, some of them, that it would enable them to expand their enrollments and increase their tuition income without any sacrifice of their standards or impairment of their academic independence. But the chances are all against their being able to do anything of the sort. Federal subsidies will mean some degree of control over the way in which the funds are spent—they always do. Such tutelage might be very mild at the outset, but it would not forever remain so. Perhaps a plan can be devised whereby deserving young men and women can be helped through college with federal funds, yet without placing any constraint either upon them or on the colleges which they attend; but it will not be easy to do this. The attitude of the colleges in this matter will be determined to some extent by their present experience in dealing with the Army and Navy authorities. If this proves irksome they will not be very keen to continue anything of the sort in peacetime.

PLASTICS STANDARDS

THE first edition of a new compilation of new standards on plastics has been published containing 71 specifications. More than 20 of the items included in the publication are in the field of electrical insulating materials. Covered also are the following materials; several kinds of molding compounds—phenolic, polystyrene, melamine-formaldehyde, urea-formaldehyde, cellulose acetate, cellulose acetate butyrate; also sheets, rods, etc., of cellulose nitrate, and cast methacrylate; also, vinyl chloride-acetate resin sheets; phenolic laminated sheet and phenolic laminated tubing for radio applications are covered.

The large number of standard test procedures essential in determining various properties of plastics which are included in the compilation cover the following: arc resistance, resistance to chemical reagents, colorfastness, compressive strength, relative humidity, deformation, distortion, dielectric constant, diffusion of light, flammability, flexural strength, flow temperatures, haze, impact resistance, mar resistance, punching quality, refractive index, surface irregularities, shrinkage, softening point, tensile properties, tear resistance, thermal conductivities, water absorption, etc.