

ENGINEERING AND SCIENCE

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The Month in Focus

Progressive Education

E DUCATION, like a good many other systems, is obviously getting ready for a postwar overhauling. There is probably no college or university in the country without its postwar policy committee which is earnestly considering revisions of entrance requirements and undergraduate and graduate curricula, and trying to adjust college education more effectively to meet its responsibilities in the postwar world. Along with these specific plans, go controversies over the place of the humanities in college education, the place of the social sciences, and so on ad infinitum.

It is good that these discussions should go on. It is good that higher education should scrutinize itself objectively and critically from time to time. No system or systems of education can be perfect; and as long as we live in a dynamic world, education has the dual obligation of trying to improve itself and at the same time make the necessary adjustments to the changing social, political, and economic complex of which it is a part.

In the present self-examination, however, there is one disturbing factor. A good many of the problems which are perplexing higher education prove, upon analysis, to have originated in certain deficiencies of the secondary school system. That is, the colleges and universities are forced to make one of three choices. *First*, they may maintain what they believe to be satisfactory entrance standards, and in so doing automatically eliminate a large number of potentially desirable but ill-prepared students. *Second*, they may attempt to remedy deficiencies in preparation by making room in their own curricula for work that should have been completed earlier, but this can be done only by sacrificing necessary college-level work. *Third*, they can lower their sights all along the line, take high school graduates as they come, dilute the content and the quality of the college curricula, and make the best of a bad bargain for eight semesters.

For a place like the California Institute of Technology, the problem is particularly serious; and though the first choice is obviously the best, it is not actually satisfactory. It is disturbing to know that the public school systems in two prosperous middle western states do not provide sufficient mathematics to enable their graduates to qualify for admission to the California Institute. It is disturbing to know that throughout the southeastern part of the United States the students of most of the high schools are so ill-prepared that they have little

chance of passing the Institute's entrance examinations without special coaching. In general, the service training programs at the college level have shown a woeful deficiency in the preparation of the students assigned to them, not only in mathematics and the exact sciences but in everything that requires application and a reasonable amount of earnest work.

In fixing the primary responsibility for this unfortunate state of affairs, the blame is usually put at the door of "progressive education." But the term "progressive education" can mean a variety of things. In one sense, any education that seeks continually to better its content and its procedures is progressive; and no one can have any quarrel with that kind of progressive education. But, unluckily, in the past two decades the term has been identified with a particular theory of education, applied especially to the grade schools and high schools, the proponents of which gained the advantage of appropriating for their special theories the desirable word "progressive"—a stratagem which had the effect of stigmatizing, as an opponent of progress, anyone who questioned them.

"Progressive education," in this specialized sense, has a good deal to say about developing the whole individual and realizing his or her potentialities. In practice, this means using interest as the primary incentive in learning, and learning through doing. At its best, this probably means a wise stimulation and guidance of interest. At its worst, it means a superficial dipping into a variety of subjects, guided by a vagrant and undisciplined fancy that veers to a new interest every time it is threatened with the necessity of real work and study. At its worst, progressive education produces in the high schools the "science course" which consists of an agreeable Cook's tour of chemistry, physics, biology, etc., without the humdrum discipline of problems and laboratory training. It detours around everything that threatens to be "hard," and it produces students who are indignant at being expected to do any work outside the classroom and resentful when they are required, as they say, to "learn something." Unfortunately, the products of progressive education at its best are hardly more numerous than the righteous in Sodom.

Perhaps the liberal arts colleges can take the average product and make something of it. If so, all honor and credit to them. It is more than the California Institute can do, or any self-respecting technical and scientific

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ATHLETICS

By H. Z. MUSSELMAN,
Director of Physical Education

WITH a third of the basketball season past, Caltech's record shows two wins and three losses.

After opening the season with an 84-36 victory over Vultee, the team dropped close contests to U.S.C. 46-39 and Santa Ana Army Air Base 55-52. Bouncing back in the win column, the Engineers defeated Camp Ross 47-43, but were on the short end of the return match with Camp Ross 58-51.

Coach Shy still has to arrive at a regular starting lineup. Co-Captains Hugh West forward and Paul Nieto guard, together with center Bernie Wagner, have started all games. Stuart Bates and John Schimenz have been alternating at the other forward spot, with Dennis Ahern and Jerry Schneider battling for the guard spot.

The team is playing a fast and aggressive type of ball, and has scored an average of 55 points per game. Hugh West has led the scoring in all games and has an average of 18 points per game. However, lack of height has proved the real weakness of the team, and has been a real handicap, for the ability of lengthy opponents in controlling the ball off both backboards has been a contributing factor in all the defeats.

Coach Dr. Hane's cross country runners placed well in all meets. Victories were registered against Compton J.C. 27-28 and 26-29, U.C.L.A. 18-42 and Oxy 25-32 while Redlands led by Roland Sink, a V-12 trainee and the former U.S.C. distance runner, trounced the Beavers 25-30 and 24-31. George Gill, Tech ace, placed first in all meets except those against Redlands. A four way meet at U.C.L.A. found Redlands again victorious with 31 points, Caltech second with 40, while Oxy and U.C.L.A. tied for third with 72 points apiece.

Progressive Education

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institution that proposes to maintain decent standards of professional work. When the war is over, the Institute, in all probability, can continue to select from applicants for admission a full freshman class of adequately prepared students. But it can do so only by a drastic process of selection; and unless what seems to be a pretty general trend in high school education is reversed, a larger and larger number of high school graduates who are potentially good engineering and scientific material will be automatically excluded from consideration.

The four-year professional courses are continually working with the problem of not enough time for all that should be done. Surely the solution is not to dilute and superficialize the work of the high schools. Readers of *Engineering and Science* may well give serious thought to this whole problem. As citizens and taxpayers they have a legitimate concern with whether the public schools are giving them their money's worth. If they have children, they have a more immediate concern; and if they have any doubts about the adequacy of the grade and high school education that their sons and daughters are receiving, then let them do something about it.

ALUMNI DINNER DANCE

The Annual Alumni Dinner Dance will be held February 10 at the Oakmont Country Club in Glendale. Bob Mohr's orchestra will provide the music and the party will be informal. Dinner will be served at 8:00 P.M. Dancing will be from 9:00 P.M. to 12:30 A.M. Tariff for dinner and dancing will be \$6.00 per couple; for dancing only, \$2.40 per couple. Reservations should be made immediately through the Alumni office.

PERSONALS

1921

ALLIN CATLIN is a lead engineer in the North Hollywood district of the Southern California Telephone Company.

1922

K. A. LEARNED is a district engineer in the Alhambra area of the Southern California Telephone Company.

1923

DONALD SCOTT is at the Johnson Foundation of the University of Pennsylvania at Philadelphia, Pa.

1925

M. E. SALSBURY has been made president of the Los Angeles Section American Society of Civil Engineers at a recent meeting. C. W. Sopp, '17, was elected a vice-president and Arthur Pickett, '24, secretary.

MAJOR J. J. DEVOE, Signal Training Battalion at Camp Crowder, was in southern California on business for the government.

GLENN M. SCHLEGEL is now with Union Iron and Steel Company in Los Angeles as assistant manager in charge of operations.

1926

HERBERT V. INGERSOLL, a prisoner of the Japanese, has sent his wife a message, through an intercepted propaganda broadcast from Japan, stating he is in good health, uninjured and is receiving letters and personal boxes.

ERNST MAAG in December was made vice-president of the Structural Engineers Association of Southern California.

1927

CAPTAIN FRANK S. HALE is "somewhere in Belgium" doing photo interpretation which keeps him well informed on our part in this campaign and as he says, "makes him prouder than ever to be an American."

1928

HUGH HOSSACK is a lead engineer at the Van Nuys office of the Southern California Telephone Company.

1929

LIEUTENANT (j.g.) HAROLD CORBIN is on a destroyer in the South Pacific engaged in anti-submarine warfare.

RAYMOND KIRCHER has joined the vacuum tube development department of the Bell Laboratories.

1930

CAPTAIN LAWRENCE NYE, U.S.A., sent greetings on Christmas Day from his station in Australia to his family in Los Angeles.

1931

DR. CHARLES KIRCHER is the father of a new daughter, Josephine McCullom, born in October. Dr. Kircher is associated with the Du Pont Company.

1932

E. C. KEACHIE is a Captain in the Engineers Corps, U.S.A., with headquarters in San Francisco.

THOMAS F. ANDERSON is working with viruses and the electron microscope at the Johnson Foundation, University of Pennsylvania.

PHILIP SCHOELLER is associated with American Arabian Oil Co., Saudi Arabia,

having arrived there the middle of September after 45 days of travel. Mr. Schoeller is doing engineering in non-processing construction such as the pier, salt water intake, roads, pipe lines, etc.

ERIC J. MILES is now with Mellon Securities, Pittsburgh, Pa., as assistant to the vice-president in charge of investment counsel.

1934

ROBERT SCHRECK is district engineer for the Orange County district of the Southern California Telephone Company.

1935

ROBERT P. JONES, U.S.N.R., was recently promoted to full Lieutenant. In September he became father to a second son.

PERRY POLENTZ is connected with McKinney and Co., management consultants, San Francisco, Calif.

JAMES N. SMITH, engaged on a war research project for Columbia University, has returned to southern California and is now working for Caltech on a war research project.

DR. JESSE E. HOBSON has taken over the position of director of the Armour Research Foundation in Chicago. He was formerly head of the electrical engineering department at Illinois Tech, during which time he also was director of the Army Signal Corps training program. Dr. Hobson was responsible for the opening of two new college graduate training programs at Commonwealth Edison and Allis-Chalmers in which industrial employees work toward advanced college degrees in their own plants.