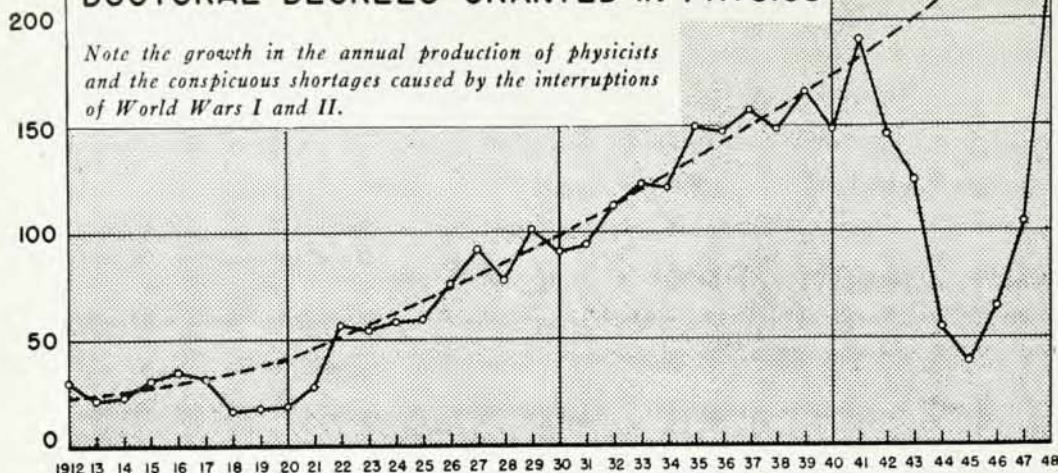


DOCTORAL DEGREES GRANTED IN PHYSICS

Note the growth in the annual production of physicists and the conspicuous shortages caused by the interruptions of World Wars I and II.



PHYSICISTS IN TRAINING

by Marsh W. White

For three years, with the support of Sigma Pi Sigma, physics honor society, and with the encouragement of other agencies, an annual study of the numbers of physicists in training has been made. The results indicate a startling increase. Will opportunities for these new graduates keep pace with their increasing numbers?

There has been some concern that we are approaching a period in which too many physicists may be produced for the work on hand. Careful surveys made in related fields of engineering on the supply and demand for graduating students have indicated a situation in which the current numbers of engineering graduates equal or exceed the anticipated requirements. Will the same be true of physicists in training?

During and since the recent war there has been a decided shortage of physicists at all levels. With the reduced demand from industry and some government laboratories, and because of the accelerated production of physicists, it seems desirable that careful studies should be made of the numbers of physicists in training in terms of future needs. This is especially pertinent for graduates at the baccalaureate level, for students in the "engineering physics" curriculum, and for those who are making only average or poor scholastic records. There appears to be no great slackening in need for experienced professional physicists or for the high-grade recent graduates at the doctorate level. It is the less skilled physicist who may face difficulties in getting placed.

Although there are 1,728 institutions of collegiate grade in the United States, only 1,067 are of the conventional four-year, degree-granting type. Of the latter group somewhat less than 400 offer an undergraduate physics major. About 140 institutions give work in physics at the master's level, and 68 colleges and universities grant the PhD in physics.

In the academic year 1948-49, 11,700 undergraduate physics majors were enrolled in 376 institutions and 4,850 graduate physics students were registered in 137 colleges and universities. These data probably represent minimum numbers so that it is certain that more than 17,000 persons are currently registered as physicists in training.

It seems reasonable to assume that the present rate of production of physicists is caused by four major factors: first, the increased interest in physics as a career because of the highly publicized wartime developments credited to physics; second, the accelerated demand by industry and government for

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persons trained as physicists; third, the increased availability of financial aid to physics students through the G.I. Bill, research contracts, fellowship funds, and the general economic situation; and, fourth, the completion of work previously begun but deferred during the war years.

Some of these factors are becoming less important but others will be influenced for several years at least. The crest of the flood of G.I. students has not yet reached the graduate school stage. A number of additional physics departments are establishing a physics major and a few more are offering graduate work in physics. The increased interest in physics shows no signs of diminution. The slackening of demand and the fulfillment of work deferred because of wartime duties are the factors which may cause some leveling off in the curve of the production of physicists. The present outlook seems to compare favorably with the predictions made in the Steelman Board report.

Recent events in government circles, particularly the actions of certain Congressional Committees, have undoubtedly made government work less attractive to some physicists. But it does not seem probable that this will materially affect the de-

mand for trained physicists in government laboratories. Neither should these matters result in a lessening of the numbers of students who decide to take physics as their major subject. Perhaps a lessened attractiveness of work in government installations will increase the interest of young physicists in academic positions, the field which is currently suffering by comparison with the financial rewards obtainable in government and industrial work.

A very large field for the employment of young physicists who have not gone on to complete the PhD degree is in the public high schools, the private preparatory schools, and the increasing number of technical institutes and junior colleges. In the petroleum industry there is a great demand for men with some training in physics.

In offering advice to prospective physics majors, it would seem well to encourage only those who are likely to be honor students to go into this difficult field, because it may become more competitive in the near future. But for the superior physics student, the promising young PhD, and the experienced professional physicist, the immediate future appears to hold great prospects for challenging employment and satisfying personal development.

BACHELORS', MASTERS', AND DOCTORS' DEGREES

	Degrees granted	<i>Bachelors</i>			<i>Masters</i>			<i>Doctors</i>		
		46-47	47-48	(Estimate) 48-49	46-47	47-48	(Estimate) 48-49	46-47	47-48	(Estimate) 48-49
Granted to Physics Majors	Number of Institutions	1570	2400	3100	499	825	900	105	228	325
During the Academic Year	Average number per	372	376	376	131	137	137	66	68	68
Sept. 1-Aug. 31	institution	4.2	6.4	8.2	3.8	6.1	6.5	1.6	3.4	4.8

ENROLLMENT OF GRADUATE STUDENTS IN PHYSICS IN INSTITUTIONS GRANTING PhD'S FOR 1948-1949

Columbia	240	Carnegie Tech.	66	Rice	32
Maryland	240	Johns Hopkins	65	Virginia	32
Cal., Berkeley	222	Stanford	65	Duke	30
M.I.T.	180	Minnesota	60	Fordham	30
N.Y.U.		Iowa State Coll.	57	Kentucky	28
Wash. Sq.	142	Boston U.	52	Louisiana	27
Illinois	133	Penn. State	51	St. Louis U.	27
Chicago	125	Brown U.	50	Colorado	26
Ohio State	120	Princeton	50	Lehigh	24
U.C.L.A.	119	Wash., St. Louis	46	Ore. State Coll.	23
Pennsylvania	116	Northwestern	45	U. of Cincinnati	20
Texas	110	Indiana	43	Missouri	20
Wisconsin	103	Syracuse	43	Rutgers	20
Brooklyn Poly.	96	Illinois Tech.	40	Vanderbilt	20
Harvard	96	Oklahoma	37	Michigan St.	18
Pittsburgh	92	Rensselaer	36	Tulane	12
Cornell	90	Case	35	West Virginia	10
Purdue	85	Kansas	35	Bryn Mawr	5
Yale	80	North Carolina	34		
Cal. Tech.	76	Notre Dame	34		

DOCTORATES GRANTED IN PHYSICS

Sept. 1, 1947-Aug. 31, 1948

M.I.T.	37	Cincinnati	4	Northwestern	2
Yale	22	Johns Hopkins	4	Oklahoma	2
Harvard	15	Duke	3	Texas	2
Cal., Berkeley	12	North Carolina	3	Brooklyn Poly.	1
Chicago	12	Ohio State	3	Bryn Mawr	1
Cal. Tech.	11	Penn. State	3	Indiana	1
Wisconsin	8	Pennsylvania	3	Missouri	1
Cornell	7	Purdue	3	Notre Dame	1
N.Y.U.		Brown	2	Pittsburgh	1
Wash. Sq.	6	Carnegie Tech.	2	Rensselaer	1
Columbia	5	Illinois	2	Rice	1
Princeton	5	Iowa State Coll.	2	U.C.L.A.	1
Virginia	5	Minnesota	2	Wash., St. Louis	1