

*conger*. A larva of the same species sent to Dr. Dean by Professor Grassi, who collected it at Messina, is five inches in length.

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#### SHOULD OUR COLLEGES ESTABLISH SUMMER SCHOOLS?

A NEW and important feature in the educational scheme of our colleges is the growing tendency toward the establishment of summer schools. According to the report of the Commissioner of Education there were in 1903 over 11,000 students in the summer schools of 51 of our colleges. About two thirds of these students were women; mainly teachers of secondary schools. The number of students now attending the summer schools is about one tenth as great as the total number enrolled in our colleges throughout the year, and is more than twice as great as the number studying in the graduate schools of our universities.

The growth of these summer schools in America dates from 1874 when the religious assembly at Lake Chautauqua began the summer training of Sunday-school teachers, and in 1878 this movement grew into the establishment of a general summer school, aiming to disseminate culture chiefly among those who had not enjoyed the benefit of college training. In this the Chautauqua school has achieved well-renowned success, raised the general level of intelligent appreciation, and broadened the mental horizons of thousands; thus exercising a beneficent influence upon our national life not to be overestimated.

Such a summer school as that of Chautauqua, independent of any one college but dependent in a large sense upon all, aims chiefly to broaden rather than to deepen culture, and to maintain and develop the best standards of life and thought. It teaches, above all, that lives of the highest value to civilization may be devoted to the true and the beautiful rather than to the material side of progress. Its aim differs from that of the colleges in that it is extensive rather than intensive, broad rather than precise; developing thus a higher standard of general culture, rather than training specialists for professional careers.

Of late years, however, the summer school has become an established feature of the curriculum of our colleges themselves. These summer schools of the colleges are naturally centers of culture which as such must accomplish much general good, but they often hold out a false hope to those who visit them desiring to gain precise technical knowledge. One can not accomplish in six weeks what should be done in a year of patient study accompanied by laboratory experience. The tendency of these college summer schools is to substitute superficiality for depth, and to increase rather than diminish the number of half-trained specialists with which our country is already over-burdened.

But apart from their more or less beneficial effect upon the student I wish to call attention to an evil influence they are beginning to exert upon those who teach in our colleges.

Until within a few years the college teacher looked upon his summer vacation as a season for research and broadening study; now fully one half of this once cherished period must be sacrificed to the labor of the dissemination of superficial and elementary instruction.

What can we hope from our universities if the spirit of research, which already languishes, be killed within them. The intellectual achievement of our highest schools can be measured only by the standard of productive scholarship; not by the amount but by the quality of their instruction.

Men are not machines to be loaded with knowledge at one brief period in their youth, and then to impart wisdom unchanged throughout the remainder of their days, and yet this development of the summer school in connection with the college is surely cutting down those precious hours when the teacher himself becomes a student. What more stimulating to the teacher or beneficial to the college than a vacation rightly used in research, intelligent travel or in contact with his fellow men beyond the college walls.

Correlated with the growth of the summer school system is the tendency of the college itself to maintain low salaries for its instructors, relying upon the fact that by teaching in

the summer school the young instructor may earn sufficient for his maintenance.

In nearly all of our colleges the salary paid to the teacher below the grade of professor is so small as to render it all but necessary for him to devote at least a portion of the summer vacation to primary teaching. This evil chiefly affects the teacher who is neither old nor young, but who in the fullest possession of his newly developed abilities rejoices still in the full energy of youth, and yet is upon the threshold of that fuller knowledge which years alone can bring. Now if ever is he fitted for giving new thought to the world, and now of all times are his free moments precious.

In my official connection with a laboratory whose purpose it is to afford unrivaled facilities for research to those best fitted to avail themselves of the opportunity, I find that fully one third of our ablest investigators feel obliged to decline invitations to pursue research work free of all expense; and answer that in order to provide adequate support for wife and family they must forego the attractive prospect, and teach in the summer schools. And thus they must decline facilities for the solution of problems which years of training have best fitted them to solve, and to the solution of which their thoughts must turn with hope and longing.

Granted that research must generally be performed at a sacrifice to him who loves it, and that the genius of advancing thought flourishes best in adversity, is this an argument for rendering research well-nigh impossible, and for substituting the low achievement of expounding well-worn facts for the glory of discovery?

Our colossal universities are weak in research when compared with those of Germany, and when we look upon the great names of those who were among us we see that productive scholarship has not advanced with our material progress.

We must have more of the spirit of Agassiz who knew of the hidden wealth by Lake Superior's shore, but had not time to make money; of Henry who knew of the practical value of his electro-magnet but swerved not

from his path and ever studied science simply for his love of it, never asking of it the rewards of wealth.

Not the least of this evil of which we speak is the fact that our colleges are putting into the high place the ideal of mere money getting. The most inadequate measure of success is thus lauded as the highest, and it is a lamentable fact that a large number of our leading college professors have deserted research to enter upon commercial careers.

Measure our universities by standards truly high. What character do they develop in their graduates, what love for research do they inspire, how thorough is their scholarship. Even small colleges may excel the great universities in these things. This matter has been most ably discussed by Professor Münsterberg in his book upon 'American Traits,' giving as he does the deferential but nevertheless just opinion of one who as a visitor among us contrasts our achievements in higher education with those of his native land.

It is to be hoped that one among our graduate schools may develop as an autonomous institution, with its own special faculty devoted exclusively to the advancement of its aims, and substituting the standard of original work for that of mere erudition, and of quality for that of quantity. If one among them thus should raise its head, all others soon would follow.

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ON THE ORIGIN OF THE SMALL MOUNDS OF THE  
LOWER MISSISSIPPI VALLEY AND TEXAS.

TO THE EDITOR OF SCIENCE: Apropos of a communication under the above title by P. J. Farnsworth in your issue of April 13, 1906, I beg the privilege of a few remarks.

From time to time a number of notes have been written upon this subject in SCIENCE by Messrs. Veatch, Branner, Bushnell and perhaps others, but unfortunately none of these papers are available to me except those of Messrs. Farnsworth and Bushnell.

The mounds to which I allude are low,