Amherst or a Lafayette would be a blessing for the true progress of the nation, and I never forget to add with enthusiastic heart that a Bryn Mawr and a Wellesley and a Vassar must follow. I know the time for all that will come, and if not to-morrow, the day after to-morrow will bring it surely. And from Germany it will spread all over the European continent.

That will be at last a gift of the New World to the Old, which will return the stimulation and impulse that the United States received from Germany. The German influence gave to America the method of research, the Ph.D. work, the graduate school. America will now give to Germany in return the college with its broadening influence and with its democratic spirit, which imparts culture to all alike, within and without the scholarly professions. We hear so much, and sometimes perhaps too much, of the exchange of professors between the United States and Germany. Such exchange of persons may be well. It has gone on, after all, for decades, as German scholars have come to this country in a steady flow, and American scholars have always visited German universities. But more important than the exchange of men is the exchange of institutions. The German graduate school, once imported here, has had an influence which can be felt in every corner of the intellectual life of America. And thus, I trust that the American college, once imported to Europe, will never cease in its beneficial influence for the culture of the non-professional men and women. In this sense I feel that I can add in my congratulations, brought to one of the most successful colleges of the country, a new dignity to the many claims of the American college. Each true college has been, and will be in the future, not only the stimulating benefactor of its students, not only the helpful comrade of the other colleges of the land, but, at the same time, an inspiring guide for the collegeless countries of Europe. May Lafayette flourish and grow in that threefold renown through the last quarter of its first century and for many generations of happy students thereafter.

Hugo Münsterberg
Harvard University

THE AMERICAN COLLEGE[1]

When Lafayette College opened its doors seventy-five years ago, Harvard College had ten professors and two hundred and sixteen students; Columbia College, six professors and one hundred and twenty-five students. Harvard was then one hundred and ninety-six years old, Columbia sixty-eight years old. To-day Lafayette has twenty-three professors and four hundred and eleven students. Should Lafayette grow as Harvard and Columbia have grown, then when our grandchildren and great-grandchildren gather to celebrate the hundred and fiftieth anniversary, they would find here five hundred professors and ten thousand students. The alumni would be invited to contribute toward an additional endowment of twenty million dollars.

The days to be, even more than the times of the past, are for us a book with seven seals. None knows what things lie on the knees of the gods; it is more than we can do to re-collect what has been strewn from their hands. But we at least believe that the American college was an important factor in the higher life of our country during the nineteenth century, and that the part of Lafayette, in the days of its adversity and in the days of its prosperity, has been no mean one.

The citizens of Easton who met at

[1] Address at the celebration of the seventy-fifth anniversary of the founding of Lafayette College.

White's Hotel on December 27, 1824, and resolved to establish an institution of learning in their beautiful village had foresight and courage. They were men of patriotism, naming the institution Lafayette College in recognition of "the signal service of General Lafayette in the great cause of freedom," and resolving that military engineering and tactics should be taught, because, as they said, "a freeman's arm can best defend a freeman's home." In the annual report of the trustees following the death of Lafayette, they said:

> We record an event unparalleled in the annals of the world's history, of one man's death arraying in the habiliments of mourning, all the friends of freedom on the globe. . . . Let ours be the sacred duty of imitating his illustrious example and holding it up for admiration to the wondering gaze of the dear youth of this institution, which bears his venerable name.

There were difficulties to overcome, but in 1832 George Junkin, a true leader of men, was elected president and three professors were called. Two of them were in mathematics and the sciences, one of whom, Samuel P. Gross, became a great surgeon of the last century. The traditional curriculum of Latin, Greek and mathematics was, however, adopted, and in its simplest form. The first half-year was devoted to the first book of Euclid; the third half-year to the fourth, fifth and sixth books. More than a year was given to Horace. There is in retrospect a curious incongruity between the gentle epicureanism of the Odes, and the lives of these young men, who had morning prayers at five o'clock and drank coffee for breakfast because milk was too expensive.

At the instance of President Junkin manual labor was substituted for military training. The early reports lay stress on the importance of the movement—how it assured the health of the students, gave them honorable independence and broke down class distinctions and class jealousies. The plan failed; to the misfortune of the college it may be. The existence of an agricultural department and of a mechanical department then and there is not without interest for the history of our educational system.

Another plan that failed was the course for teachers established at the beginning and seven years before the first normal schools of Massachusetts. In their second annual report the trustees wrote:

> As to elevating the standard of common school instruction, we propose to effect it by training teachers to that business as a profession. . . . Incompetent teachers very frequently receive inadequate support; and the inadequacy of the support secures and perpetuates the incompetency of the teachers. . . . Let teachers be well educated, that is, let them be taught thoroughly the branches which they will be called upon to teach, and, which is the principal thing, the art of *communicating* instruction and *governing* a school; and let their services be secured permanently in that business, by adequate pay.

In still another direction the founders of Lafayette notably anticipated educational development, namely, in advocating the study of English and modern languages. By the terms of the charter—one of its two definite provisions—a professorship of German was to be established. In their original memorial to the legislature, the founders said that it is to be regretted that students commonly limit their attention to the dead languages. They pointed to the ease with which the romance languages can be acquired after Latin, and said that German and Anglo-Saxon ought long since to have been made a part of education. They add:

> But the language most neglected in our seminaries of learning is the English. It is, we think, one of the follies of the learned to expend time and toil and money in minute investigation of the languages of other times and other people, at the expense of omitting the equally curious and more useful investigation of their own.

While these ideas do not seem to have affected the early curriculum, they are a prevision of the most important contribution made to education by Lafayette under the leadership of the great teacher, the great scholar and the great man, who just fifty years ago became professor of the English language and comparative philology, and introduced into our colleges the scientific study of English and Anglo-Saxon.

The Cambridge College, transplanted to the new Cambridge in 1636, and later to Virginia, Connecticut, New Jersey, Pennsylvania and New York, brought hither its organization and its curriculum; and these have been slowly and partially adapted to an industrial democracy. The curriculum and culture of the English College were esoteric. The church of the semi-reformation and the dead languages were in nominal control, but they touched lightly the young gentlemen destined to manage their feudal estates and to extend the British empire. The aristocratic English college of church and state with its classical curriculum was transplanted to scenes not excessively caricatured in Martin Chuzzlewit or by Mrs. Trollope, yet not alien to men such as Franklin or Jefferson, not lacking tendencies such as those expressed by Emerson or Whitman. The new colleges, following closely on the footsteps of the pioneers, were naïve, not crude; simple and narrow, but not philistine; lacking in perspective, but rich in ideals.

The American College has performed a great service. The statistics which show that college graduates are more likely than others to succeed in certain professions are not in themselves significant. One might as well argue for compressed feet, because Chinese women who follow the practise are more likely than others to marry mandarins. The ablest and most energetic men have gone to college, and the college has been the normal gateway to certain careers. It was, however, a gain to bring together many of the more promising young men and to give them such training and culture as might be. The college was the natural threshold to the church, to law and to medicine, so long as adequate professional schools were lacking. But when to these professional schools others in engineering, education, journalism and business have been added, it is not obvious how the old college of liberal arts will maintain its place. Technical studies should begin in the high school and liberal studies should be continued in the professional school. The college must adjust itself to these conditions.

Nothing in our educational history, indeed nothing in our whole civilization, is more hopeful than the increase of public high schools from 2,500 in 1890 to more than 8,000 to-day; of the students from 200,000 to more than 700,000. Nothing is more scandalous than the circumstance that seventy-five per cent. of the boys who enter the high school are driven away by its futility and feminization. The obsolescent culture of the college imposes itself on the high-school curriculum, even though of twelve boys who enter the high school only one proceeds to the college. The high school should and must primarily give training for the life work of the student, but with this should be united sympathetic appreciation of what is best in the past and present of the world, and the impulse to improve and create. We shall have 10,000 centers for training, culture and research, as soon as we produce educational leaders to man them. And the high school will educate its students so far as is possible without specialization beyond the

capacity of the community in which it is placed.

Students who complete the work of the high school at the age of eighteen can not to advantage spend the four subsequent years in a country club, where what time can be spared from athletics and social enjoyments may be given to studies that are irrelevant to their work in life. Such a system may be proper for a hereditary aristocracy of wealth, but it no longer obtains even in Great Britain. The newer universities are primarily professional schools, and Oxford and Cambridge are continually moving in this direction. The colleges of Oxford and Cambridge have on the whole maintained high standards of thinking and living, and many leaders have gone forth from their gates. But Oxford and Cambridge are great universities, not as the result of their curriculum or their monastic life, but because the English are a great race. Besides it is not now the "poll" course, but the highly specialized honor courses which attract the best men. We may hope that our educational system will ultimately set standards for other nations, but we must first learn from the experience of England, France and Germany.

Nearly all our colleges have been founded and fostered by religious denominations. Our common schools have been supported by taxation, and sectarian influences have been carefully excluded, whereas our institutions of higher learning have been dependent on private charity for which denominational zeal appears to have been requisite. Another circumstance accounting for this somewhat anomalous condition is the fact that the colleges were largely training-schools for the gospel ministry, the only profession that usually required an academic course. Of the first 277 alumni of Lafayette 112 became clergymen.

Lafayette was established under Presbyterian influences, but by the act of incorporation the college was strictly undenominational, and the governor of the state was empowered to appoint visitors, whose reports should be laid before the legislature. In 1833 the legislature made an appropriation of $4,000, and $2,000 a year for four years. Financial need rather than religious devotion led Lafayette to place itself under the care of the synod of Philadelphia in 1854. But it is not certain that this step led to increased support. The entire income of the college in 1862 was $3,240. When in 1866 an urgent appeal was made by the synod to the churches for funds to erect a chapel, the sum of $360.21 was collected. In the same year Lehigh University—whose funds now amount to two and a half million dollars—was established. It was at this time that the states west of Pennsylvania were awakening to the need of supporting higher education, and it was in 1862 that the federal government established the land-grant colleges of agricultural and mechanic arts, which now have an income from the nation and the states of ten million dollars.

If the resources of Lafayette and Lehigh could have been united, and if the state of Pennsylvania had learned the wisdom of doing for higher education what the central and western states have done, we might have had here one of the great universities of the world. Nor need religious or even denominational training have been neglected, for each sect might have established and supported its own college. It is not necessary that each of the thirty-four colleges of Pennsylvania should become a great university, but seven million people could well afford to devote annually a million dollars to each of seven universities, placed say at

Philadelphia, Pittsburg, Easton, Harrisburg, Williamsport, Johnstown and Erie.

A school or a college is self-supporting in the sense that the individual profits more than his education costs; a university is self-supporting in this sense and in addition it is economically the most profitable investment that a people can make. A million dollars spent on the highest education and on research add more than a million dollars to the actual wealth of the country. And if this research is not supported by public funds, it will not be undertaken, for its main benefit is not to the individual, but to the whole people. In a way we are consuming the capital of our country—the natural fertility of the soil, the forests, the coal and iron. Coal is mined in Pennsylvania to the annual value of $200,000,000. We are indeed thriftless if the value of the coal is not reinvested, on the one hand, in foundries, railways, and other material and ephemeral uses, and, on the other hand, in education and research, which are the most permanent of all investments. There are but few fathers who will leave their children less educated than themselves, and research and discovery are endowment policies whose dividends never cease.

But while we need great universities, we need equally high schools, colleges and technical schools. Mere size is entirely unimportant. If the spirit of scholarship and research can be maintained in small institutions, several of them may be more useful than one amorphous university. There is a certain psychological limit of size, beyond which organization becomes increasingly difficult. Perhaps twenty-five professors and three hundred students may be taken as the maximum of efficiency. The faculty in such an institution forms a homogeneous body competent to guide the policy of the institution and to select their successors. Each professor is responsible for the whole and to the whole. He can be the friend of the students whom he teaches, and each student is an integral part of the institution.

Such a college should have buildings and grounds of the value of about a million dollars and an income of at least $100,000. The parks, libraries, museums, art galleries, theaters and lecture halls are not for the professors and students only, but for the whole community. The work of the professors and instructors is not only the teaching of the students, but perhaps half of it, more or less, in accord with the ability and interests of the individual, should be for the advancement and diffusion of knowledge, for leadership in all that concerns the higher life of the community.

A college of this character can not cover equally the whole field of knowledge; it should be eminent in some direction. This might be civil engineering. In this case the best possible training would be given to professional engineers, not only expert knowledge and facility in their trade, but broad culture and the impulse to investigate, the tendency to treat conventions lightly, the power to break new paths and advance along them. Students frequenting this college might use civil engineering as a basis for law, medicine, architecture, business or any work in life, a new combination of interests leading to new advances and new professions. Or a college might be eminent in the teaching and investigation of the English language, as Lafayette has been, and this would be the center of its work and its influence. There would be half a dozen great investigators and teachers cooperating in all movements to maintain and improve our language, its grammar and dictionaries, the methods of spelling and printing, studying and making accessible to study its origins, its classics and its contemporary tendencies. Young investigators would gather here, and the students from the start would base their

training, their culture and their research on mastery of the English language, it being the basis in after life for work in literature, scholarship, journalism, teaching, the church, or any other profession whatever.

Lafayette is both a school of technology and a college of liberal arts. It has this year 225 students of engineering and 176 students in the arts courses. The future of the work in engineering appears to be more definite and assured than the classical and general courses, due not to any deficiencies in these courses, but to the general tendencies of our civilization. Lafayette may become a great university; it now ranks midway among the hundred leading institutions of the country, and we need at least so many universities. Its situation, as well as its history, gives promise to which no limit need be set. But a man can not by taking thought add one cubit unto his stature, nor would it necessarily be desirable to do so if he could. Loyalty to Lafayette depends on what it was and is, not on what it is not. And it is one of the glories of the American college that it so completely conquers the affection of its students and alumni. Like Job, a man may find new flocks and a new wife and new children; but he can not choose a new college. The associations and memories of the unreturning past are awakened as we come to these festivals—whether as prodigal sons or as wise men bringing gifts—and the renewed piety enables each of us to go back to bear with better courage his share of the Atlantean load.

J. MCKEEN CATTELL
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SCIENTIFIC BOOKS

H. M. BERNARD'S WORK ON THE PORITID CORALS

Catalogue of the Madreporarian Corals in the British Museum (Natural History). Volume VI. The Family Poritidæ. II. The Genus Porites. Part II. Porites of the Atlantic and West Indies, with the European Fossil Forms. The Genus Goniopora, a Supplement to Vol. IV. By HENRY M. BERNARD, M.A. London, 1906.

This is the third and concluding volume by Mr. Bernard on the Poritidæ. Volume IV. of the British Museum Catalogue of the Madreporaria treats the genus *Goniopora;* Vol. V. contains the *Porites* of the Indo-Pacific region, and the one under review gives an account of the *Porites* of the Atlantic and West Indies, with the European fossil forms, and a supplement to the genus *Goniopora.* These volumes represent an enormous amount of work, Vol. IV. containing pp. viii + 206, pls. xiv; Vol. V., pp. vi + 303, pls. xxxv; Vol. VI., pp. vi + 173, pls. xvii, making a total of 699 pages and 66 plates on this one family.

Two phases of Mr. Bernard's work deserve especial consideration: (1) His contributions to the morphology of the hard parts of the Poritidæ, (2) his peculiar method of arranging and designating the various forms or variations of the corals that he has studied.

Contributions to the Morphology of the Hard Parts.—Mr. Bernard was the first to point out that the septa are bilaterally arranged in the genus *Goniopora.* There are in each calice two solitary directive septa, opposite each other, one at each end of the calice. These belong to the primary cycle; the other four primaries are fused to secondaries; the tertiaries are shorter and fuse to the sides of the secondaries.[1] The pali occur on the inner ends of the secondaries or at the points of fusion of the primaries and secondaries. *Porites* is supposed to be derived from *Goniopora* by the disappearance of the tertiary septa. The growth form is elaborately discussed. It is stated,

> So far as growth form is concerned Goniopora (and Porites) may be regarded as astreiform perforates.
>
> Starting from what we have described as the primitive form of colony, viz., the circular slightly convex astræiform stock which would result from the normal budding of the primitive parent calicle,

[1] "The Genus Goniopora," p. 21.