

# SCIENCE.—SUPPLEMENT.

FRIDAY, JULY 9, 1886.

## THOUGHTS ON UNIVERSITIES.<sup>1</sup>

No one can visit Cambridge this summer without remembering that two hundred and fifty years ago an acorn was here planted from which an oak has grown. No scholar can come from a distant state without wishing to offer his tribute, however inadequate it may be, to the wisdom which has governed the counsels of Harvard through eight generations. A graduate of Yale will, I trust, be pardoned for associating the name of his own *alma mater* with that of her elder sister. Their united influence has not only been strong in New England, but strong in other portions of the land. It is difficult to surmise what would have been the condition of American society if these foundations had never existed. Their graduates have promoted the literature, the science, the statesmanship, and the religion of the land; but more than this is true. Their methods of instruction, their unwritten laws, their high endeavors, and their academic spirit have re-appeared in each new state of the west, as each new state has initiated its social order. To be governed by the experience of Harvard and Yale is in many an educational court an appeal to common law. To establish another Harvard or another Yale, to nurture the germ from which a great university might grow, has been the aspiration of many a patriot, of many a Christian. It was a laureate of both Harvard and Yale, the sagacious Manasseh Cutler, who initiated the policy of securing in the states beyond the Alleghanies a certain portion of the public lands for the foundation of universities. Among the pioneers of California was one who went from New England 'with college on the brain;' and now every ship which enters the Golden Gate faces the buildings of a university which Henry Durant did much to establish.

The history of higher education as guided by the two oldest foundations in this country may be considered in four periods: in the first, extending from the earliest settlement until the revolution, the English college idea was dominant in its simplest form; the second, following the severance of allegiance to the crown, was the time when profes-

sional schools in medicine, law, and theology were begun; the third, beginning about the middle of this century, was marked by the formation of scientific schools; and in the present period we are looking for the fulfilment of the university ideal, brought hither by the earliest immigrants from England.

The colonial vocabulary was modest. Whatever else it might be, 'university' seemed a very great noun, to be used as guardedly as 'episcopacy' or 'sovereignty.' In the earliest mention I remember of the cradle of Harvard, the alternative is found, 'a school or college;' and in Connecticut, 'collegiate school' was in vogue for seventeen years. "We on purpose gave your academy as low a name as we could that it might the better stand in wind and weather," said the well-known civilians who were consulted in 1701 by Pierpont and his colleagues at the mouth of the Quinnipiac. Elsewhere, under other influences, there was not the same caution, nor the same success. Several years before the settlement of Massachusetts Bay, the Virginia company determined to set apart, at Henrico, ten thousand acres of land for 'a university,' including one thousand for a college 'for the children of the infidels.' There was another project for a university as early as 1624, which has lately been brought to light. Dr. E. D. Neill, in 'Virginia Vetusta,' calls attention to the fact that an island in the Susquehanna, which the traveller may see to the north as he crosses the railroad-bridge at Havre de Grace, was conditionally given for "the foundinge and maintenance of a universitie and such schools in Virginia as shall there be erected and shall be called *Academia Virginiensis et Oroniensis*." The death of the projector, Edward Palmer, interrupted his plans.

Mr. Dexter has established the fact, that, before 1647, nearly a hundred graduates of English universities had migrated to New England, three-fourths of whom were from Cambridge; and the elaborate volumes of Mullinger exhibit in great fulness the conditions of collegiate and university life as they were known to these Cambridge wanderers in the earliest half of the seventeenth century. It is evident that the university idea was then subordinate to the collegiate; logic was riding a high horse; science and literature, as then represented by mathematics and Greek, were alike undervalued. An anecdote recorded by Mullinger reveals at a glance the situation. "Seth Ward,

<sup>1</sup> An address before the Phi Beta Kappa society of Harvard college, July 1, 1886, by Daniel C. Gilman, president of the Johns Hopkins university.

having lighted on some mathematical works in the library of Sidney, could find no one to interpret them. The books, says his biographer, were Greek, — I mean unintelligible to all the fellows.” The spirit of observation, experiment, and research, was rarely apparent; discipline by masters and tutors took precedence of the inspiration of professors. When we consider this origin, still more when we recall the poverty of the colonists, and still more when we think of the comprehensiveness of the university ideal, even in the seventeenth century, it is not strange, that, before the revolution, American colleges were colleges, and nothing more. Even degrees were only conferred in the faculty of arts. In 1774, when Governor Hutchison was discussing colonial affairs in Lord Dartmouth’s office, Mr. Pownall asked if Harvard was a university, and, if not, on what pretence it conferred degrees. Hutchison replied “that they had given Masters’ and Bachelors’ degrees from the beginning; and that two or three years ago, out of respect to a venerable old gentleman they gave him a doctor’s degree, and that the next year, or next but one, two or three more were made Doctors. . . . After so long usage he thought it would be hard to disturb the college.”

It is a significant fact that at the beginning of the revolution, in 1776, George Washington was made a doctor of laws at Harvard, and, at its close in 1783, John Warren, a doctor of medicine. From that time on, there was no hesitation in the bestowal of degrees in other faculties than that of arts.

I need not rehearse the steps by which the schools of medicine, law, and theology were added to the college; cautiously, indeed (as outside departments, which must not be allowed to draw their support from the parent trunk), and yet permanently. It is a noteworthy fact that the example of Harvard and Yale in establishing theological schools has rarely been followed in other places, even where schools of law, medicine, and science have been established. It is enough to add that professional education was organized during the first thirty or forty years of this century, in a much less orderly way than that in which the colleges were instituted.

The third period in the development of higher education was the recognition of the fact, that, besides the three traditional professions, a multitude of modern vocations required a liberal training. In consequence of this, came scientific schools, often, at first, adjacent to the classical colleges, and sometimes on independent foundations, many of these schools being aided by the national provision for technical instruction and by other noteworthy gifts.

We are now fairly entered upon the fourth period, when more attention than ever before will certainly be given to the idea of the university, — an idea long dormant but never dead. The second decennium of this century was but just begun, when a university was chartered in Maryland; and before it closed, the first of the western universities, endowed by a gift of the public lands, was organized in the county and town of Athens, O., precursor of the prosperous foundation in Michigan, and of like institutions in other parts of the old north-western territory. Early in this century, Americans had frequently gone abroad for medical and scientific training, but between 1820 and 1830 many turned their eyes to Germany for historical and philological study; and the line which began with Everett, Ticknor, Bancroft, and Woolsey, has been unbroken to this day. Through these returning wanderers, and through the importation from Germany, England, and Switzerland, of foreigners distinguished as professors, — Lieber and Beck, Sylvester and Long, Agassiz and Guyot, and their compeers, — the notion of a philosophical department of a university, superior to a college, independent of and to some extent introductory to professional schools, has become familiar. But the boldest innovation, and the most influential, was the work of one whose name is perpetually associated with the Declaration of Independence and the University of Virginia. It was in 1826 that his plans assumed form, and introduced to the people of this country — not without some opposition — the free methods of continental universities, and especially of the University of France.

Thus, as years have rolled on, the word ‘university,’ at first employed with caution, has been reiterated in so many connections, that it has lost its distinctive significance, and a special plea must be made for the restoration to its true sovereignty, of the noblest term in the vocabulary of education. Notions injurious and erroneous are already abroad. Poor and feeble schools, sometimes intended for the destitute, beg support on the ground that they are universities. The name has been given to a school of arts and trades, to a school of modern languages, and to a school in which only primary studies are taught. Not only so, but many graduates of old and conservative institutions, if we may judge from recent writings, are at sea. There are those who think that a university can be made by so christening it; others who suppose that the gift of a million is the only requisite; it is often said that the establishment of four faculties constitutes a university; there is a current notion that a college without a religion is a university, and another that a college without a

curriculum is a university. I have even read in the newspapers the description of a building which "will be, when finished, the finest university in the country;" and I know of a school for girls, the trustees of which not only have the power to confer all degrees, but may designate a board of lady managers possessing the same powers.

Surely it is time for the scholars of the country to take their bearings. In Cambridge the anniversary so soon to be celebrated will not be allowed to pass without munificent contributions for most noble ends; the president of Yale college, who this day assumes his high office with the unanimous plaudits of Yalensians, is the representative of the university idea based upon academic traditions; the voice of Princeton, like a herald, has proclaimed its purposes; Cornell has succeeded in a litigation which establishes its right to a large endowment; the secretary of the interior has commended to congress the importance of a national university, and a bill has been introduced looking towards such an establishment; the Roman Catholic Church, at its recent council in Baltimore, initiated measures for a university in the capital of the nation; while on the remotest borders of the land the gift of many millions is assured for promoting a new foundation. Already, in the Mississippi valley, men are laboriously unfolding their lofty ideals. It is therefore a critical time. Wise plans will be like good seed: they will spring up, and bear fruit a hundred-fold. Bad plans will be like tares growing up with the wheat, impossible to eradicate.

It is obvious that the modes of organization will vary, so that we shall have many different types of universities. Four types have already appeared,—those which proceed from the original historic colleges, those established in the name of the state, those avowedly ecclesiastical, and those which are founded by private benefactions. Each mode of organization has advantages which may be defended, each its limitations. If the older colleges suffer from traditions, the younger lack experience and historic growth. The state universities are liable to political mismanagement: ecclesiastical foundations are in danger of being narrow.

Under these circumstances, I ask you to consider the characteristics of a university, the marks by which it should be distinguished.

It is needless before this audience to repeat the numerous definitions which have been framed, or to rehearse the brilliant projects which have been formed by learned, gifted men; but I hope it will not be amiss to recall some of the noble aims which have always inspired endeavors to establish the highest institutions of learning.

Among the brightest signs of a vigorous university, is zeal for the advancement of learning. Another phrase has been lately used, the 'endowment of research.' I prefer the other term; for it takes us back to the dawn of modern science, and connects our efforts with those of three hundred years ago, when Francis Bacon gave an impulse to all subsequent thought, and published what his recent biographer has called the first great book in English prose of secular interest,—"the first of a long line of books which have attempted to teach English readers how to think of knowledge, to make it really and intelligently the interest, not of the school or the study or the laboratory only, but of society at large. It was a book with a purpose, new then, but of which we have seen the fulfilment."

The processes by which we gain acquaintance with the world are very slow. The detection of another asteroid, the calculation of a new orbit, the measurement of a lofty peak, the discovery of a bird, a fish, an insect, a flower, hitherto 'unknown to science,' would be but trifles if each new fact remained apart from other facts; but, when among learned men discoveries are brought into relations with familiar truths, the group suggests a law, the law an inference, the inference an experiment, the experiment a conclusion; and so from fact to law, and from law to fact, with rhythmic movement, knowledge marches on, while eager hosts of practical men stand ready to apply to human life each fresh discovery. Investigation, co-ordination, and promulgation are not performed exclusively by universities; but these processes, so fruitful in good, are most efficient where large numbers of the erudite and the acute, of strong reasoners and faithful critics, are associated for mutual assistance, correction, and encouragement. It is an impressive passage with which the lamented Jevons closed his 'Principles of science.' After reminding the reader of the infinite domain of mathematical inquiry, compared with which the whole accomplishments of a Laplace or a Lagrange are as the little corner of the multiplication table, which has really an indefinite extent, he goes on to say that inconceivable advances will be made by the human intellect unless there is an unforeseen catastrophe to the species or the globe. "Since the time of Newton and Leibnitz, whole worlds of problems have been solved, which before were hardly conceived as matters of inquiry. In our own day, extended methods of mathematical reasoning, such as the system of quaternions, have been brought into existence. What intelligent man will doubt that the recondite speculations of a Cayley or a Sylvester may possibly lead to some new methods, at

the simplicity and power of which a future age will wonder, and yet wonder more that to us they were so dark and difficult?"

Let me draw an illustration from another science which will be acknowledged as of transcendent importance even by those, if such sceptics there be, who have no confidence in transcendental mathematics. Cohnheim, the great pathologist of Germany, whose death occurred in 1884, declares, in the introduction to his 'General pathology,' that the study of the causes of disease is absolutely without limits, for it touches upon the most heterogeneous branches of science. Cosmical physics, meteorology and geology, not less than the social sciences, chemistry, as well as botany and zoölogy, all bring their contributions to that branch of pathology. So, with all his knowledge and ability, this leader in pathology restricted his own work to the study of disordered physiological functions. But what prevention of suffering, what sanitary alleviations, what prolongation of life, may we not anticipate in future generations, when man thoroughly understands his complex environment, and adapts himself to it?

In the accumulation of knowledge, as of other forms of wealth, saving must follow earning. So among the offices of a university we find the conservation of experience. Ignorant as the nineteenth century appears when we survey the long category of inquiries now held in abeyance by mathematicians, astronomers, physicists, chemists, and biologists, by ethnologists, philologists, historians, and publicists, let us ask how much man has advanced since the ages of stone, of iron, and of brass. Such books as Tylor's and Morgan's, such observations as those of Livingstone and Stanley, show us what man is without a history; what society is where no storage is provided for the lessons learned by successive generations, and where the wisest and best are content to pass away, leaving no sign. It is the business of universities, not only to perpetuate the records of culture, but to bring them out in modern, timely, and intelligible interpretations, so that all may know the laws of human progress, the dangers which imperil society, the conditions of advancing civilization. Experiments upon fundamental laws—such as the establishment of home rule, and the adjustment of the discord between industry and capital—may destroy or may promote the happiness of many generations. That mistakes may not be made, historical politics must be studied, and what is this but the study of the experience of mankind in endeavors to promote the social welfare? As there have been great law-givers in the past, whose codes have been put to secular tests, so momentous experiments have

run through centuries, and involved the welfare of nations,—experiments which have been recorded and interpreted, but which call for still closer study, by the wisest intellects, before their lessons are exhausted. Can such researches be made in a moment? Can they be undertaken by a knight of labor? Are the facts to be gathered in a circulating library? Or must we depend upon scholars trained to handle the apparatus of learning? Gladstone and Bryce and Morley may or may not be right in all the subordinate features of the measures which they are advocating; but their influence at this very moment is resting on the fulcrum of historic knowledge, the value of local self-government. Hamilton, Jefferson, Madison, and Marshall were far from being 'inspired' when they initiated the constitutional measures by which the United States are governed; and there is abundant evidence to show that they were students of the past experience of mankind in confederated politics. The compact of the Mayflower was reduced to writing within the sheltering arm of Cape Cod; but its ideas are those of men who knew the laws of Moses and Solomon, and who had seen in Holland, as well as in England, what favors and what hinders the development of civil and religious liberty. Within the shadow of the University of Leyden, a stone marks the spot where John Robinson lived, taught, and died; and the name of Elder Brewster of the Mayflower has been recently discovered among the matriculates of Peterhouse, Cambridge. In our day the pioneers of 1849 carried with them to the remotest shores of the continent ideas which soon took the form of laws, customs, colleges, schools, churches, hospitals, unknown under the Mexican sway; but they had learned these ideas in the historic schools of the Atlantic seaboard.

The universities are the natural conservators of educational experience, and should be recognized as the guides of public education. In a better state of society, means will be found to make the men of learning in a given generation responsible for the systems of primary teaching; giving potency to their counsel not only at the end but in every stage of scholastic life. Upon text-books, courses of study, methods of discipline, the qualifications of teachers, the value of rewards, honors, and examinations, the voice of the universities should be heard. The confusion and uncertainty which now prevail are indications that in schools of the lowest as of the highest grades, re-adjustments are needed which can only be wisely directed by those whose learning embraces the experience of many generations. The wisest are none too wise in pedagogics, but they are better counsellors than the ignorant.

Dr. Lieber, in a letter to Secretary Seward, at the close of the civil war, presented a strong plea for the reference of international disputes to universities. Reminding the secretary that their authority had been invoked upon internal controversies in France and Germany, he asked, Why not refer to them in international affairs? The law faculty of a renowned university in a minor state would seem, he says, "almost made for this high function, and its selection as a court of international arbitration would be a measure worthy of England and the United States;" and he risks the prophecy that "the cis-Caucasian race will rise at no very distant day to the selection of such umpires, far more dignified than a crowned arbitrator can be."

Among the offices of a university, there is one too often undervalued, or perhaps forgotten,—the discovery and development of unusual talent. I do not speak of genius, which takes care of itself. Nobody can tell how it comes to pass that men of extraordinary minds are born of commonplace parentage, and bred in schools of adversity, away from books and masters. Institutions are not essential to their education. But every one who observes in a series of years the advancement of men of talents, as distinguished from men of genius, must believe that the fostering diet of a university—'its plain living and high thinking'—favors the growth of scholars, investigators, reasoners, orators, statesmen of enduring reputation, poets, and discoverers. Such men are rarely produced in the freedom of the wilderness, in the publicity of travel and of trade, or in the seclusion of private life; they are not the natural product of libraries and museums, when these stand apart from universities; they are rarely produced by schools of a lower grade. Exceptions are familiar; but the history of civilization declares that promising youth should have the most favorable opportunities for intercourse with other minds, living as well as dead, comrades as well as teachers, governors as well as friends. It declares that in most cases talents will seize opportunity, and opportunity will help talents. Just now, in our own country, there is special reason for affirming that talents should be encouraged without respect to property. Indeed, it is quite probable that the rich need the stimulus of academic honors more than the poor: certainly the good of society requires that intellectual power, wherever detected, should be encouraged to exercise its highest functions.

Cardinal Newman (in a page which refers to Sir Isaac Newton's perception of truths, mathematical and physical, though proof was absent; and to Professor Sylvester's discovery, a century and a

half later, of the proof of Newton's rule for ascertaining the imaginary roots of equations) says that a parallel gift is the intuitive perception of character possessed by certain men; as there are physicians who excel in diagnosis, and lawyers in the detection of crime.

Maurice, the greatest theologian of our day, was so strong an advocate of university education, that he suggests a sort of *quo warranto* forcing "those who are destined by their birth or property to any thing above the middle station in society, and intended to live in England, . . . to show cause why they do not put themselves in the best position for becoming what Coleridge calls the 'clerisy' of the land."

Devotion to literature will always distinguish a complete university. Within the academic walls you may always find the lover of humanities; here in perpetual residence, those who know the Athenian dramatists, the Augustan poets, the mediaeval epic writers, Chaucer and Shakspeare, and the leaders in literature of every name and tongue. In the class-rooms of the university, successive generations of youth should be presented to these illustrious men. The secrets of their excellence should be pointed out; the delights of literary enjoyment should be set forth; the possibilities of production in our day should be indicated; and, withal, the principles of criticism should be inculcated, as remote from sarcasm and fault-finding on the one hand, as from prostrate adoration and overwrought sympathy on the other.

It is common in these days to lament that the taste of the public, as indicated by the remorseless self-recording apparatus of the public libraries and the glaring indications of the book-stalls, is depraved; but it is well to remember that many counteracting influences are vigorous. Never was Shakspeare read and studied as he is to-day; never was Chaucer so familiar to the youth at school; never was the Bible so widely read; never were such translations accessible as are now within reach of all. In all this, the power of the universities is felt: give them the credit. But let us hope that in the future more attention than ever before will be given to the study of literature and art. Fortunate would it be if in every seat of learning such a living teacher could be found as a Wordsworth, a Tennyson, a Browning, or a Lowell.

Among the characteristics of a university, I name the defence of ideality, the maintenance of spiritualism. There are those in every generation who fear that inquiry is hostile to religion. Although universities are the children of the Christian church, although for a long period the papal

sanction was desirable if not essential to their establishment, although the earliest colleges in this country were strictly religious, and although almost every denomination in the land desires its own university, there is an undercurrent of talk which shows that the influence of the higher education is often regarded in certain circles as adverse to spiritual and religious life. If this were so, many would prefer to see the academic walls fall down in a night, and the treasures of the ages reduced to smoke and ashes. But fortunately, indeed, there is no such danger. Alarmists are cowards. That piety is infantile which apprehends that knowledge is fatal to reverence, devotion, righteousness, and faith. As the most recent utterances of science point more and more steadily to the plan of a great designer, as the studies of psychology and of history confirm the doctrine, at least as old as Solomon, that righteousness exalteth a nation, so we may affirm that the two essentials of Christianity, on which hang all the law and the prophets, — the love of God and the love of our neighbor, — are enforced and not weakened by the influence of universities. We may also rest assured that institutions devoted to the ascertainment of truth as the ultimate object of intellectual exertion, and to the promulgation of truth as an imperative moral obligation, are not the harbingers of harm. Individuals will err; generations will labor under false ideas; domineering intellects will dazzle for a time the ordinary mind; error, like disease, must be clearly understood before the mode of correction can be formulated; but there is no better way known to man for securing intellectual and moral integrity than to encourage those habits, those methods, and those pursuits which tend to establish truth.

Near the close of his address before the University of Munich, at the celebration of its jubilee in 1872, a great theologian, Dr. Döllinger, referred to the perils of the times in words which were received with prolonged applause. "Who knows," said he, "but that for a time Germany may remain confined in that strait prison, without air and light, which we call materialism? This would be a forerunner of approaching national ruin. But this can only happen in case the universities of Germany, forgetting their traditions and yielding to a shameful lethargy, should waste their best treasures. But no, our universities will form the impregnable wall ready to stop the devastating flood."

The maintenance of a high standard of professional learning may also be named among the requisites of a university. So it is on the continent of Europe, so partially in Great Britain, so it should be everywhere. The slender means of our

fathers compelled them to restrict their outlays to that which was regarded as fundamental or general education; and so it came to pass (as we have already been reminded) that professional schools were established in this country as independent foundations. Even where they are placed under the university *aegis*, they have been regarded as only children by adoption, ready enough for the funds which have been provided for academic training, but without any claims to inherit the birthright. The injury to the country from this state of things is obvious. The professional schools are everywhere in danger of being, nay, in many places they actually are, places of technical instead of liberal education. Their scholars are not encouraged to show a proficiency in those fundamental studies which the experience of the world has demanded for the first degree in arts. It is well known that many a medical school graduates young men who could not get admission to a college of repute. Ought we, then, to wonder that quackery is popular, and that it is better to own a patent medicine than a gold-mine? It was a wise and good man who said that there is no greater curse to a country than an uneducated ministry, and yet how common it is for the schools of theology in this country to be isolated from the best affiliations! Lawyers are too often trained with reference to getting on at the bar, and find themselves unprepared for the higher walks of jurisprudence and statesmanship. The members of congress and of the state legislatures annually exhibit to the world poverty of preparation for the critical duties which devolve upon them. I am far from believing that university schools of law, medicine, and theology, will settle the perplexing questions of the day, either in science, religion, or politics; but, if the experience of the world is worth any thing, it can nowhere be so effectively and easily acquired as in the faculties of a well-organized university, where each particular study is defined and illuminated by the steady light which comes from collateral pursuits, from the brilliant suggestions of learned and gifted teachers. Moreover, science has developed in modern society scores of professions, each of which requires preparation as liberal as law, medicine, or theology. The schools in which modern sciences are studied may indeed grow up far apart from the fostering care of universities; and there is some advantage doubtless, while they are in their early years, in being free from academic traditions: but schools of science are legitimate branches of a modern university, and are gradually assuming their proper relations. In a significant paragraph which has lately appeared in the newspapers, it is said, that, with the new arrange-

ments for instruction in the University of Cambridge, Eng., its degree of engineer will be one of the most valuable which can anywhere be attained.

Finally, among the merits of a university, is the cultivation of a spirit of repose. As the distractions of modern civilization multiply, as newspaper enterprise brings to our daily vision the conflicts and transactions of mankind, as books become superabundant, and periodicals more and more indispensable, — and more and more technical, — some corrective must exist, or there will be no more enjoyment in an intellectual life than there is in making money in the turmoil of the bourse. The whirl of the nineteenth century has already affected the colleges, with detriment to that seclusion which best promotes the acquisition of knowledge. A man of great experience in public affairs has said that a great university should be at once "the best place of education, the greatest machine for research, and the most delicious retreat for learned leisure." This is doubtless the truth, but it is only a half-truth. Universities with ample resources for the support of investigators, scholars, thinkers, and philosophers, numerous enough, learned enough, and wise enough to be felt among the powers of the age, will prove the safeguards of repose, not only for those who live within their learned cloisters, but for all who come under their influence. A society of the choicest minds produced in any country, engaged in receiving and imparting knowledge, devoted to the study of nature, the noblest monuments of literature, the marvellous abstractions of mathematical reasoning, the results of historical evidence, the progress of human civilization, and the foundations of religious faith, will be at once an example of productive quietude, and an incitement to the philosophic view of life, so important to our countrymen in this day, when the miserable cry of pessimism on the one hand, and the delightful but deceitful illusions of optimism on the other hand, are in danger of leading them from the middle path, and from that reasonableness of mind which first recognizes that which is, and then has the hope and courage to strive for the better.

In what has now been said, it has been made apparent that our fathers brought with them to the western world the idea of a university as an institution superior to, though not exclusive of, a college, and that this idea, sometimes obscured by mist, has never lost its radiance. I have also called your attention to some of the functions which are embodied in the conception of a university, — the advancement of learning, the conservation of knowledge, the development of talent,

the promotion of spirituality, the cultivation of literature, the elevation of professional standards, and the maintenance of repose.

I add a few suggestions of a practical character, which I hope will be approved in this seat of learning.

We should look for the liberal endowment of universities to the generosity of wealthy individuals. It is doubtful whether the national government, or the government of any state, will ever provide funds which will be adequate for the highest education. There is a growing disposition in the eastern states to restrict all provision for public instruction to schools of primary and secondary rank. Were any legislative body to appropriate a sufficient financial support, there is nothing in the tendencies of modern politics to show that the representatives of the people, as they are in these days elected, would have the wisdom to mark out the pathway of a great university. Ecclesiastical zeal is more likely to be successfully invoked. The conception of a university pervaded by a spirit of enlightened Christianity is inspiring to the mind of every believer. It seems to associate religion and science as co-workers for the good of man. It is more than probable, under this consideration, that a Catholic university will ere long be initiated; and, if it succeeds, the example may lead to a union of Protestants for a kindred object. But it would be a misfortune and an injury, as I believe, to the religious progress of the country, if each of the denominations into which the evangelical world is divided were to aim at the maintenance of a university under its own sectarian name. The endowments which are called for are too large to be made up by petty contributions. Great gifts are essential, and consequently those who in the favorable conditions of this fruitful and prosperous land have acquired large fortunes should be urged by all the considerations of far-sighted philanthropy to make generous contributions for the development of the highest institutions of learning. There is now in the golden book of our republic a noble list of such benefactors. Experience has shown no safer investments than those which have been given to learning, — none which are more permanent, none which yield a better return.

It is a common error in this country to suppose that we need many universities. Just the reverse is true: we need but few, but we need them strong. There is great danger that funds will be scattered, teachers isolated, and scholars kept away from their proper fields, by attempts, of which we have seen too many, to establish post-graduate courses with very inadequate means.

Even professional schools have been initiated where the fees of the pupils have been the only criteria of success. We should lend our influence as scholars to enlarging the resources of the universities which are strong, and to discouraging new foundations unless there is a positive guaranty that they are also to be strong. There are half a dozen or more places which could be named where a million of dollars would be more fruitful than thrice that sum in any new establishment. No greater service could be rendered at this time than a rigid enforcement of the scriptural rule, "For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath."

There is another danger to which I must call attention, — the danger of an incorrect conception of the purposes which should influence young men in pursuing university courses beyond a college curriculum. Those who have watched the tendencies of graduated students must have observed with a good deal of alarm the disposition which they sometimes show to concentrate attention upon very special subjects. Unfortunately many of these same persons are entirely dependent for their support on the salaries which they may earn. Now, instead of bringing to the educational exchange qualities which are always in demand, and which always receive remuneration, they come forward as doctors of philosophy with special attainments in some limited field, and are saddened to find that there is no demand for the acquisitions which they offer. I do not hesitate to say that if the drift of university work in this country is toward premature and excessive specialization, many a mariner is doomed to shipwreck on that rock. Even in Germany, where specialization has been favored, the cry is heard, too many specialists, too many university candidates. It would be a misfortune to this country, if we should find in the course of a few years a superabundance of men with rare acquisitions of a kind for which there is no demand. It would then be rightly said that our universities did not produce the fruit which had been expected. On the other hand, if residence in a university, beyond the college course, is found to widen the student's capacities as it increases his knowledge; if he learns the art of imparting what he knows; if he acquires the sense of proportion, and sees the subjects which he studies with the right perspective; if he strengthens the foundations as he carries upward the obelisk, — then he will gain, and not lose, by prolonged preparation for the duties of life. For every individual who may with wisdom be encouraged to devote himself to a very

limited domain, there are scores who may be bidden to widen their culture. I do not now refer to those upon whom fortune has smiled, and who have the means to do as they please in preparing for life; but I have in mind many a struggling aspirant for the scholar's fame, who would be a happier and a more useful man if he had not set his face so resolutely against those studies which adorn the intellectual character, and give grace, dignity, and acceptability to their possessor. The first business of every man is to win his bread; if he is sure of that, he may wander at his own sweet will through meadows and woods.

In all the difficulties which are encountered by those who are endeavoring to advance the institutions of this country to their highest usefulness, great encouragement may be derived from a study of the results secured in other countries and in other ages. It is only by the review of long periods of time that the most instructive lessons can be learned. The history of European universities is yet to be written by one who has the requisite vision, and who can estimate with an accurate judgment the various forces by which they have been moulded, and the various services they have rendered to humanity. But there are many histories of famous foundations, many biographies of illustrious teachers, many surveys of literature, science, and education, many elaborate schemes of organization, and many proposals of reform. The mind of a master is indeed needed to co-ordinate what is thus recorded, — to be the interpreter of the house called beautiful. But the American scholar need not wait for such a comprehensive work; the American philanthropist need not delay his benefactions until more experience is secured. The centuries speak with many voices, but they are all harmonious. From the revival of letters until now, from the days of Gerson, the great chancellor of the University of Paris, five hundred years ago, every advance in civilization has been dependent upon the influences which have proceeded from the seats of learning. Their light has illuminated the foremost nations of Christendom. In days to come, more than in days that are past, their power for good will be felt upon the interests of mankind. Let us hope and believe, let us labor and pray, that the American universities when they are fully organized may be worth allies of the strongest and best foundations, — steady promoters of knowledge, virtue, and faith.

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THE sixty-ninth annual meeting of the Swiss society of natural science will be held at Geneva, Aug. 9-12.