

THE
Lehigh University,

ITS ORIGIN AND AIMS:

AN

HISTORICAL DISCOURSE,

DELIVERED IN THE

CHAPEL OF PACKER HALL,

On University Day, June 24th, 1869,

BY

WILLIAM BACON STEVENS,

BISHOP OF THE DIOCESE OF PENNSYLVANIA AND
PRESIDENT OF THE BOARD OF TRUSTEES.

PHILADELPHIA:

FROM STEAM PRINTING ROOMS OF A. C. BRYSON & CO., No. 607 CHESTNUT ST.

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HISTORICAL DISCOURSE.

IT has been truly said by one of the most careful examiners of the educational systems of Europe, that "the aim and office of instruction is to enable a man to know himself and the world. Such knowledge is the only sure basis for action, and this basis it is the true aim and office of instruction to supply." That education therefore is the best which covers both these points, man and the world. To know man, the image of God, made up of body, mind and soul; in his diverse relations, social, domestic, ethnic, political and ecclesiastical; and to know nature, the material world on which we live and the material universe around us, with its complex and ever-varying manifestations; constitutes the sum of that education which takes in the Physics, and the Humanities, and in these two words might be summed up the whole course of human knowledge, for there is nothing about which the mind can busy itself that may not be classed under one or other of these heads.

Yet this simple truth, which lies so almost on the surface of things when we bend our minds to the question of what education is, is *practically* a discovery of the nineteenth century. Not that the sciences often "falsely so called" have not to a certain extent been cultivated in past ages, but the true relation between the old University studies and the study of nature has never

been seriously considered or duly adopted until within the last century. It is one of the triumphs of this age and one of its greatest glories, that in it, the mind, long encased in its coat of academic mail, fettering its free action and impeding its progress, has thrown off its casque and its gyves, its gauntlets and its cuirass, the cramping scholasticism of a medieval philosophy, and has strode forth in the liberty of untrammelled thought, into the domain of nature, to question, to delve, to analyse, to systematize, that it may know nature in all its laws and works, and thus become, what man, in the language of Bacon is designed to be, language which is graven upon the seal of this University, "The minister and interpreter of nature."

A brief review of past systems of education will illustrate this assertion. Among the ancient Greeks the principal elements of education were musical and gymnastic culture. "The tones of the flute were supposed by their law-givers to temper the violence of the passions and to produce a favorable effect on the moral condition." Dorian education consisted almost solely of the development of the bodily power by gymnastic exercises. The State took charge of the child at the age of seven, and Spartan sternness subjected all minds to the moulding power of Spartan rule.

The Hellenic system of instruction as seen in Athens was more literary than either in *Æolia* or *Doris*, but in Plato's day embraced only literature, music, gymnastics and law.

Roman education, while it did not hold to the severe discipline of the Spartan scholar, and slighted Athenian letters, bent itself mostly to forming minds fit for the

Forum, the Tribune and the Camp. Hence the studies which bore on law, politics and arms, were those most taught in their schools.

When in the fifth century Roman civilization recoiled before the Gothic invasion of Alaric, education went down in the general wreck. Thenceforward to the thirteenth century, what instruction there was in Europe, was found in Monastic or Episcopal schools attached to convents and cathedrals, in which was kept alive what little learning then existed. The instruction given in these schools was of the slenderest kind; consisting of the elements of reading and writing, and sometimes not even these; but the committing to memory the legends of saints, fragments of old philosophers, the collects and lections, and primers of the church.

Many a gallant knight, a lordly noble, a princely ruler, a mitred bishop, could neither read nor write in those days, and the seven centuries that rolled over the world from the fifth to the twelfth, have well been termed "the dark ages." The mind was dark with ignorance; the soul was dark with superstition; governments were dark with tyranny; and the gloom of moral, social domestic darkness settled down like the shadows of a chill evening upon nearly every heart, and every hearth.

At the revival of intellectual life in the fourteenth century, known as the "Renaissance," what were called liberal studies, or the *studium generale*, were introduced. These were comprehended in what was termed the "*Trivium*," and the "*Quadrivium*" of the faculty of Arts. The *Trivium* consisted of Grammar, Rhetoric, Dialectics; and the *Quadrivium* of Arithmetic, Music,

Geometry and Astronomy, tersely known in the middle age Latin verse, as

"Lingua, Tropus, Ratio, Numerus, Sonnus, Angulus, Astra."

Though this seems a good schedule of study, yet we must remember that at that time Astronomy was almost a synonym of Astrology. That Geometry was mostly limited to the elements of Euclid. That Mathematics were then but another name for Magic. That Arithmetic was not so much the science of numbers for mercantile and domestic use, but rather a study of the forms to compute the epacts, and to tell the golden numbers and the dominical letters of the ecclesiastical year.

The first University by name, and in fact, appears to have been that of Bologna in Italy, founded at the beginning of the twelfth century. Here the degree of "Doctor" was first conferred, and here the students were first called Bachelors, from the *Bacculus* or little stick or baton which they usually carried.

In 1201 Philip Augustus of France, chartered the then school of Paris as a University, and it soon became the most famous in Europe. It was founded nearly half a century before University College, Oxford, which itself is "the oldest college of the oldest English University."

By the fifteenth century, Universities were founded in England, France, Italy, Spain, Portugal and Germany. They were the intellectual light-houses along the dark coast line of medieval ignorance.

But their rays did not sufficiently intermingle to dissipate the darkness; they only revealed it the more, and their own light appeared more brilliant than it really was, by contrast with surrounding gloom.

In nearly all these universities the course of studies was the same. They had each their faculties of Arts, of Law, of Medicine, of Theology; though different universities had their specialties: Thus Salerno had pre-eminence as a medical school; Bologna in Roman and Common Law, and Paris in Theology and Philosophy.

In all, however, Dialectic teaching as the system of Scholastic Philosophy—a sort of bastard Aristollianism, held sway and cramped, and distorted the mind. Science as we now understand it was little known and less taught. The Dialectic or disputative faculties were cultivated to the exclusion of the perceptive and generalizing. The sporadic efforts of men of enquiring minds applying themselves to learn the secrets of nature like Roger Bacon and Gallileo enlisted the opposition of schoolmen and churchmen, because they went counter to the dogmas of Aristotle on the one hand, and the teachings of the church on the other.

Roger Bacon, the father of mechanical science, was declared to be in league with the devil; and Gallileo was compelled, by the Papal Inquisition, to recant his delaration that the earth moved around the sun.

But the date of this Inquisitorial edict by which the anathemas of the church were hurled against those who held the Copernican doctrine of the planetary system, was the date also of the decay of the Philosophy which has sustained such edicts: for it is an interesting and quite a typical fact that Cremonini, a Professor of Padua in 1631, and who is called the last of the schoolmen, though he saw with his own eyes the Satellites of Jupiter through the telescope of Gallileo, refused to credit his sight, because what he saw contradicted the dogmas of

Aristotle, and never again could he be persuaded to look through the optic glass. It has been aptly said that "one could not have a better incident to end the career of the Scholastic Philosophy."

Now began a new era. The gradual introduction into the western universities of eastern languages and literature like the grey streaks of the morning, told that the long night of the middle ages was giving place to the day-break and an uprising sun.

The originator and advocate of realistic instruction in Europe was John Amos Comenius, a Moravian clergyman, (1592-1669). In 1631 this bold advocate of Reform published his views in the *Janua Linguarum Reserata*. So great was the hold which this took on the public mind that it was translated into twelve European languages, and even into Turkish, Persian and Arabic. It was subsequently re-published under the title of *Orbis Sensualium Pictus*.

Yet Comenius took his great idea of teaching things, not words, from hints which he found in Sir Francis Bacon's works; for though Bacon did not himself urge reform in school education he did throw out those germ thoughts, which, floating like winged seeds and lodging in the soil of other minds, took root and bore fruit in after ages and other climes.

In his great work on the advancement of learning, Bacon devotes a chapter to the defects of universities, and speaks of it as a strange thing, "that they are all dedicated to professions, and none left free to arts and sciences at large." Bacon's idea was, and it lies at the root of his whole inductive theory, that the mind should be brought into close contact with facts, rather than

rules—letting the rules grow out of the collected facts, and thus work from the fact to the law which governs the fact; from the thing, to the bearings and relations of that thing.

These germ thoughts of all inductive science Comenius developed in his plan to reduce the excess of the classics, and “to make school studies bear more directly upon the wants of practical life.” These schools he termed “Realschules,” because the instruction in them pertained to real and useful knowledge. Though the views of Comenius were narrowed by the temper of the times in which he lived, and by his admiration of the Latin tongue which he confidently declared would soon be the universal language, yet he did good service to the cause of education by guiding the popular mind into better lines and systems of instruction, and thus he was one of the fathers of that realistic education which has now been developed into our institutes of Technology, our Scientific schools, our Agricultural colleges, and our enlarged courses of University education.

These advanced ideas made a great impression on the thinkers of Europe. The English Parliament in 1641, invited Comenius to England in order to remodel its schools, and give a more practical and realistic character to their instruction. Nor was the fame of this Moravian pastor confined to Europe. His writings found their way to this land, then just feeling the first deep gashes of the settlers' axe hewing out for themselves a foot-hold on this northern continent. In 1654 the corporation of Harvard College, Cambridge, tendered to Comenius the Presidency of that institution, in the full belief that the mind which had planned such a scheme of study would

any great or lasting system of education. In England the struggle between the classical and the realistic studies was long and strong. The old system inaugurated and kept up by the two universities, and by the great public schools on the one hand, and the effort to open the doors of these ancient institutions to a wider circle, and a more useful circle of studies—studies which should bear directly on the industrial and commercial pursuits of men, on the other—created great discussions, and gave rise to learned commissions. The contest has resulted, not to the full and wise extent which obtains on the continent, but in engrafting several modern studies on the old stock of Oxford and Cambridge, and widening the hitherto narrow list of text books, in such famous schools as Rugby and Harrow. The disproportion between the classical and the scientific, between the old-fashioned liberal education, and the more secular and needful studies of the day, is gradually disappearing. The day I trust will never come when the classics and philosophy will cease to be a part of all university courses, yet the time is close at hand when the practical, the useful, the absolutely essential, shall occupy much of the time now given to the merely ornamental.

But I have not time to trace out the history of scientific education as applied to the useful in human life in Europe. A few words in reference to its origin and progress in this country must suffice at this time.

The first attempt so far as I know in this country to apply scientific teaching to purposes of common everyday industry, was by Benjamin Thompson, of Woburn, Massachusetts, and who was knighted in England by George the Third; and subsequently was created Count

carry it out with success. He, however, declined the invitation, but accepted that offered to him by the renowned Chancellor Oxenstiern to supervise the educational interests of the Kingdom of Sweden. It is a thought which can be dwelt upon with interest in this community that the pioneer of all this system of realistic instruction was a Moravian pastor. To this body of Christians, small in numbers, but great in faith—fervent in prayer and mighty in work, the world is indebted for some of its noblest missionary heroes—some of its wisest educators,—and some of its holiest Christians.

Nearly a century passed, however, before the ideas and plans of Comenius found any opponent. The first Realschule was established in Halle, in 1739, by Christopher Semler. The next was founded eight years later, in Berlin, by John Hecker, a parish minister, in which "a liberal education might be combined with the study of any special subject." This attempt soon withered, and more than seventy years passed before the old root planted by Hecker shot forth new trunk and branches; and Realschules, upon a permanent and improved basis, grew up and have since flourished, not only in Berlin, but in the same substantial form, though under different names, all over middle Europe.

The first efforts in France to give practical direction to scientific studies was by the Revolutionary Convention in 1793, when it issued decrees for establishing normal schools, the Polytechnic, the School for Mines, &c. These were not really established until several years later, for in the turmoil of that insurrectionary and bloody period the popular mind was too much tossed up and down on the troubled sea of politics, to settle quietly and permanently

Rumford, by the king of Bavaria. This self-made man in 1816, endowed a Professorship in Harvard University, styled the Rumford Professorship of Sciences, as applied to arts, "in order" as the terms of its foundation state, "by regular courses of academic and public lectures, accompanied with proper experiments, to show the utility of the physical and mathematical sciences for the improvement of the useful arts, and the extension of the industry, prosperity, and happiness, and well-being of society."

The next effort seems to have been originated by Stephen Van Rensselaer and Amos Eaton, who established at Troy, what has, since its reorganization, in 1850, developed into the Rensselaer Polytechnic Institute.

In 1847 the Hon. Abbott Lawrence, by a munificent gift to Harvard College, founded the Lawrence Scientific School connected with that university. This was soon followed by the establishment of the Sheffield Scientific School of Yale College, through the liberality of Jos. E. Sheffield, Esq., of New Haven; and by the building of the Cooper Institute, in New York, by Peter Cooper.

Thus was inaugurated a new channel of educational benevolence, and new schools, and systems of scientific and industrial studies.

Thenceforward, there has been a steady growth in this direction, and similar institutions are fast being multiplied, or old colleges are being changed to suit the advanced views of the present age.

I come now to the origin of this university. The Trustees wishing to preserve the facts incident to the founding of this institution, have requested me to give a brief statement of them on this occasion. In making this statement I find myself somewhat embarrassed because

it will compel me to speak of noble deeds in the presence of the noble doer of them, and to appear to eulogize too strongly one present with us, while yet the eulogy is but a simple statement of actual facts.

In the fall of 1864 an interview was requested of me by the Hon. ASA PACKER, of Mauch Chunk. He came to my house in Philadelphia, and said that he had long contemplated doing something for the benefit of his State, and especially of the Lehigh Valley. From that valley he said he had derived much of the wealth which God had given to him, and to the best interests of that valley he wished to devote a portion of it in the founding of some educational institution, for the intellectual and moral improvement of the young men of that region. After conversing with him a little while, and drawing out his large and liberal views, I asked him how much money he purposed to set aside for this institution, when he quietly answered that he designed to give \$500,000. At the time of this interview no one in this country, it is believed, had offered in a single sum such an endowment for a literary institution. It was the noblest offering which an American had ever laid on the altar of learning, and more than equaled many royal donations which have carried down the names of kings as patrons of European universities. Filled with profound emotions at the mention of such a gift for such an object, I asked the noble donor what specific plans he had framed in his own mind in reference to it. His reply was, "I am not much acquainted with these matters, but you are, and I want you if you will to devise a plan which I can put into effective operation." I told him that I would make the attempt. I did so. I drew up

the outline sketch of such an institution as I thought would give the largest results for the means used, and submitted it in a few weeks to his inspection. He examined it with the practical judgment and business habits with which he deals with all great questions, and adopted the scheme as the basis of his future university.

The first meeting of the Board of Trustees, selected by JUDGE PACKER, met at the "Sun Hotel," in Bethlehem, July 27th, 1865, and began to organize the work before them. To the large gift of money, JUDGE PACKER now added the gift of fifty-seven acres of land—the great body of the domain on which the university stands. To plan out the buildings, to frame a system of instruction, to organize a corps of professors, occupied many anxious days of thought and conference. The general plan of studies having been adopted, it was deemed best, even before we laid a stone of our proposed building, to go so far as to select a President, who, in conjunction with the trustees, and as one specially charged with the administration of the university, should from the beginning give to it his sole and undivided care, his special and continuous oversight and guidance. In selecting a President it was felt that he should be a man who could, if possible, represent the two systems combined in our proposed course of instruction, viz: the classical and the scientific. That he should be a man who had been educated in college, and also in some great scientific school. That he should be a man who would be able to give a practical and intelligent oversight of every branch of university study. That he should be a man of ripe general scholarship, of mature mind, of educational experience, of administrative power, and in full report

with the newly developing systems for the enlargement of our scholastic course, and the new methods of scientific culture.

We felt that great as was the munificence of the founder—wise as might be the plan of instruction adopted by the trustees—all might be wasted and come to nought if we made a bad choice of our first President, and committed to incompetent hands, the moulding and guiding of our nobly endowed and wisely planned University.

We thought over the subject long and carefully. We took advice of men skilled in the knowledge of men, and of the needs of colleges, and the index finger of all pointed to him whom on the 4th November, 1865, we chose as one who met all our predetermined qualifications; and all the needs and requirements of an organizer and guide in our new institution. Time has justified our choice—the verdict of the public sanctions it—the high stand which the University has already taken confirms it—and the future will but echo the gathered-up voice of the present generation.

From the date of the election of HENRY COPPEE, L.L.D., the roughly hewn plan which had been blocked out, and which JUDGE PACKER and the Trustees had adopted, was placed in his hands, and he has moulded the institution in all its compass and details as it stands before you to-day. I but made in rough outline the clay model; he has transformed it into durable form and feature, and as his hands and mind have fashioned it so will it long remain the monument of his administrative skill and educational sagacity.

The President chosen, the system of studies adopted,

the style of building fixed upon, our next care was to get a corps of Professors and begin in good earnest. In selecting such able men as POTTER, WETHERILL, MAYER, and MORGAN to fill the several Professors' chairs, we felt that we were providing the best talent which could be secured—men fitted for their several departments, and whose faithful work has already given a high character to the teaching and scholarship of the institution.

The Moravian church now on the college campus was therefore purchased and refitted with lecture and recitation rooms, and was informally opened under the name "Christmas Hall," September 1st, 1866, not quite three months after the laying of the corner stone of Packer Hall, the building in which we now are.

With carefully selected and well-approved professors the course of instruction was commenced, though under very unfavorable auspices, in very cramped and not properly arranged quarters. Yet the course has been steadily pursued, the number of students has gradually increased, and the system of instruction has been tested by trial.

What a marvellous change has been wrought in three years! The forest which five years ago had not a house, has now been transformed into this University Park. It is almost as if the wand of a magician had been waved over this hill side, and lo! there had sprung up a beautifully planned campus, elegant dwellings, and this edifice, named after the founder, Packer Hall, the finest and most admirably arranged single college edifice in the land: and all this the result of the thoughts, and the gift, of one of the most modest, yet most worthy of our citizens. I need not to this audience eulogize the founder

of Lehigh University. His life for years has been a blessing to the Lehigh Region and this Commonwealth, nearly all of his mature life has been lived in this valley, and to-day it teems with the trophies of his far-seeing and wise planning mind. Under his fostering hand it has been made a great highway of traffic. Furnaces, forges, rolling mills, machine shops, make the night lurid with their fires, and fill the day with their clang of labor. The resources of the valley have been increased a hundred fold, and every industrial interest has thriven since his energy and wealth have pushed on those works of internal improvement by which the seaboard is strapped by iron bands to the mountains, giving transit and outlet to the mineral wealth stored up in the mines and ore beds, and forests of our hills and valleys. Not that all is due to him alone, but he was one of that far-sighted and prompt-acting band of pioneers who were willing to do much, and dare much for the future, who by their patient, persevering toil, under difficulties, dangers, disasters and almost defeat, have turned this once quiet valley into a busy mart, and made the rail and the engine do a thousand fold the work of the raft and the river. We bless God that He put it into the heart of his servant to found this University. May he long live to see the ever-growing results of his beneficence, in the ever-augmenting value of this University, in the ever-widening influence of its instruction, and in the ever-increasing number of students.

As the simple inscription *si monumentum requiris circumspice* on the black marble slab which covers the remains of Sir Christopher Wren, in St. Paul's, London, makes that grand Cathedral one perpetual monument to

him, its noble architect; so will this University in its broad domain, its massive buildings, its course of study, its whole educational power, be one grand monument of its wise founder, and he will need no granite shaft, no sculptured Mausoleum, for the future will point to this institution, and say *si monumentum requiris circumspice*.

I could mention other names to whom special thanks are due for gifts and services of singular worth such as Mr. C. Broadhead, the donor of a valuable tract of land, Mr. Potter, the accomplished architect, whose taste and skill are embodied in this grand and massive building, Captain Jenkins, the admirable superintendent of construction, whose watchful and wise over-sight has been of invaluable service, and the heirs of General George M. Keim, who gave to this University the very superior Mineralogical Cabinet which he so carefully and elaborately prepared.

But I must mention one name deserving on this occasion special commemoration.—I mean ROBERT H. SAYRE.

Next to JUDGE PACKER, the University is indebted to him, not only for his deep and thoughtful interest in the institution, but for the gift to it of one of the essential elements of its instruction and success; the Astronomical Observatory. This building was erected at the sole expense of Mr. Sayre, and contains an Equatorial, a Zenith Sector, an Astronomical clock, a Meridian circle, a Prismatic Sextant, and other needed instruments constituting an important addition to the practical teaching of Astronomy and Geodesy. The gift reflects special credit upon the large minded and liberal donor, whose name it will bear as the "Sayre Observatory" as long as the University itself shall stand, and of that we say, *Esto Perpetua*.

With other and interesting services before us, I cannot stop to discuss the full merits of the plan of education which we have adopted. They have been briefly set forth in the Register of the University, as elaborated by the careful pen of our excellent President. The merits of the plan after all are to be sought for not in theoretic abstractions but in actual results. The proof of the excellency of the scheme of studies is to be found in the excellence of the classes of men who go forth from these walls. In the solid learning—the disciplined mind—the scientific research—the patient industry—the firm grasp of thought which our graduates shall show. They are to be our living epistles known and read of all men. They are to represent to the community the moulding and producing power of the University; what can be done here by the multiplied appliances of culture with the raw material of youthful minds, how we can take them almost in the ore, and after years of educational manipulation render them back shaped, polished, beautified, knit into forms of strength and of usefulness, and prepared not only to reflect honor on the institution which moulded them, but to accomplish great things in developing the resources, and adding to the scientific character of our land! Every consideration urges us to the full adoption of the system of studies marked out in our Register. As a mental discipline the course is far better fitted to train and develop the mind in all its faculties, and in harmonious proportion, than the old system of liberal studies which resulted in hypertrophy of certain powers of the mind, and in marasmus of certain others, and hence there had resulted ill-formed and one-sided men. An enlarged scientific

course makes demands on all the powers of the mind, the observing, the reflecting, the reasoning, and taxes each one to the utmost, and basing all upon the facts of nature, builds up on them the well-proportioned sciences on the one hand, and strengthens and adorns the human mind upon the other.

Again, success and perfection in the Industrial Arts upon which depends so much of human comfort and refinement hinges on scientific studies taught in a scientific way. Take away the science which is necessary to the mastering of the principles of the steam engine, to the laying out and building of rail roads, to the opening and shafting of mines, to the smelting and manipulation of ores, to the production of the wonderful machines which fill our factories and workshops, which guide our commerce over trackless oceans, which enlarge our agricultural power, which clusters about astronomy, which delves in the strata of the earth or busys itself with the vegetable world from the Lilly of the Valley to the Cedar of Lebanon, and what would you have left? The world would be rolled backward a thousand years, and the rude arts of the savage with his rude life and rude mind, would take the place of the refinement and skill, and wonders, and sciences of this nineteenth century.

And yet once more, the age and the land we live in demand this kind of education. We must have skilled labor guided by scientific minds if we would develop the resources of these United States. What is needed to develop them is not the Trivium or the Quadrivium of the Medieval Universities, but the Sextant, the Theodolite, the Crucible, the Level, the well-trained

mind first mastering the principles of science, and then applying science to all the departments of nature, and to all the pursuits of man. We have the noblest domain in which to work, the whole northern continent; we have the fullest repository of all precious things stored up in the bowels of the earth; we have the longest coast line of any nation on earth; we have the most remarkable river system on the globe. What a theatre for the display of man's power and skill! And how loudly does all this call upon us to sustain and advance that system of instruction which shall best enable the coming generation to go in and possess this promised land, and make the now barren wastes teem with busy life, ring with the clang of toil, and robe itself in all the varied aspects of industrial art and scientific adornment.

But I need not enlarge upon the well-accepted fact that the practical and scientific character of our age and land demands a practical and scientific education. By no other education can we grasp the great future and subsidize it to the benefit of man. By no other develop the resources of our just-opening territories or keep pace with the advancing march of emigration. By no other secure and maintain that mastery of trade, agriculture, commerce and mineral wealth which will keep us abreast if not ahead of the foremost nations of the globe. God has done His part in giving us a land which is of a truth the glory of all lands, and stocked it with all species of wealth and power and greatness. Let us do our part and by means of such institutions as this go in and possess the land with educated men, men taught to know themselves, taught to know their country, and above all taught to know and reverence God.

What our land now needs, aside from the three great Professions Law, Divinity and Medicine, is not so much scholars, as that term was understood half a century ago, men learned in the classics and polite literature, but men, who with minds previously disciplined to careful and exact thought by a due study of the dead languages and mathematics; have then devoted themselves to the study of the phenomena of nature its laws and resources. Men who make their studies tell in their practical benefits in developing the resources of the land, in opening up new highways of communication, in broadening the range of human comfort, in increasing the productive power of machinery, in utilizing the agencies of the material world, and in doing those things which make the world a better place to live in, draw out of it new treasures, add to mans domestic and social comfort, and elevate him in the scale of moral beings. These are the kind of men needed in this bustling, wrestling, grasping age. Men with drilled minds, and taught eyes, and skilled hands, and steady wills, and earnest purpose, and plodding progress. Men who make past discoveries stepping stones to new ones, past triumphs herald to new conquests, and who feeling that we are but in the infancy of the developing state of our country, and but in the childhood of scientific research are stretching forth to higher results, and nobler aims, and will not tire or falter until they have reaped new fields or opened long-buried treasures, or unlocked the still guarded secrets of nature's laboratory.

Thus we believe that this University is fitted to the needs of the age, and the land we live in, and that the age and the land need and must have just such an Uni-

versity. They fit and adjust themselves to each other, and our country which has just belted itself with that iron girdle which is to compact its strength and unify its nationality, will need all the aids and appliances which such institutions can bestow.

This education to be really valuable must be moral as well as scientific and practical. The God of nature, and the God of the Bible are one. All the researches of human philosophy, all the discoveries of science, all the application of science to arts, and manufactures, are but researches, discoveries and applications that busy themselves with what God has opened before the mind in the world of nature.

Hence, though there can be no science without God, no laws of nature without him, no nature itself aside from him, yet human science too blindly constructs its theories and schemes totally apart from God, leaves him out altogether, as if the presence of God was the great disturbing factor in the region of their study.

We hold that as men become eminent scientists just in proportion as they draw near to, and understand, the real facts of nature; so they honor science when they bring it near to Him whose laws and works constitute the science or the philosophy which they seek to explore. The highest names in nearly all the great branches of human learning have been men who have bowed reverently before God. True science ever leads up to God; true philosophy only brings the heart nearer to the fountain head of all wisdom. The flippant sciolist, the chirping smatterer, the proud and boastful word-monger, men who know only the nomenclature of science and not its deep principles, who deal with a few isolated

facts and not with a well-arranged generalization, sneer at God and would remove him beyond the pale of human thought.

The best posture of the mind for the study of any science is a reverent recognition of the existence and presence of God ; and just as it brings itself into contact with the deep thoughts of God, whether those thoughts are bodied forth in the facts of nature or in the word of revelation, just so far will that mind be best fitted to explore the ways and works of the Almighty, and will find the recognition of God one of its greatest stimulants, one of its best guiding principles, one of its noblest aims of study.

I congratulate you, Honored Sir, upon the rapid progress and high advancement of this University, which your munificence has founded. I congratulate you, Mr. President, upon the wonderful success which has attended your administration of the affairs of this University. I congratulate you, respected and learned Professors, upon the superior excellence of your teaching as illustrated in the superior attainments of your students. I congratulate you, my young friends, upon the admirable and beautiful provision here made for the education of your minds and the training of your bodies; and especially do I congratulate the first graduates of this institution. Though few in number, you yet constitute, like the first ripened grain reaped in the ancient Jewish fields, "the Wave Sheaf," which we this day offer to the world as the type and emblem of the men and the scholars which this University shall make. May all its subsequent graduates, as they shall come up here year by year to receive their diplomas, be as worthy of them as you now are, and may

you who bear off the first honors of the College, remember that you go forth to represent to the world what this University can do, in making good students, true gentlemen, and thorough scholars.

When over five hundred years ago, Petrarch was crowned Poet Laureate of Italy, in the Capitol of Rome, by Orso, Count of Anguillara, Senator of Rome, he received what was then regarded the highest literary honor which a nation or the world could bestow. The crown of laurel, the reward of virtue decreed to him by the unanimous consent of learned Italy, and given to him amidst displays of pomp and beauty, and learning, and civil and churchly power such as had never before conjoined in placing the laurel wreath on a Poet's brow. Yet in that hour of triumph, he turned from the steps of the Capitol, and amidst the sound of trumpets, and the acclamations of the people, went to the church of St. Peter, and dedicated his crown of laurel to God, by offering it up on the altar of the Saint. So let it be with your honors. They came from the God who made your mind and your body. They are obtained by the strength and wisdom which He imparts. Give back to God, then, the tribute of his own gifts, in the honors which those gifts have won, and remember that, like Petrarch, you transfigure your earthly laurels into crowns of glory when you lay them reverently on the altar of God.