

to other institutions; but there is among us an illustrious and world-renowned investigator who has never been enticed away as a professor, but who as an explorer penetrated regions before unknown in the far West, and who brought from them treasures as marvelous as if he had carried in his hand the lamp of Aladdin. As a scientific writer, he has surpassed himself as a scientific explorer; for these brilliant discoveries were interpreted with masterly ability and patience, and have been put before the world in the best of form, chiefly at his own expense. His fossil horses, Epihippus, Orohippus and Eohippus, with their two toes, three toes and four toes, ancestors of the racers of to-day, and his "bird with teeth," have become classical illustrations of the evolution of higher animals and are famous; but it is not so well known that a thousand species of extinct vertebrates have been brought to light by this great discoverer, many of them of the highest significance in their lessons and suggestions.



PRESIDENT D. C. GILMAN.

The study of zoology has been renovated during the history of this school. The value of classification has not depreciated, while that of embryology, morphology and physiology has become more apparent. The senior biologist has extended his operations over a vast area and to the uttermost depths of the ocean. Modest, learned, patient and thorough, he has described the marine fauna whose existence has been brought to light by systematic dredging. One hardly knows which is the more wonderful, the limitless numbers or the varied structures of new species which he has introduced. An able colleague, concentrating his attention upon the crustacea, though not exclusively, carries on and extends the investigations which gave to Dana no small part of his early renown.

In the group of pure and applied mathematics the school may not have made as many advances as it has in other branches; if so, the reason may be found in the fact that the teachers have been absorbed in class-room work, and have consequently missed the opportunities which otherwise they would have surely enjoyed as experts or as consultants in the various departments of civil, mechanical and dynamic engineering. But there was a period when the leader of this group investigated with ability, ingenuity and patience the nature of comets and the principles of molecular and cosmical physics; and an earlier time, when he made an important series of investigations upon the set of wood and metals after transverse stress.

Whatever else is omitted from this imperfect sketch, mention must be made of the improvement in the manufacture of astronomical lenses, which after a study of the mathematical laws involved, were matured by a practical demonstration, pronounced successful by eminent astronomers, and then adopted by skillful telescopists. This distinction belongs to a former student, an actual professor in the Sheffield School. Physiological chemistry is one of the latest additions to the subjects here taught. At once, in this department, the school has risen to the foremost place. Nowhere else in this country, not in many European laboratories, has such work been attempted and accomplished as is now in progress on Hillhouse avenue, unobserved, no doubt, by those who daily pass the laboratory door, but watch with welcoming anticipation wherever physiology and medicine are prosecuted in the

modern spirit of research. The younger workers in this corps have a right to say that the speaker is not as familiar with the doings of these later years as he is with those of an earlier day. Unquestionably this is so; but there is this consolation, that another voice, at another time, will then do them ample justice. *Seniores ad honores, juniores ad labores.*

A GALLERY OF PORTRAITS SUGGESTED.

The review to which you have now listened has suggested a gallery of portraits which ought to be etched by some Rembrandt of the pencil or the pen before the characteristics are forgotten. At the gateway of Trinity College, Dublin, stands the figures of Edmund Burke and Oliver Goldsmith; in the anti-Chapel of Trinity College, Cambridge, the statues of Isaac Newton and Francis Bacon. I would not compare our worthies with those of any other college or ask for them all the portraiture of marble and bronze; but I would emulate the example so common to old countries of honoring in the places of their activity illustrious men. Not to mention those now living, how many pairs there are whose portraits might be pendants. Tablets, busts, paintings or etchings might be placed in honor of them all.

Whitney and Dana, well described by the Master of the House in his memorial discourse, are entitled to distinction as philosophers, both renowned throughout the world; John P. Norton and Benjamin Silliman, Jr., the two young chemists who perceived so distinctly the needs of the times; William A. Norton and John A. Porter, who invigorated the school in a critical moment by their presence and their instructions; Lyman and Trowbridge, promoters of the mechanic arts, able to apply their mathematical abilities to practical affairs; Eaton, the lover of nature and the interpreter of hidden laws of life; and Walker, the far-famed economist and statistician, the soldier and the patriot—all these have gone over to the majority, leaving the school rich in the remembrance of their abilities, services, influence and devotion. Three of the earliest class that graduated are still connected with it, strong, honored and rewarded for life-long adherence to noble ideals. Around them are scores of juniors, just as vigorous, just as hopeful, just as gifted as those by whom they have been taught. May gratitude and honor reward them all!

I have lately heard this story. A certain king, instituting a brotherhood, promised all who would join it marble monuments which should be placed in rows upon the sides of an aisle. "A hundred years hence," he said, "you will see that the effect will be fine." "Thank your majesty," said one of the brothers, "the King will doubtless be here then, but I shall not." Sons, brethren and fathers, one hundred years hence many monuments will adorn our halls and avenues. The effect will be fine. We shall not be here to see them, but the school, our sovereign, will be, and great will be the satisfaction.

By this course of remarks you have been reminded that this school was founded in favorable environs, at a propitious time, and also that it is only one of many kindred agencies initiated within the period under review. The Lawrence Scientific School of Harvard was almost coeval. In quick succession, colleges, departments of science and independent institutes have appeared in every State. Of these, not a few have adopted the methods here followed or have called to their support those who have here been trained. For one such institution, now celebrating its majority, permit me to acknowledge with filial gratitude, the impulses, lessons, warnings and encouragements derived from the Sheffield School, and publicly admit that much of the health and strength of the Johns Hopkins University is due to early and repeated drafts upon the life-giving springs of New Haven.

THE FELLOWSHIP OF SCHOLARS.

This fellowship of scholars is one of the greatest satisfactions that the teachers, graduates and students of a college can enjoy. Many of us are aware that we are but lay brethren, servitors or postulants, in the temple of science, disclaiming even the title of scientific men; but every one of this concourse of students must be conscious that he has dwelt among the brethren, and that he

can perform a part, though it be a very humble part, in upholding and applying the principles that this school inculcates and for which it stands.

We are enlisted, commissioned officers and privates, in an army which is not restricted to provincial recruits, and which carries light arms and heavy ordnance. Far and wide throughout the civilized world; in obscurity and poverty, or in stations of affluence and influence; alone or in companies; with complex engines and penetrating lenses, or with the unaided powers of masterly brains; now searching the depths of earth or ocean, now watching the stars in their courses, now bending over the microscope, the blow-pipe, the alembic, the comparator or the spectroscope; and now engaged in abstract reasonings, wondering that these mathematical relations have been so long concealed; often disappointed or led to merely negative results, and yet sometimes encouraged by an addition to science or by the perception of a law hitherto unobserved—in all their diversity of powers and occupations, a noble corps is engaged in overcoming Ignorance, that omnipresent foe, and the destructive cohorts that Ignorance leads. Fear, superstition, bigotry, error, misery, weakness, pain and sloth are put to flight by this array of wisdom against folly.

NO PESSIMISM IN THESE RANKS.

It gives courage to remember that the work of each generation is continuous with that of the past. The departed are with us. Thought as well as matter is indestructible. As the long list of philosophers, from Pythagoras and Aristotle to Isaac Newton, the great apostle of modern science—*qui genus humanum ingenio superavit*—prepared the way for the achievements of the nineteenth century, so men now living are heralds and pioneers of discoveries and conquests dimly foreseen or faintly foretold. Therefore it is not strange that while the note of anxiety and despondency is heard in other spheres, no pessimistic cries proceed from our ranks. Slowly, steadily, surely the stately column marches on, "never resting, never halting." Victory follows victory: light penetrates darkness: Health, Temperance, Enjoyment, Virtue and Piety follow knowledge.

Finally let me say, with the solemnity of deep conviction, that dearer than the fellowship of brethren, deeper than the love of knowledge, too precious to be ever given up, too sacred for careless speech, is the invigorating and inspiring belief that Science in its ultimate assertions echoes the voice of the living God.

You have traced the evolution of an idea; you have seen how it has come to pass that in Yale, as in other universities, mathematical, physical and natural science receives ample recognition. At first, in the Sheffield, chemistry was alone; engineering soon found a place; mathematics, physics and astronomy joined the oligarchy; in due time, mineralogy, geology, physical geography, zoology, botany and physiology found a welcome; modern language and literature, history and economics, became strong allies. Not a word was spoken in disparagement of classical culture, nor a word of religious controversy.

You have heard the story of humble beginnings, gradual expansions, lofty ideals, personal sacrifices, munificent gifts, public services, abundant rewards; and also of well-founded hopes, looking forward to a second half-century of life and growth. Can I close with words more suitable than those of Laplace, as he reviewed his long life:

"That which we know is little; that which we do not know is boundless."

American Board of Foreign Missions.

The eighty-seventh annual meeting of the American Board of Foreign Missions was formally opened Tuesday afternoon, Oct. 12, in the Hyperion Theater, New Haven, and remained in session during the Wednesday, Thursday and Friday following. The address of welcome was delivered by Professor George P. Fisher, '67-Hon., of Yale. The Rev. Henry A. Stimson, D.D. '65, was elected Editorial Secretary of the board for the coming year, and James W. Bixler, '87 T.S., was made a member of the Corporation.

Among the Yale graduates in attendance were the following: James Brand,

'66; H. A. Bridgman, '87 T.S.; Robert Crane, '43 M.S.; G. P. Eastman, '89 T.S.; F. D. Greene, '88 T.S.; A. L. Grein, '94 T.S.; W. W. Jordan, '82 T.S.; Samuel Johnson, '50; F. H. Means, '91 T.S.; J. W. Moulton, '90 T.S.; G. W. Phillips, '95 T.S.; Aurelian Post, '94 T.S.; James H. Roberts, '73; F. B. Richards, '91 T.S.; Henry A. Stimson, '65; C. N. Southgate, '66; E. S. Sanborn, '92; John R. Thurston, '51; Joseph Twichell, '59; James G. Vose, '51, and A. J. F. Behrends, '90-Hon.

Elections to the Junior Fraternities.

The following men from the Senior Class were initiated into the Junior fraternities Oct. 26: Alpha Delta Phi, James Coffinberry Brooks, of Cleveland, O.; Psi Upsilon, John Randolph Paxton, Jr., of New York City; Delta Kappa Epsilon, Ashbel Hinman Barney, of New York City.

A New Course to be Offered in the Art School.

It has been definitely decided to offer in the Art School next year an elective course in elementary architectural drawing for Juniors in the Academical Department. This course will prove of great advantage to students who propose taking up the study of architecture after leaving college.

The Art School Faculty have long been desirous of establishing a Department of Architecture, and Professor Niemeyer as concluded that a beginning can and ought to be made in this direction, and he proposes to add to his course in drawing the study of architectural forms and of historic ornament. The subject once having been introduced, it is hoped that the full development of a department may become inevitable.

The Illiterate American Col- legian.

[Hartford Courant.]

Of course colleges cannot expect to pay much attention to the insignificant questions of technical workmanship which are of such great importance in a printing office. Nevertheless, there is not a college in the country, with all their elaborate systems of courses in Rhetoric and Literature that does not give its degree every year to young men who cannot spell, or rather who do spell common English words in a novel and startling manner, who are ignorant of the ordinary rules of punctuation and cannot produce a page of legible manuscript, or write an ordinary letter of friendship or business without errors that we usually associate with the very young or the entirely uneducated. This may be the fault of the English language; it may be the fault of the preparatory schools, or it may be the fault of the colleges. It is a fact, and while it remains a fact there will seem to the outsider a trace of the farcical in conventions of teachers of literature and rhetoric and in elaborate reports on college requirements which do not include what every newspaper requires of its reporters and compositors. We do not presume to give advice on the subject of the study of English, but one question suggests itself to us: Why do so large a proportion of Englishmen write correctly and intelligently? Why is a letter from an English schoolboy usually workmanlike and creditable? Is it because he does not study literature or is the early drill more thorough?

Dr. Francis R. Packard writes in the Journal of the American Medical Association that the first medical degree granted in New England was an honorary one, bestowed on Daniel Turner, of Connecticut, by Yale College, in 1720. As this was intended as a token of gratitude for Dr. Turner's liberal gifts to the College, and not as a recognition of any particular fitness on his part to practice medicine, a wit of the time interpreted M.D. to signify *multum donavit*—he has given much.