



CORNELL UNIVERSITY.

SHORT time ago we gave in the pages of this Magazine a brief account of one of the oldest of American colleges, the renowned Harvard University, situated at Cambridge, in the State of Massachusetts. We propose now to say a few words respecting the most important of America's youngest colleges, Cornell University, in the State of New York.

There is almost as much difference between these two institutions as between one of the old colleges of Oxford or Cambridge and one of our modern academies, such as, *e.g.*, Owens College, Manchester. Harvard is old, somewhat conservative (*i.e.*, for America), and, if the truth must be told, rather aristocratic. Cornell, on the other hand, is as brand-new, as democratic, as destitute of past traditions, as any of the new States in the American Union. Harvard, like Oxford, is essentially literary, while Cornell is chiefly scientific—in fact, though not perhaps in theory—and gives great prominence to the industrial arts. Indeed it may be said that Cornell combines many of the features of a School of Technology with those of the ordinary college. Having observed then the methods pursued respectively at Harvard and Cornell, we shall be able to understand the two main courses of academical instruction which obtain in America at the present time.

In America it is usual for a college, library, museum, or other public institution to prove its gratitude towards its founder or principal benefactor by adopting his name as its own title, just as in Oxford and Cambridge we have Merton and Balliol, Caius and Downing Colleges, named after the respective founders of those learned societies. Thus in America one finds Harvard University in Massachusetts, Yale College in Connecticut, Bowdoin College in Maine, the Astor Library in New York City, the new Hopkins University in Baltimore, and others. In the same way the new University in Central New York was called after Ezra Cornell.

Ezra Cornell was the son of a Massachusetts farmer who, while his son was still young, removed with his family to Central New York. Young Ezra proved himself to be possessed of considerable mechanical skill, and assisted in the construction of mills, dams, and bridges, a very important work in a young and rising State. When still a young man, Cornell visited Washington for the purpose of obtaining a patent for a plough which he had made. At the same time the electric telegraph was being established, and a contract had been made for laying down a subterranean wire between Washington and Baltimore. Cornell saw that the air, not the earth, constituted the proper path for the wires, and hereby laid the foundation of his fortune. He purchased telegraphic stock when it was very cheap, engaged in the construction of several lines, and soon became a very wealthy man. Having accumulated a large fortune, Cornell went to reside at Ithaca, a small

town in the State of New York, situated at the head of Cayuga Lake. About this time he seems to have revolved in his mind the idea of a new University, which should differ in many respects from previously existing institutions, in none more so than in the recognition of the mechanical arts as an important branch of University instruction. On the 2nd July, 1862, the United States Congress passed an Act granting public lands to the several States and territories which should provide schools for the promotion of agriculture and the mechanic arts. Under the Act 30,000 acres for each senator and representative in Congress were appropriated to every State, and under this provision the share of the State of New York was 990,000 acres. There were many disputes in the State as to the manner in which the funds resulting from the management of these lands should be applied. While some proposed to divide it between several little colleges, Mr. Cornell advocated the division of the property into two equal parts, half of which should be devoted to the foundation of a great State University. In 1865 the Legislature of the State of New York transferred the entire proceeds of the land grant to the new University, which was to be situated at Ithaca, and to be called the Cornell University, on condition that Ezra Cornell should give to the institution 500,000 dollars, and that provision should be made for the education, free of all charge for tuition, of one student from each district of the State entitled to send a member to the New York Assembly. A board of trustees was appointed, and at its first meeting Mr. Cornell fulfilled the requirements of the Legislature: he also made an additional gift of over 200 acres of land, with buildings, to be used as a farm in connection with the proposed department of agriculture, and of a large collection in geology. He has subsequently made gifts, with a princely liberality, amounting to several hundred thousands of dollars. The institution, being duly incorporated, was opened on the 7th of October, 1868.

There are no proctors at Cornell, nor is there any college discipline such as obtains in older Universities. The students live in the town, and board as they please. There are at present upwards of 500 students, of whom 50 or nearly one-tenth are young women. Cornell has thus recognised the equality of the sexes, so far at any rate as education is concerned. A few words may now be said about the instruction given at Cornell, for that is the most important point.

In common with the majority of American colleges, Cornell imposes a test in the shape of an entrance examination upon those who desire to be admitted into the University. Candidates (who must be at least sixteen years of age, and in the case of female candidates, seventeen) are required to pass thoroughly satisfactory examinations in the following subjects:—1. Geography, Political and Physical. 2. English Grammar, including Orthography and Syntax. 3. Arithmetic, including the Metric System. 4. Physiology. 5. Plane Geometry. 6. Algebra up to and including

Quadratic Equations. It will be seen that this examination is not so severe as that at Harvard, as the latter includes nearly all the above subjects, and a rather stiff examination in Latin and Greek as well. The characteristic difference between the two Universities also comes out markedly in their entrance examinations. This at Cornell is mainly scientific; there is really no literary test, for one cannot consider English Grammar as such; while the student of Harvard must have received in a good measure a classical education. Having passed a satisfactory examination in these subjects, the applicant is admitted either as an *Optional Student* or to the courses of Agriculture and the Mechanic Arts. By an *Optional Student* is meant one who may take up any study which the University recognises. These studies are Science, Literature, Philosophy, Arts, Architecture, and Engineering. But in order that he should enter himself as a student in any one of these departments, it is necessary that he should pass an additional examination in the subject of his particular department of study. For instance, the Arts student will be examined in Greek Grammar, Writing in Greek, a certain portion of a Greek Reader (or four books of Xenophon's "Anabasis"), the first three books of the "Iliad," the History of Greece, Latin Grammar and Composition, Latin Reader (or four books of Cæsar's "De Bello Gallico"), Virgil's "Eclogues," "Georgics," and six books of "Æneid," six "Orations" of Cicero, and either French or German Grammar. An examination in each class and in every branch of study is held at the end of each term; it is necessary to pass satisfactorily in these examinations, in order that the student's name may be retained on the books of the University, but a slight deficiency in any one study may be made up by passing another examination in that branch at a time indicated by the professor. There is no one particular examination, like the Cambridge Tripos, upon which a degree hangs; it is only requisite that the terminal examinations should be regularly passed, and that a satisfactory oration, poem, or essay on some subject in science or literature be submitted by the student to the Faculty before graduation. This last is a very common American practice, not altogether to English taste, but very popular in America, because it gives the student an opportunity of exercising his rhetorical powers, an exercise which most Americans dearly love.

It was mentioned above that the student might, if he thought fit, proceed after passing his entrance examination to the studies of Agriculture and the Mechanic Arts. These studies are probably peculiar to Cornell among all the Universities of the world, but they are in complete accordance with the ideas of Ezra Cornell when he determined to found the University. "I would found," said he, "an institution where any person can find instruction in any study." And the Act of Endowment passed by Congress declares that the leading object of any college which may be established or maintained from the proceeds of the land grant "shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches as are related

to Agriculture and the Mechanic Arts." The teaching in these branches must necessarily be mainly practical, and as a matter of fact is so. There are mechanical and engineering drafting rooms, a free-hand drawing room, a large mechanical laboratory, supplied with lathes, planes, drills, and all kinds of tools and other machinery; there is a general farm consisting of about 100 acres, a large portion of which is devoted to raising food for various domestic animals; and an experimental farm, where experiments may be carried on in the rotation of crops, the various modes of cultivation, the value and application of fertilisers, and other branches of agricultural science. There is also a laboratory where complete instruction is given in agricultural chemistry. The University contains likewise a printing-press, where the whole art of printing is taught to those who intend to follow the profession of journalism, an important profession in the United States, where there are upwards of 7,000 journals.

The University is well provided with laboratories and museums; in this respect, indeed, American colleges are far ahead of most of our English institutions, and Cornell ranks very high among the American colleges. The University Library contains about 40,000 volumes, and includes the valuable collection of the distinguished German philologist, Franz Bopp, relating chiefly to Oriental languages and literature. A reading-room for the use of the students is open daily, where the best publications of England, Germany, France, and America are supplied. There is also a College Chapel, where morning prayers are held, besides Sunday services; but no student is compelled to attend. The students lodge in the town, and their average yearly expenses are about \$315, or £60. The less wealthy class are thus attracted to Cornell, for this sum is considerably below the average cost at Yale or Harvard.

We have said that practically scientific studies predominate at Cornell. This is shown by the fact that out of fifty-five instructors (including professors, assistant professors, &c.) thirty-four give instruction in various branches of science and the mechanic arts, while only twenty-one are engaged in teaching philosophy and letters. Among these latter, however, are the celebrated names of Mr. Goldwin Smith, late professor at Oxford; Mr. James Russell Lowell, of Harvard University, the poet, humourist, and essayist; and Mr. Bayard Taylor, the accomplished author, and translator of Goethe's "Faust." These three gentlemen do not reside at Ithaca. The predominance of science is also seen in the proportion of students in the various branches of science as compared with those in literature, arts, and philosophy. There are about 180 students in the different departments of science, or about 33 per cent. of the whole number of undergraduates; there are also 67 students of engineering, and 50 of the mechanic arts: while in the department of literature there are 46 students, or about 9 per cent.; and in the department of arts about 30, or not much more than 5 per cent. Cornell has the honour of numbering among her under-graduates a son of General Grant, and a son of the new President of the United States, Mr. Hayes.