

After trying in vain to obtain Mr. Gilman's address for publication in the Annual, and thinking that our readers would desire something from his learned pen, we decided to publish this synopsis of the address delivered before the graduates of the University of Wisconsin, at Madison, June 17, 1891.

EDITOR.

“ The Growth and Relation of the Universities to the Material Progress of the Human Race.”

BY D. C. GILMAN, LL. D.

After a brief analysis of the forces leading toward the advancement of humanity, the speaker traced the gradual growth of ideas from the seeds of ancient times down through the ages till they have culminated in the magnificent civilization of the nineteenth century. He said: “ Man’s advancement and his understanding of the world have been going on since the beginning of human life, and his judgments have become clearer with the growth of power of exact observation and with the accumulation of details. He has always been a student and a critic, growing older with each generation, and learning to study more wisely. The primitive savage and the child have their view of things; the difference between Caliban and Newton is one of degree, not of kind. The nineteenth century is merely the latest stage of human study and inquiry, when man’s curiosity is keener and his means of research better than ever before. The development of the steam-engine, the progress made in the study of magnetism, and the forces of electricity make it apparent that the nineteenth century is controlled by events of which the fourteenth century had no knowledge.

GOING ON IRRESISTIBLY.

The train of human intellect was going on irresistibly. As soon as the young tree grows vigorous, as the blacksmith’s arm becomes strong, as the

blind develop accuracy, as the musician becomes able to detect the slightest errors in the tones, so sure must the human faculties tend ever onward and man become more nearly perfect. People generally are prone to think that science began after the middle ages, with Galileo, Newton and Bacon, overlooking the important fact that the soil was prepared for the seed ages before this. The ancient Chaldeans made systematic studies of the heavens. From the very earliest times the continuity of science can be traced through its process of advancement. If we look at a tree we should remember that it is through the roots that it gains sustenance and life. But with this development we have inherited errors. However, calculations can be corrected by calculations and observations by observations. So should also history and science be corrected by history and science. The progress of science is extremely slow. Macaulay says: “ As facts accumulate doubts arise.” Hence it is that advancement is only made by degrees. Tracing the history of science we find that the Greek philosophers discovered certain mathematical rules, but were unable to correctly apply them. The world waited for Keppler, Newton and others to do this. Then the importance of the relation of the progress of language to history must not be lost sight of. We can

readily trace it down the centuries, but find that the nineteenth century has given the impulse to the study of comparative philology. Notice the progress of this era in the study of ancient arts and works, of Babylonia and Chaldea.

EACH ITS MITE.

Each nation has contributed its mite. In medicine we can easily outline the growth of ideas, how new ones have been grafted on old, how each obstacle has been overcome, how step by step the study has advanced, till now the treatment of the eye, once supposed to be almost an impossibility, is of daily occurrence. A plant was some decades ago, and almost by accident, sent to a German physician. By chance he learned of its great anesthetic qualities, and to-day it is used universally. This might aptly be termed a migration of ideas. These become amplified, limited, extended and verified, until they finally take their place in the course of science as a fundamental law. Each branch of science aids the other. Chemistry depends on physics, physics on mathematics. So it is with all.

Mr. Freeman, who has made diligent study of the continuity of history, said that the study of comparative philology in this age marks a state of progress in the human race as great as the revival of learning. An interesting question is, what language shall be employed as the language of science? Bacon wrote in Latin because he said English would not be read a hundred years from then. The tendency is toward the French, German and English languages; hence their emphasis in all schools of languages. It is a common opinion of learned men that English will be the chosen language, since it is greatly employed in all large colonization plans.

The tendency of modern thought is not toward individual but hereditary forces. Individuals, however, play important parts. At intervals great men, such as Newton, Darwin, Allen, etc., appear, whose origin cannot be accounted for, but who are important actors in the drama. Mr. John Stuart Mill said that if Newton had not lived when he did, the world would have waited for one. His work could have been accomplished by successive steps, but think of the great length of time this would necessarily require. If there had been no Price, no St. Paul, there would have been no Christianity.

CANNOT BE OVERESTIMATED.

The importance of the universities and colleges in human progress cannot be overestimated. They exert a powerful influence on the men and women of the world. Here are trained the merchants, lawyers, physicians, statesmen and citizens. The foundation of the university system was laid back of the convents in almost prehistoric times—at least to the ancient Greeks. The growth of the plan of commencement speeches can be traced back almost indefinitely. Then the graduate was obliged to defend a certain thesis in public before receiving a diploma. This took the place of our private examinations. From this our system can readily be traced. The law of truth, of God, is the foundation of all modern thought. Then how do the universities proceed with the advancement of learning? Mainly by four factors, the observatory, the library, the laboratory and the professorships. The first as a place of observation, naturally took its place in the university course and became practically the foundation of all. Then came the library, to keep written expressions of the experiences thus

brought together and to make them accessible. The laboratory is a modern institution but is doing a most important share of the work. In all these the most precious is the professorship. Without that all would be lost. Of our professors we must exact two duties, instruction and investigation. For a university to thrive the community must be well educated. In consequence let us uphold the public schools. Some people think the effects of democracy and republicanism on instruction is bad. I am of the opposite opinion. The spread of learning is likely to be great when the principles of democracy prevail. We must be patient, however, and colleges must be differentiated. The tendency to vary is readily noticeable. In the end we are to have our own American university based on American ideas and schools. They are to be institutions of learning for all and defenders of the Christian faith. Though all earth is a monument to man, the universities are biographies of a nation. To its hereditary environment does human character owe its progress. To our homes, our parents, our schools and our wills do we each owe our progress.