

work of his own department. Professor Ricker finds that his work naturally subdivides itself into four classes.

The first of these classes comprises the university work proper, consisting of the methods employed and the instruction imparted in the technical classes. The second embraces the general supervision of the courses of instruction in shop practice, arrangement of course of study, problems, etc. The third covers the supervision of the commercial work of the university, comprising superintendence of work and contractors, the making of estimates, drawings, specifications, etc. The fourth is the supervision of the blue-printing laboratory. The course in shop practice offers some points of interest. It is arranged throughout on the Russian system, which Professor Ricker believes to be productive of better results than the Woodward system, which has been adopted in the training-schools of St. Louis and Chicago. At the University of Illinois no attempt is made to compel all the members of a class to do each part of the work in exactly the same time, for Professor Ricker holds that practice and competition will make a man rapid in execution soon enough, the first essential being to teach him how to work in the best manner, no matter how long it takes him. By adopting this system, each student is treated as an individual, and not as a member of a class; and bright and quick pupils are not kept back, nor are the slower ones urged on at the expense of thoroughness. Professor Ricker's equipment consists of benches and sets of tools for twenty-four students, the maximum number that he thinks an instructor can profitably take charge of.

DR. CUNNINGHAM, the successor of the lamented Principal Tulloch at St. Andrews, opened his classes in divinity with an address of great power and lucidity. After a glance at the past and a glowing panegyric upon his predecessor, Dr. Cunningham took up the subject of his chair and expounded with unusual clearness his conception of it. He said that at the outset he must answer the question, 'Is theology a science?' If it is a science, then it should be welcomed within every university, and taught with the care bestowed upon the other sciences; but if not, if it is a mere feeling or belief without any foundation in reason, without any capability of being reduced

to logical forms, then it ought to be banished from every university as something alien to their spirit and design. Dr. Cunningham then proceeded to vindicate for theology the rank and title of a science. While it was largely dependent on metaphysics, on psychology, on moral philosophy, and on anthropology, yet it had facts of its own, gathered from both the material and mental worlds; which facts can be gathered into a system, and reasoned upon in a scientific way. This being true, it follows as a corollary, the speaker continued, that theology should be treated as a science, studied as a science, and taught as a science, freely and fully; not as a system of foregone conclusions, but as a subject capable of advancement, and therefore to be looked into, speculated upon, and brought into harmony with the widening knowledge and highest thinking of the age. If the chemist, astronomer, or physiologist were bound to teach his science according to the beliefs of the chemists, astronomers, or physiologists of a century, or two centuries, or ten centuries ago, his teaching would be a laughing-stock, and his chair driven from the university as unworthy of it. Similarly the professor of theology must be allowed free scope, and not tied down to theology as it was taught two hundred and fifty years ago. Dr. Cunningham's address was on a high plane, and, if it is a fair measure of the character of his university teaching, the latter cannot fail to be successful.

LONGEVITY OF PRESIDENTS OF THE UNITED STATES.

OF the men who have retired from the office of President of the United States, only one now lives. During the last year of Grant's administration, none at all were living; and hardly at any time within the memory of the younger generation have more than two or three lived at the same time. The inquiry naturally suggests itself, whether the men who have filled this office have really less viability than other men of their class, and especially whether a comparison with the tables of mortality justifies the conclusion that in recent years the mortality among them has been remarkable.

To furnish data for investigating this question, I have prepared the following table, showing the years of birth, accession, and death, of all the Presidents. The column following the year of death shows the age at which each President assumed his office. It is formed by subtracting

the year of his birth from that of his accession, and is therefore liable to no error greater than a fraction of a year. Following this is the expectation of life at the epoch of accession as deduced from the 'combined experience' table of mortality. This expectation is taken in the usual way, as the number of years after which it would be an even chance whether the individual was living or dead. Although this is not a mathematically rigorous definition, yet in the case under consideration it differs from the rigorous one only by an amount too small to be worth consideration. Following this is given the number of years which the incumbent actually survived after entering upon the duties of his office.

	Born.	Became President.	Died.	Age at accession.	Years of life.	
					Expected	Actual.
Washington.....	1732	1789	1799	57	16	10
Adams, J.....	1735	1797	1826	62	12	29
Jefferson.....	1743	1801	1826	58	15	25
Madison.....	1751	1809	1836	58	15	27
Monroe.....	1758	1817	1831	59	14	14
Adams, J. Q.....	1767	1825	1848	55	15	23
Jackson.....	1767	1829	1845	62	12	16
Van Buren.....	1782	1837	1862	55	17	25
Harrison.....	1773	1841	1841	68	9	0
Tyler.....	1790	1841	1862	51	20	21
Polk.....	1795	1845	1849	50	21	4
Taylor.....	1784	1849	1850	65	11	1
Fillmore.....	1800	1850	1874	50	21	24
Pierce.....	1804	1853	1869	49	22	16
Buchanan.....	1791	1857	1868	66	10	11
Lincoln.....	1809	1861	1865	52	20	4
Johnson.....	1808	1865	1875	57	16	10
Grant.....	1822	1869	1885	47	23	16
Hayes.....	1822	1877	—	55	21	0
Garfield.....	1831	1881	1881	50	21	0
Arthur.....	1830	1881	1886	51	20	5

Omitting the only living ex-President, and taking the sums of the expected and of the actual years of life in the case of all the others, we find them to be:—

Total years to have been expected . . . 331
Actual years of life 281

If we omit the two abnormal cases in which a President died by assassination, the result will stand:—

Years to have been expected . . . 289
Actual years 277

If we reasoned from this general result alone, we should conclude that Presidents were not, as a class, less viable than the average of other men, since the difference of twelve years between the actual and expected sum total of life might well be the result of chance. But a more minute analysis of the table will show a feature which, taken in connection with the historical facts, prevents us from disposing of the subject in this

summary way. Of the eight Presidents up to Van Buren inclusive, all but one lived out the full term of life allotted them by the tables, the single exception being Washington. On the other hand, of the thirteen men who have held the office since Van Buren, all but four have died before living out their allotted term. This fact raises the question whether we can attribute these premature deaths to the more arduous nature of the duties which the President is now called upon to perform. From this point of view, the dividing line would not be between Van Buren and Harrison, but rather between John Quincy Adams and Jackson, because it was under the latter that the change in question took place. Perhaps we ought to introduce a third epoch with the civil war. Making such a division, and omitting the cases of Lincoln and Garfield, the exhibit, which seems to show a total deficit of 53 years since Jackson, stands thus:—

	Expected years.	Actual years.
Washington to Adams . . .	87	128
Jackson to Buchanan . . .	143	118
Johnson to Arthur . . .	59	31

Notwithstanding the color thus given to the view that the modern President is liable to be broken down by the duties of his office, it must be considered, that, taking these numbers as they stand, the number of cases is too small to sustain such a conclusion. There is, however, another circumstance to be considered. It is a well-known fact that the tabular expectation of life has been considerably exceeded in the general average of men who, during the present generation, have insured their lives. How great the increase is, cannot at present be exactly stated, but I do not think that it is less than one-fourth. It will also, I think, be conceded that all who have acceded to the presidency have been men with good insurable lives. If, now, we increase the expectation of life by one-fourth in the last two lines above, we shall have a decidedly greater discrepancy: namely, expected years, 252; actual years, 149. If it were allowable to include the cases of Lincoln and Garfield, which are omitted in this comparison, the discrepancy would be greatly increased.

While the danger of assassination has undoubtedly been greatly lessened by the deserved fate which the two assassins of Presidents met, I do not think we can consider it as a vanishing quantity. I think assassination should be regarded as a real danger to which a President is subject, and that a prudent life-insurance company would consider that fact in deciding upon an application for insurance.

Since, even when we admit the case of assassination, there is a large falling-off in the years of life, the question presents itself, whether this is due mainly or wholly to the arduous character of the duty which the President is called upon to perform. Of course it is impossible to answer this question from statistics: in fact, it must be admitted that the above summary does not prove the diminished viability of the class under consideration to any greater extent than to render it somewhat probable. Statistics can at the present stage do nothing more than disprove or substantiate *a priori* conclusions from physiological considerations. If we eliminate from the statistical results the probable effect of the lack of out-door recreation, as well as the lack of incentive to adopt that regimen best suited to a sedentary life, we shall probably find no such discrepancy as would justify the view that a President is liable to die from the arduous character of his duties. S. N.

THE SCHOOLMASTERS' CONVENTION AT PHILADELPHIA.

In answer to a call issued by the heads of prominent preparatory schools in or near Philadelphia, more than one hundred teachers engaged in preparing boys for college assembled on Nov. 26 in the building of the University of Pennsylvania at Philadelphia. The address of welcome was given by Dr. Pepper, provost of the university, who laid great stress on the waste of time and energy caused by the sudden break between school and college. He said that to devise means to fill up this gap, and make the preparatory school an organic part of the education that ends in the college or university, was the object of the convention.

Professor James of the University of Pennsylvania made a strong plea for the technical education of teachers. The teacher's position should be considered as an end in itself, not as a stepping-stone to more permanent employment. In Germany this requirement was fully recognized. There, with few exceptions, the teachers have received a technical training, the result of which was to give them not only some information which they could impart to their pupils, but also some knowledge of how to impart it. They are acquainted with the history of education, know something of the long line of thought of which they form a link, are taught what their place in the existing educational system is and how they can best fill it. The one method and the best method of elevating the teaching in this country is to make teaching a real and an honorable profession. For this purpose the teachers must be

trained to be teachers, and an essential part of this training is the study of educational history and systems.

Mr. MacAlister, superintendent of public schools of Philadelphia, warmly upheld Professor James's position, and testified as a man of practical experience to the value and efficiency of the study of pedagogy as a science.

At the session on Nov. 27, Professor West of Princeton college presented an admirable paper on the question, 'How to improve our classical training.' The classics have just survived a severe attack, and for the time being there is peace; but a second attack is sure to come, and the problem is to take such steps as will enable an effective answer to be made to it. To do this, we must improve the teaching of the classics. The classics are attacked because they are poorly taught. There is no method, or at least no rational one. In order to get a rational and elastic though definite method, it is necessary to consider the nature of classical study, the condition of the student, and the end to be gained. The problem of teaching the classics is a unique one: there is more in it than the language drill, more than the compliance with the requisites of a liberal education. It includes nothing less than the opening up of a new world: it is an embodiment not only of Greek and Roman history, but of the national history of Greek and Roman thought. The end of classical training is to enable the student to feel at home in this world, and to appreciate it. To do this, no doubt a certain amount of literature must be sacrificed and dissected in acquiring the technique. But that is simply preparatory: when it is over, then the real study of the classics begins. The main difficulty in realizing this method of teaching the classics is the lack of teachers who really know them. Teachers trained as teachers, and trained as classical scholars (not necessarily as philologists), would soon show the real educational value of classical study, and give the best possible answer to those who question its usefulness.

The next session was held at Haverford college, and was devoted to the discussion of the relation of the fitting schools to the colleges. The discussion was quite a general one, and included the questions of admitting to college on certificate from the heads of schools; the advisability of having a preliminary examination a year before entrance on elementary subjects; the uselessness of petty conditions, and the abuses of this method of admittance; and the necessity of recognizing the various interests of candidates in the entrance examinations. The discussion showed how generally the faults of our college system are felt by