farther.' It does not say, 'Such and such legislation will produce the best results;' but it says, 'Beyond certain limits, all legislation fails.' This is the natural relation of a science to an art. Mechanics does not tell the bridge-builder exactly how he must build his bridge; considerations of beauty and convenience must be taken into account: but mechanics warns the builder, that, if he disregards certain conditions of stability, his bridge will fall. Nobody insists that the axioms of mechanics should be modified because a bridge with the maximum of stability would be inconvenient or unsafe. Nor do we insist that mechanics should solve all the problems of bridge-building. We let mechanical considerations limit the practical application of aesthetics, and we let aesthetic considerations limit the practical application of mechanical principles. We do not attempt to fuse the two things together, and then distrust both of them.

This may fairly illustrate the relation of economics and jurisprudence. Whether we shall ever be able to combine them into one science may be uncertain; but we have not been able to do so as yet. Each limits the practical application of the other. Industrial activity is limited by legal conditions; legislative activity, by economic conditions. The attempt to confuse the two, and to merge them in a crude science of sociology, seems for the present likely to check scientific progress, and to involve us in serious practical dangers. Each, as a science, is independent, authoritative, and rigid; each forms the basis of an art which is subject to a thousand limitations.

ARTHUR T. HADLEY.

CONVOCATION OF THE UNIVERSITY OF THE STATE OF NEW YORK.

THE twenty-fourth convocation of the University of the state of New York began its sessions in the senate chamber of the capitol at Albany on Tuesday morning, July 6. There was assembled a large number of college professors, normal and high school teachers, and friends of education, from New York and other states.

The address of Hon. Henry R. Pierson, chancellor of the university, was a very able and eloquent defence of the work of the university and its board of regents, having special reference to the proposal recently made to abolish them both. The chancellor examined in some detail the history and organization of Oxford, Cambridge, and London universities. He showed that these universities stand in precisely the same relation to the federated colleges under their control that the University of the state of New York bears to the high schools, academies, and colleges of the state. The history of the university amply justifies its existence. Starting in 1784 with only one weak college — King's college, now Columbia — under its control, it embraced, in 1885, 45 colleges having 784 instructors and 11,702 students, and 1,571 graduates during the year. The total value of this college property is $23,164,612.82, and their yearly expenditure amounts to $1,787,391.51. Besides this, there were, in 1885, 283 academies under the control of the regents of the university, and 72,426 answer-papers were examined and passed upon under the supervision of the regents during the year. The chancellor stated that post-graduate courses, with corresponding examinations and degrees, were now under consideration. He concluded, "Read the record of these convocations, and I venture to say that no similar records of educational value can be found. Shall we consider these convocations a failure and nothing worth? It is true, the university does not confer many degrees, because that is a power concurrent with the colleges, and it has been thought best to leave that duty mainly with them. I think I have proved that in its past and present the duties of the university have been defined by law, and that it has performed all the duties devolving upon it; that the corporate name is not a misnomer, and should not mislead; and that the regents are doing too noble a work to be abolished or merged with any other body of educational workers."

The main interest of the first morning session centred in the discussion of the subject of manual training, which was introduced in a paper by Principal Love of Jamestown. Mr. Love claimed that the test of the practicability of manual training must be its usefulness. Any system of training that does not start out with the idea that the scholar must become a producer is defective. Principal Love detailed the workings of a system of manual training introduced by him in Jamestown, asserting that it did not detract from, but rather added to, the quantity and quality of intellectual work performed by the pupils. His account showed a gratifying success with an experiment which must sooner or later become general.

The afternoon session was given up to a discussion of the question, 'Has the college a logical place in the American system of education?' The subject was introduced by papers by Prof. Oren Root of Hamilton college and Prof. S. G. Williams of Cornell. Both essayists, as well as Vice-Chancellor MacCracken of the University of the city of New York, who opened the discussion of the papers, combated the view expressed in some quarters, — notably by Professor West of Princeton, in a paper read before the National teachers' associa-

tion at Saratoga in 1885, — that the work of the college would ultimately fall to the academies and universities, and the college itself fall away as unnecessary. In opposing this view, all the speakers were agreed that the college continues and completes the boy's education, begun in the school and academy, while the university trains educated men in special branches. Professor Williams attributed much of the misunderstanding on this subject to the fact that many colleges were forgetting their true position and function in their endeavor to become universities. Professor Williams said that the ideal college course would, in his opinion, call for sixteen hours of recitation per week, devoted as follows: language, one-half; mathematics (meaning algebra, geometry, and trigonometry, and these only), one-eighth; history, a little more than one-eighth; and elementary science, including civics and psychology, a little more than one-quarter. To such a curriculum elocution and gymnastics could easily be added, and it would serve to train the pupil as the college ought to train him, and did train before it was carried away by a wrong ambition.

For Wednesday morning's session, Dr. L. Sauveur was announced to explain and defend the 'natural method' of teaching languages. He was not able to be present, and Mr. C. W. Bardeen briefly presented the chief points of excellence in connection with the natural method. Principal George C. Sawyer of Utica followed with a scholarly and exhaustive attack on the 'natural method' as a fraud and a sham. Dr. Sawyer claimed, that, under this method, all the work devolves upon the teacher, and the pupil picks up, with no disciplinary training, a parrot-like acquaintance with a limited vocabulary. Moreover, the main value from studying a language lies in learning to read it, to imbibe the thought and spirit and culture of another people, and not merely to hold a conversation in it.

The discussion was continued by Professor Wells of Union college, Principal Farr of Glens Falls, and Principal Cheney of Kingston, all of whom opposed the so-called 'natural method,' and defended the old or rational method both because of its practical results and its disciplinary training.

Dr. James Hall, director of the New York state museum of natural history, followed with a brief account of that museum and its educational work. Dr. Hall said that it represented every department of natural history. The mineral wealth of the state should also be represented. Nearly ten years ago there were distributed to schools and colleges about twenty thousand specimens in geology and mineralogy, and the museum is now prepared to distribute about five thousand more authentic specimens, which is a valuable adjunct to the teachers' work in these schools. In this way the educational use of the museum is manifested by its publications and its distributions of specimens. The museum will continue to aid the cause of education and be a part of the educational system of the state. Teachers and investigators are invited to seek assistance and information of the museum; and, if institutions want collections augmented from its duplicates, the museum of Albany will be glad to respond as readily and as heartily as it can.

Principal C. T. R. Smith of Lansingburgh presented a paper, which was an able exposition of the desirability of allowing plane geometry to precede algebra in the regents' course of study. Professor Root of Hamilton agreed with Principal Smith, and showed clearly by concrete examples how the logical and natural order would be restored by the proposed change. Considerable discussion followed, the general sentiment being that the change should at least be permitted as an alternative even if not sanctioned entirely.

An unusually large and brilliant audience assembled in the evening, when President McCosh of Princeton was announced to deliver an address on elective studies in college. Dr. McCosh opened with the proposition that a college or university should, so far as its funds would permit, offer instruction in every branch of literature and science, carefully excluding all that is merely showy. Modern education, he continued, began in the seventh century with the foundation of the Cathedral schools with their Trivium and Quadrivium. At this time there was no possibility of electives, because during its course the university of that day could teach all that was known. A new era began with the Renaissance, and again in the seventeenth century the subjects of study were greatly increased by the new mathematics of Descartes, Newton, and Leibnitz. In the eighteenth century were founded the Royal society in England, the French academy, and the Berlin academy of sciences. Chemistry, biology, and botany became sciences, and were placed in the curriculum. This great increase in subjects of study has gone on, until, in our day, it is absolutely impossible to master them all. The age of universal scholars, of Erasmus, of Scaliger, of Leibnitz, has gone never to return.

Having established the fact that an elective system is now necessary in our colleges, the further question arises, how is it to be regulated? Having reference only to candidates for the B.A. degree, which implies a general culture and scholarship, the standard of which we must not allow to be

lowered, we may say, first, that there should be prescribed studies in every year of the college course. These must embrace what experience has proven the fundamental and disciplinary studies, both for the purpose of training an accurate and scholarly mind and for bearing practical fruit. The principal of these is language. Our own language should have the first and the last place in every scheme of instruction, but every educated man should know at least two languages in addition to his own. The Greek language should by all means be maintained as a requisite for the degree of B.A., as being the most perfect and subtle of languages, and as being the medium of the grandest literature of the ancient world. In the second place, no man is a scholar who has not studied mathematics: therefore they should be prescribed in a certain degree. And, thirdly, no man is educated who has not some knowledge of philosophy, including under this head the social and political sciences. With a well-arranged plan of obligatory studies, embracing language, science, and philosophy, should be combined an indefinite number of elective studies. No electives should be permitted in the freshman year. This year should be spent in the thorough mastery of the elementary branches and in becoming acquainted with the general system of the college, so that the pupil may be prepared to make his choice of studies later an intelligent one. Only a few electives may safely be allowed in the sophomore year, but in the last two years of the college course they may be freely introduced. In this elective system, however, the student should not be allowed to dissipate his energies in too many directions. Four electives at most should be allowed him.

While this should be firmly adhered to in the course leading to the B.A. degree, other courses should be encouraged, and corresponding degrees awarded on their successful completion. Each of these degrees should be plainly designated by its title, so as not to be mistaken for the B.A. degree.

Our students in colleges are not increasing in proportion to the population. One reason is that they enter college too late, and it is only at the age of twenty-six or twenty-eight that they are able to support themselves by their profession. This is longer than most boys can wait, and longer than most parents can afford to have them wait: so they are dispensing with the college course. The remedy for this is to improve the work of the schools so that a boy can enter college at sixteen, and enter on his profession at twenty-two or twenty-three years of age. A healthy boy of fair ability ought to be able to accomplish this without difficulty.

Dr. McCosh's argument and practical suggestions were most favorably received by the members of the convocation.

On Thursday morning, July 8, the convocation held its closing session. Professor Hewett of Cornell read a paper on the relations of the colleges and academies, in which he pointed out the fact that the systems of Germany, Massachusetts, and Michigan, were superior to those of New York as far as the relations between preparatory schools and colleges are concerned. He urged that the colleges should unite in setting a standard which the high schools and academies would have to observe or else give way to private schools. Inspection of preparatory schools by competent officers was also recommended.

On the conclusion of the discussion of Professor Hewett's paper, Chancellor Sims of Syracuse university took the chair, and opened the conference of college presidents in the state of New York on the question of classical requirements for the degree of B.A. He was followed by President Dodge of Madison university, Warden Fairbairn of St. Stephen's college, and Brother Conway of Canisius college. Every speaker took the ground that the reputation of the B.A. degree must be preserved, and that Greek and Latin must be rigidly insisted on as requisite for its attainment.

The last business of the convocation was to discuss briefly medical education, the sentiment being that a physician should be examined for his license to practise by a board not composed of his instructors. At one P.M. Chancellor Pierson declared the convocation adjourned *sine die*.

Among the other papers of interest were the following: Rev. Brother Noah, Tact in teaching; J. A. Lintner, The present state of entomological science in the United States; President Hyde of Bowdoin, The relation of higher education to religion; Professor Wilson of Cornell, The elements of knowledge; Principal E. H. Cook of Potsdam, Systematic habit in education.

THE INDIAN SURVEY REPORT.

THE general report on the operations of the survey of India for the year 1884–85, which has been received from India a month earlier than usual, contains the record of work done by one of the busiest departments of the government of that country, the following abstract of which we find in *The Athenaeum*. The officers of the department are constantly engaged in surveys in all parts of the peninsula, and every year a greater area is added to the map as either triangulated or topographically surveyed. Our attention may be most profitably directed to the geographical discoveries chronicled in the present report, although they do not include any thing so remarkable as