SCIENCE.

FRIDAY, JANUARY 21, 1887.

COMMENT AND CRITICISM.

THE AMERICAN LIBRARY ASSOCIATION is not satisfied with the present apportionment of the public documents. A special committee, headed by Librarian Samuel S. Green of Worcester, Mass., has addressed a communication to the senate committee on printing, enclosing the draught of a resolution, which, if favorably acted upon, will satisfy their wants. The resolution provides that "the public printer shall deliver to the Interior department a sufficient number of copies of the *Congressional record* (bound), 'statutes-at-large,' and of every other government publication, not already supplied for this purpose, printed at the government printing-office, including the publications of all bureaus and offices of the government, excepting bills, resolutions, documents printed for the special use of committees of congress, and circulars designed not for communicating information to the public, but for use within the several executive departments and offices of the government, to enable said department to supply a copy to every depository of public documents designated according to law." The association also believes it would be well if copies of some of the public documents of greatest interest could be sent to such public libraries, not depositories, as have more than a minimum number of volumes, — say, 5,000 or 10,000. It is urged that the expense need not be large, for fewer than five hundred copies would be needed, and there would be no charge for composition, but only for paper, binding, and press-work. There is a great deal of force in this suggestion, and we should be glad to see it receive legislative sanction. Every year our public documents become more valuable, and a larger number of them are of general importance. The reading public should have free access to these volumes at convenient centres of population, and the plan of the library association would accomplish this.

A GREAT MASS of detail of much interest to the students of university organization and work is contained in a recent parliamentary return concerning the universities of Oxford and Cambridge. It is of most general interest to know what salaries celebrated professors receive, how much lecturing they are required to do, and how many hearers they have. On all of these heads the return is very full and explicit. At Oxford Canon Driver, regius professor of Hebrew, gave in 1885 a hundred and five lectures to classes of from fifty to sixty students. His salary is £1,500. Professor Bryce of the chair of civil law delivered twenty ordinary and two public lectures. No record was kept of the attendance. Professor Bryce's salary is £435. Professor Sylvester, Savilian professor of geometry, gave forty lectures to fourteen students. His salary is £700. Prof. E. B. Tylor, the anthropologist, receives £200, and lectures eighteen times to about twenty-five hearers. Prof. Benjamin Jowett, the Hellenist, receives £500 per annum, and did not lecture in 1885, as he was vice-chancellor of the university. Prof. A. H. Sayce had only from three to sixteen hearers for his lectures on comparative philology. He receives £300. The professor of moral philosophy, William Wallace, receives £400 a year, and has from forty-eight to seventy students at his twenty-eight lectures. Professor Freeman keeps no record of the number of his hearers. His salary is £700, and he gives forty-two lectures during the academic year.

At Cambridge things are not very much different, but we may cite a few examples for the sake of comparison. Canon Westcott, professor of divinity, has a salary of about £800. He gave in 1885 sixty-six lectures, and his audience varied from ten to three hundred and fifty. Professor Stokes, of the chair of mathematics, receives £470, and delivers forty lectures to about eight students. The Knightsbridge professor of moral philosophy, Henry Sidgwick, has £700, and delivered eighty-seven lectures to from four to twenty hearers. Professor Darwin, of the chair of experimental philosophy, gave forty lectures, and had eighteen students. His salary is £580. The professor of modern history, J. R. Seeley, has an income of £371, and gave one lecture a week for two terms, averaging ninety hearers. He had, in addition, sixty ladies who were preparing for the university

examinations. Prof. Arthur Cayley only mustered two hearers to his twenty lectures. His salary is £471. Michael Foster, professor of physiology, has a salary of £800, and gives three lectures a week to about one hundred and sixty students.

These are simply a few figures selected at random, but they furnish food for reflection on more than one point. We find the salaries in almost every case to be sufficient to furnish a fair living, and in some instances generous. But the number of lectures falls considerably below that which it is usual for a professor to give in this country, and the classes are smaller. But it is just these conditions that afford time and opportunity for original scientific research and literary activity. It is just here that the continental universities, and in an almost if not quite equal degree Oxford and Cambridge, have a great and manifest advantage even over our largest and best-endowed universities. We compel our professors to teach and lecture so much, that they cannot write as often and as wisely as their abilities would justify them in doing. The question, 'Why do you not write something?' which is so often put to the already overworked professor, is peculiarly galling. He wants to write something, and feels that he can do it well; but the demands of his routine forbid. Even his vacation season must be wholly spent in regaining strength and vigor for the next year's work. To a certain extent we are in this matter victims of circumstances. Just at present no escape is perhaps possible.

But in some few instances at least, where financial conditions permit a better state of things, public opinion and governing boards are to blame. They value a professor according to the number of lectures he delivers and the number of students he attracts. They fail to perceive that scientific research is the peculiar duty, and should be the peculiar privilege, of the university professor. Oxford and Cambridge professors do more original work than our professors, simply because they are given the time for it. To work an effective reform in this matter will take some time. Our universities must not only accumulate resources, but public opinion and boards of trustees must be educated to see that a professor is not being permitted to do his full duty if he is compelled to teach from ten to fifteen hours per week.

NUMEROUS STATE teachers' associations held their annual meetings during the leisure period afforded them by the time-honored two-weeks Christmas vacation. It is almost invidious to single out any one of the number for special comment; but the meeting of the New Jersey teachers at Trenton was so large and enthusiastic, that some notice should be taken of the great growth of the idea that teaching is a profession that is observable in that state. New Jersey teachers have long borne an enviable reputation for earnestness and ability, but the development of the professional idea among them is of comparatively recent date. The successful establishment of a state reading-circle, which now numbers nearly two thousand members, is evidence of the gratifying progress that has been made; and the attendance at Trenton this year was such as to convince the most sceptical that great good was being done. As the result of the general acknowledgment that teaching is a profession, we naturally expect to see a sense of the homogeneity of all branches of teaching arrived at. Every detail should interest all, for it is a part of the one whole. The Trenton meeting afforded abundant evidence that this fact was appreciated. The programme, though long and varied, commanded attention and interest throughout. Papers were read or addresses given on musical education, penmanship, the education of the deaf and dumb, the status of the common school, character-building, the Delsarte method of expression, and the scientific treatment of education. Varied as these topics were, both in subject and in manner of treatment, they had a unity of thought and purpose, and, what is quite as important, the audience of teachers appreciated the fact. Meetings such as this was are an incalculable help to the earnest teacher, and we are glad that they have taken their place as an essential element in our educational organization.

ARCHEOLOGICAL STUDIES have taken a new start at Harvard. At the quarter millennial celebration last November, one of the foreign delegates who was honored with the highest degree was Professor Lanciani of Rome, the director of the government explorations in the 'eternal city.' Immediately after the celebration he began, in Sanders theatre, a series of eleven lectures on Roman archeology, which were very well attended, though the same course was given at the same time before the Lowell institute, in the neighboring city of Boston. This course was scarcely

closed, when it was announced that Dr. Waldstein, who delivered a lecture a fortnight ago on scientific methods in archeology, was to give a course next March; and now Prof. A. L. Frothingham, recently of Johns Hopkins and now of Princeton, is delivering a series of five lectures on Assyrian archeology. While so much activity has thus been shown in the different fields of classical archeology, prehistoric archeology has been more fully recognized in the appointment last week of Mr. F. W. Putnam, the curator of the Peabody museum, well known for his careful researches in American mounds and other remains, to the Peabody professorship of American archeology and ethnology.

PROFESSOR CALDERWOOD'S short paper in the *New Princeton review*, on the present status of philosophy in Britain, is exceedingly clear and satisfactory. And, coming from a man who has taken so active a part in the philosophical controversies of the last quarter of a century, it is rather surprisingly judicial in tone. Professor Calderwood starts with Hume, and briefly shows the course the reaction against him has taken in Great Britain, France, and Germany. He outlines the rise of the experiential philosophy in Great Britain, and indicates its present points of weakness. He also shows why Kant and Hegel have found so large a following among English students of philosophy, but claims that in Great Britain, as in Germany, Hegelianism has lost its grip, and that there is a marked return to Kant for the purposes of further exposition and criticism. The outlook for the future, Professor Calderwood views optimistically. We are to be tied down neither to bare experientialism nor to unintelligible rationalism. The British philosophy is to draw what is best and truest from both schools in the formulation of a philosophy of certainty. "The thought of the nation is in a transition stage, preparing for a new advance; and, when this comes, it promises to be the fruit of all that is best in German and British thought, and in its nature a further clear advance toward a philosophy of human knowledge, — a philosophy of certainty."

IN HIS ANNUAL REPORT to the New York state legislature, Superintendent Draper states that between three and four thousand public-school teachers drop out every year, and that the large majority of the vacancies thus created are filled by the appointment of persons without any experience in teaching or training for it, and very many of whom have no intention of teaching permanently. This is a great evil, and, as things are at present, cannot be adequately corrected, though mitigation seems possible. The proper remedy would be to hold in reserve a certain number of persons of normal-school training, who could be at once appointed to such vacancies as they might occur. The objection to this plan would be the expense attendant upon it, and the uncertainty as to just how many vacancies would occur annually. The expense would be something, to be sure; but it would be the cheapest way of saving thousands of school-children of tender age from the disturbing influence of 'quack' teachers. And a table of statistics kept for a few years would give an average annual number of vacancies that would be sufficiently accurate for all practical purposes. Even at some expense and trouble, this evil of foisting unfit and untrained teachers upon the schools should be speedily done away with.

ONE CHAPTER in Professor Payne's 'Contributions to the science of education,' which we notice in another column, has excited a great deal of angry criticism in some of the school-journals. That chapter is the one in which Professor Payne pays his compliments to the maxim, 'Proceed from the known to the unknown,' and denominates it a piece of educational cant which is accepted because it saves the trouble of thinking. Some of Professor Payne's critics have been firm but mild, while others have worked themselves into a great state of excitement, and have saluted his chapter as a voice from mediaeval darkness, and classed him as a pedagogical and psychological ignoramus. We are disposed to think that Professor Payne is partially right, but, on the whole, wrong. His contention that definitude is a late and not an early step in the elaboration of knowledge is well founded, but it does not logically follow that on that account progress is from the unknown to the known. If it were so, we should have no starting-point. The process of acquiring knowledge would be the addition of an indefinite number of zeros. Instruction must arouse some answering chord in the pupil's mind, and, so far at least, the subject of the instruction must be known, and not unknown. But that this fact will not bear all the interpretations so often put upon it, is also true. In any event, Professor

Payne need not be personally denounced for holding an opinion at variance with that of some other educators.

Messrs. Gurney and Myers have replied, in the January issue of the *Journal of the Society for psychical research*, to the criticisms made upon the literary committee, of which they are the executive officers, by certain members of the society. These criticisms were based upon the fact that the literary committee had not officially examined certain evidence for the so-called 'physical phenomena' of spiritualism. In reply, the secretaries state that they had to begin somewhere, and that two good reasons existed for selecting, as the first subject for consideration, the phenomena known as cases of 'spontaneous telepathy,' the discussion of which is so large a part of their lately published book, 'Phantasms of the living.' The first reason was that these phenomena seemed to connect themselves in a natural way with the results of experimental thought-transferrence, the investigation of which had been undertaken even before the formation of the society. The second reason was that a very large proportion of the answers received by the committee in response to their public appeal for evidence of psychical phenomena dealt with cases of spontaneous telepathy. So, that this subject should come first in the work of the committee was perfectly natural.

The secretaries further urge that it is not to be forgotten that the evidence in the cases of 'physical phenomena' of spiritualism is distinguished from the evidence in the case of spontaneous telepathy, automatic writing, mesmerism, and so forth, by some radical differences. In the first place, the alleged phenomena have been, for the most part, observed in the presence of professional mediums, persons having a pecuniary interest in their production. The evidence has no longer to do with the validity of perceptions, but with the validity of inferences, with the correctness of the interpretation of subjective impressions. Furthermore, this evidence differs in form from that in the other topics dealt with by the committee. It does not consist of records sent in manuscript to the committee, and previously known but to a few persons; but most of it has already been published in periodicals and in books. Much of the evidence, too, is offered by persons of no training in the kind of observation required, and of no special aptitude in the arrangement of tests. On all of these grounds the literary committee feels that the sifting and criticism of this evidence is a task beyond their normal functions, and state that a special committee is forming to which all such evidence is to be referred for investigation and report.

We are thoroughly pleased to learn, that, at the recent meeting of the Massachusetts state teachers' association, the peddling of text-books and school-journals was prohibited. The ambitious agents of school publishers and journalists have infested state and county association meetings so often in the past, that they thought themselves perfectly secure in the enjoyment of their privileges. But some firm hand has put a stop to the practice in Massachusetts, and we trust the example will be generally followed. Legitimate advertising is commendable, and an agent is to be praised rather than blamed for his assiduity. But the publishers of text-books and school-journals have carried the thing so far that they interfere largely with the regular work of a teachers' association meeting. It is not the use of the privilege, but its abuse, that we decry; and we want to see plenty of imitators of the independent stand taken in Massachusetts.

THE AIMS OF GEOGRAPHICAL EDUCATION.

Mention all the names of places in the world derived from Julius Caesar or Augustus Caesar.

Where are the following rivers: Pisuerga, Sakaria, Guadalete, Jalon, Mulde?

All you know of the following: Machacha, Pilmo, Schebulos, Crivoscia, Basecs, Mancikert, Taxhen, Citeaux, Meloria, Zutphen.

The highest peaks of the Karakorum range.

The number of universities in Prussia.

Why are the tops of mountains continually covered with snow (*sic*)?

Name the length and breadth of the streams of lava which issued from the Skaptar Jokul in the eruption of 1783.

The above table, taken from Professor Ravenstein's lecture before the Royal geographical society,[1] is very probably a combination of the more atrocious questions on several examination-papers. It none the less will serve as a text for our paper; and this because it fairly represents the ideas of certain so-called 'teachers of geography' as to the limits of the science they were attempting to teach. To them geography simply meant the cramming into a child's mind so many isolated facts, so many heights of mountains, so many lengths of rivers, so many names of places,

[1] *Royal geographical society, report of the proceedings of the society in reference to the improvement of geographical education.* London, *Murray*, 1886.