SCIENCE.

FRIDAY, NOVEMBER 19, 1886.

COMMENT AND CRITICISM.

OUR RECENT CELEBRATION of the two hundred and fiftieth anniversary of the founding of Harvard college seemed to refer us back to the dim past; but that past seems very recent when we read of the celebration in England of the eight hundredth anniversary of the completion of Domesday book. The celebration took the form of a series of meetings for the inspection of manuscripts and literary productions, and for the reading of papers more or less connected with matters affecting the contents of Domesday book. A great attraction was the exhibition of the volumes themselves that compose the Domesday book. The Record office kindly aided by all means in its power the committee having the celebration in charge, and gathered together in one room a vast number of manuscripts and relics. Among these was a document concerning the number of hides in different districts in England, the date of which, as originally written, is placed in the eighth century. Three Anglo-Saxon manuscripts of the eleventh century were exhibited, which showed the method of ploughing. The papers read discussed the history and fortunes of Domesday book as a volume, and its employment as evidence in the courts. There were also some statistical tables read concerning the contents of the book. It is believed that the Royal historical society will issue a full bibliography of Domesday book, including not only printed portions of the texts and separate papers and essays, but also notices of matter referred to by the record.

BY THE DEATH of M. Paul Bert, which was announced on Friday last, France loses one of her most radical and aggressive statesmen, as well as one of her foremost educators and ablest scientific investigators. However much we may differ from some or all of M. Bert's doctrines, we cannot but admire his power, his vigor, and his enthusiasm. Born in 1833, he received a broad and thorough education, becoming a doctor of medicine in 1863, a doctor of science in 1866, and a licentiate in law about the same time. He was for a time assistant to Claude Bernard, and in 1867 was called to the chair of physiology at Bordeaux. In 1869 he was called to the Sorbonne, and became professor of physiology there. After Napoleon's downfall he entered politics, and, after holding several departmental offices, entered the chamber of deputies in 1874 as a representative for Yonne, his native department. He immediately took a prominent part in the debates, and during the discussion of the Ferry law his voice was raised often and vigorously in behalf of lay instruction, compulsory education laws, and the abolition of all school fees. M. Bert was a great friend and admirer of Gambetta, and when that statesman became premier, in 1881, M. Bert was made minister of public instruction in his cabinet. M. Bert's avowed atheism and vigorous radicalism made him many enemies, and he was in no small degree contributory to the speedy downfall of the Gambetta ministry. M. Bert's best-known writings are 'De la greffe animale' (1863), 'De la vitalité des tissus animaux' (1866), 'Revue des travaux d'anatomie et de physiologie publies en France pendant l'année 1864' (1864), 'Notes d'anatomie et de physiologie comparée' (2 vols., 1867–70), 'Recherches de physiologie experimentale' (1877), — crowned by the French academy, — and 'La morale des Jésuites' (1880). At the time of his death M. Bert was governor-general of Tonquin, and minister to Anam, and much was expected from his able and vigorous administration of the interests of France in the orient.

MR. JAMES RUSSELL LOWELL'S great oration at the Harvard celebration calls for notice more special than that which we were able to give last week. Those who had the privilege of hearing the orator report that he spoke with wonderful grace and elegance for almost two hours, holding his audience spell-bound. The oration is in itself a justification of a classical and literary education, and a living argument for a culture loftier and deeper than that which strictly utilitarian theories would provide. Mr. Lowell perhaps overstates himself, but there is more than a kernel of truth in his definition of a university as "a place where nothing useful is taught; but a university is possible only where a man may get his livelihood

by digging Sanscrit roots." Mr. Lowell's generous but just estimate of the vigor, ability, and uprightness of the early Puritans, and his brief but not superficial sketch of the influence of Harvard in the past, will not have escaped the attention of any who have read the oration. Speaking for that class of educated men who, while not behind the times, are not radical, Mr. Lowell uttered some weighty and eloquent words concerning the study of Greek. Speaking of the Greeks, the orator continued, "If their language is dead, yet the literature it enshrines is crammed with life as perhaps no other writing, except Shakspeare's, ever was or will be. It is as contemporary with to-day as with the ears it first enraptured, for it appears, not to the man of then or now, but to the entire round of human nature itself. Men are ephemeral or evanescent; but whatever page the authentic soul of man has touched with her immortalizing finger, no matter how long ago, is still young and fair as it was to the world's gray fathers. Oblivion looks in the face of the Grecian muse only to forget her purpose." Then, too, his description of what a diploma should stand for was exceedingly happy. "Let it [Harvard] continue to give such a training as will fit the rich to be trusted with riches, and the poor to withstand the temptations of poverty. Give to history, give to political economy, the ample verge the times demand, but with no detriment to those liberal arts which have formed open-minded men and good citizens in the past, nor have lost the skill to form them. Let it be our hope to make a gentleman of every youth who is put under our charge, not a conventional gentleman, but a man of culture, a man of intellectual resource, a man of public spirit, a man of refinement, with that good taste which is the conscience of the mind, and that conscience which is the good taste of the soul." In its calm and lofty eloquence, its graceful and pungent diction, the oration was worthy of the occasion that called it forth, and will rank among the masterpieces of American oratory.

NOT TO BE BEHIND the knights of labor, the trades-unionists propose to hold a national council for organization and discussion. The call for the council has been issued to all the trades-unions in the United States and Canada, and the meeting will be held at Columbus, O., on Dec. 8. The basis of representation is to be one delegate from every national or international union of less than four thousand members, two delegates from every union having more than four and less than eight thousand members, and one additional delegate for each additional four thousand members; but no trades-union, not organized for at least three months prior to the session of the convention, can be represented. The call for the meeting sets forth as its objects, establishment of a trades-congress for the formation of trades-unions and the encouragement of the trades-union movement in America; the organization of trades-assemblies, trades-councils, or central labor-unions in every city in America; the founding of state trades-assemblies or state labor-congresses to influence state legislation in the interest of the working masses; the establishment of national and international trades-unions, based upon the strict recognition of the autonomy of each trade, and the promotion and advancement of such bodies; an American federation or alliance of all national and international trades-unions, to aid and assist each other, to secure national legislation in the interest of the working people, and to influence public opinion by peaceful and legal methods in favor of organized labor; to aid and encourage the labor press of America, and to disseminate tracts and literature on the labor movement.

DR. J. E. WINTERS of New York, in a paper read before the Academy of medicine, condemned in no mild way the practice, now so common among society women, of employing wet-nurses instead of themselves performing the duties of a mother. He proves most satisfactorily that the practice is not only demoralizing, but actually increases the mortality among infants, and is often the channel through which diseases of a most loathsome nature are contracted. Dr. Winters informs us that Queen Victoria was nursed by her mother, the Duchess of Kent, and in her turn has performed the same office for her nine children. The lives of nine-tenths of the wet-nursed children are purchased at the expense of the lives of other children. The practice, therefore, of placing children to dry-nurse, either in families or institutions, in order that the mother may go as wet-nurse, he regards as iniquitous. He sums up his argument in the following language: "Briefly, then, we usually select a hireling to perform the mother's most sacred duty; one who occupies the lowest place in the social scale, and in whom there is an absence of moral qualities; usually one who has been, in some degree at least, a prostitute; one who can forsake her own child, and take a

stranger's to her breast; one who can witness the gradual starvation and death of her own child, and who may be a double murderess by poisoning her foster-child with opiates or alcohol. If, after being nourished from such a fountain, our child is perverse, froward, insolent, and has no regard for truth, who is accountable? Is not the mother, who deprived him of her own pure, untainted breast, and who purchased for him instead a polluted and debauched stream?" It is lamentable that a system so pernicious and injurious to the best interests of society should be tolerated, and even encouraged, by the most eminent and honorable members of the medical profession. Dr. Winters deserves the thanks of all right-minded persons for the able and convincing manner in which he puts his arguments, and it is to be hoped, that, attention having been thus directed to what may be regarded as a great and growing evil, this abominable practice which he so justly condemns may be, to some degree at least, mitigated and lessened.

IT APPEARS TO US that the New York county medical society, in its efforts to prevent quackery, is in danger of estranging many members of the medical profession who have thus far given it their cordial support. The law of 1880, requiring the registration of physicians in the office of the clerk of the county in which they intend to practise, would not have been enacted without such opposition as would in our judgment have been fatal, had it been known that regular physicians, whose professional attainments were unquestioned, would be arrested and imprisoned, if, having registered in one county in the state, they should commence practice in another county without registering again. And yet this has been done in the case of a regular graduate of medicine, who, having practised for eight years in Richmond county, removed to New York City, and entered practice there, neglecting to register his name anew. It is absurd as a matter of common sense that registration in one county should not be sufficient, rather than that a man should be required to register in all the counties of the state if he desired to practise in them; and, as appears from an unwritten opinion given by two judges of the supreme court of this state, it is equally absurd as a matter of law. As a matter of fact, the practice seems to vary in the different counties, the clerk of Kings county refusing to allow the re-registration of a physician who is already registered elsewhere in the state. In the case to which we refer, where a physician was prosecuted by the county society, we understand he has brought a suit against the counsel of the society who caused his arrest, for damages.

THE STATISTICS RELATING to the defective, dependent, and delinquent classes collected in the tenth United States census, and prepared for publication by Mr. F. H. Wines, editor of the *International record of charities and correction*, have been ready for the press for more than two years. But the reduction of the clerical force of the census bureau seemed to postpone their publication indefinitely. Senator Cullom of Illinois, however, came to the rescue, and on his motion the senate called for them, and ordered them printed as a senate document. It is hoped that they will be given to the public early in 1887. This suggests the reflection that the newly elected congress will probably be the one which will have to make provision for the taking of the eleventh census, and it is not businesslike to have the publications of one census stringing along in a go-as-you-please way until the time for the next census comes round.

WE HAD OCCASION, in a recent number of *Science* (p. 433), to refer to a new treatment for consumption, consisting in the inhalation of bacteria in the form of spray. Another method of treatment which is now attracting the attention of physicians is by injecting remedies directly into the lungs by means of the hypodermic syringe, the needle of which is passed through the wall of the chest, the effort being made to apply the medicinal agent as nearly as possible to the affected portion of the lungs. Some very encouraging cases are reported, in some of which the improvement has been so great as almost to justify one in speaking of them as cures. Carbolized iodine appears to have produced the best results, causing the complete cessation of cough and expectoration, and the further progress of the disease.

A CIRCULAR ISSUED by the chief signal officer, under date of Nov. 10, announces that on March 1, 1887, a new system of weather-signals will be adopted for general use at local and volunteer display stations. The new system is based on the one in use in Alabama, and designed by Professor Mell, director of the Alabama weather-service: it is of four flags, — a square white flag, for clear or fair weather; a square blue flag, for rain or snow;

a triangular black flag, for temperature, to be hoisted above the other flag for higher temperature, below for lower temperature; and a square white flag, with square black centre, for a cold wave, as at present. When suspended from a horizontal pole or rope, a small white streamer will be used to indicate the end from which the flags are to be read. This system of signals is superior to the Ohio system, — red and blue, sun, star, moon, — now in general use, by reason of its simplicity, visibility, and cheapness; and the absence of red among its colors removes the objection that many railway managers have felt to the display of the other signals on the sides of cars.

THE FALL MEETING OF THE NATIONAL ACADEMY.

THE semi-annual meeting of the National academy of sciences was held Nov. 9–11, 1886, in Boston. By the kindness of the Massachusetts institute of technology, the academy was accommodated in its spacious buildings on Boylston Street. More than half the members of the academy were present, the number being larger than usual, owing to the interest taken by many in the two hundred and fiftieth celebration of the founding of Harvard college, which event was celebrated on the preceding days. The only business of general interest related to the publication of the annual volumes of memoirs. The president announced that the text of vol. iii. was nearly all printed, and that authors are cautioned to see that the manuscript and illustrations are always in proper shape, and complete for the printer when handed in to congress early in December of each year, as otherwise they are likely to be rejected. Of the scientific papers read, a full list of which is given on another page, we note the following: —

S. P. Langley, in a paper on 'The solar-lunar spectrum,' stated that for some years past we have suspected, but never actually been able to demonstrate, the existence of radiations from the sun of wave-lengths greater than three microns, and have been in doubt whether our atmosphere had entirely absorbed these if they really existed, or whether they were absorbed already in the sun's atmosphere and never reached ours at all. He has during the last year shown that the former hypothesis is more probable, and that the trouble lay partly in the fact that the terrestrial absorption here was almost total; partly in the apparatus, wherein diffused solar radation of shorter wave-lengths entirely obscured the almost infinitely feeble portion of these longer waves, which our atmosphere had in fact transmitted. By the use of very perfect rock-salt trains, and by an elaborate device for sifting out extraneous radiations, he has now been able to show the existence of certain of the longer solar waves, even down to the extreme length of seventeen microns, to which waves lamp-black is as transparent as glass is to the shorter or light waves. This selective absorption of lamp-black has been before surmised, but its existence to this degree is a new fact. On examining the radiation of the moon, Langley finds, in spite of the feeble heat, some of these long waves more easily distinguished than in solar radiation, owing to the fact that in the case of the moon, whose radiation, he observes, is mainly dark heat of these very great wave-lengths, he is not troubled with the enormous disturbances due to the diffusion of the intense shorter waves in the case of the sun. He states then that there is found, by the aid of the rock-salt trains, a minute amount of solar heat between three and five microns, below which the cold bands which have been growing closer and closer, and letting less and less heat between them, practically coalesce into one almost unlimited cold band, extending to eleven microns; and that probably the earth's atmosphere absorbs practically all the solar radiation between five and eleven microns, and, indeed, beyond; except that there is one band of most feeble transmission from this point to about sixteen microns. This transmission is here so feeble that the energy of the strongest radiations in this latter part of the normal spectrum is less than one one-thousandth of that in the visible region, and the total radiation here even less in proportion to that in regions already known.

These new researches, then, while enlarging the extent to which the solar infra-red spectrum has been examined, to the great probable length of over seventeen microns, and while confirming the previously announced fact that almost no solar heat reaches us in this region, are chiefly interesting in their bearing on the question of the transmissibility of our atmosphere, and as showing that its apparent action in allowing lunar heat to pass where no solar heat was found is consistent with the possible existence of the latter, outside our atmosphere, of every wave-length. Professor Langley's researches on lunar heat are not completed, but he announced the conclusion as probable that the temperature of the moon's sunlit surface is neither as high as assumed by Lord Rosse nor as low as he himself was once inclined to think, and probably may be little higher than that of melting ice.