rescue patients from otherwise hopeless conditions. Let any one picture to himself the case of a young wife after her first confinement afflicted with this dreadful puerperal fever, and doomed under ordinary treatment to certain death. The practitioner makes an injection of this serum under the skin, with the result that the lady rapidly recovers, and in a few days is perfectly well. Let any man conceive such a case as this, and all objections to the investigations necessary to bring about such a state of things must vanish into thin air. So soon as our poor selves are directly concerned our objections disappear. If a tiger threatened to attack a camp, who would care much about what kind of a trap was set for it, or what suffering the trap caused the animal, so long as it was caught? When the matter affects only the welfare of others, including generations yet unborn, the good done does not appeal to the individual, and the objector sees only the horrors of modern scientific investigation; of which horrors, however, he quickly loses the sense as soon as he becomes personally concerned.

On the occasion of the funeral of that illustrious investigator to whom I have before referred, I visited the Institut Pasteur, and there was shown preparations of the microbe of the plague discovered at Hong Kong in 1894 by M. Yersin. And I was told by M. Roux, that Yersin, whom he knew intimately as formerly his colleague, had lately been treating in China several cases of that fearful disease with serum prepared at the Institut Pasteur on the same lines as that used for diphtheria. Cultures of the plague bacillus had been taken to Paris, and at the Institut, under the most rigorous precautions, the serum had been prepared. At the Institut they did not think they had succeeded in producing a very powerful serum, judging from its action on animals; but in the human subject it seems to have proved most potent. M. Yersin obtained serum sufficient for the treatment of twenty-six cases of the plague. The mortality from the disease at the time was above 80 per cent. The first case which he treated was that of a young man, in whom a "bubo," characteristic of the disease, was present, and the patient, already delirious, was completely despaired of. A little of the serum was introduced, and, to M. Yersin's absolute amazement, on the following day the young man was well, the bubo having almost entirely disappeared. And, moreover, of the twenty-six cases in which M. Yersin used the serum, twenty-four recovered; while in the remaining two Yersin felt that he was called in so late that their cases were hopeless. I would not have referred to these facts did I not know that the person from whom they were obtained was absolutely trustworthy. We cannot tell how soon the plague may visit these shores. We know that in one of our great dependencies—Bombay—it is already prevalent in a very severe form, and has already cost many lives. We know that a ship may carry the disease; that rats are liable to contract it, and that a rat making its escape from a ship coming from Bombay, say, to the Thames or to Belfast Lough, may carry the plague ashore, and that the taint may be communicated to human beings, with dreadful results. I would not say that there are not slums in the city of Belfast which might harbour the plague. So you can easily recognise how vastly important it would be to have means at hand whereby, in the simple way I have described, the disease may be combated. I have, I think, said enough to show the vast importance of an institute of such a character, and I look forward to the time when you will have such an establishment thoroughly equipped for its beneficent work.

There is another department in connection with medical education in this city about which I cannot speak in the same terms of praise as I can with reference to the new laboratories, and that is the hospital. No doubt the Royal Hospital, which I had the honour of visiting for the first time yesterday, is a fine institution; but it is altogether inadequate to the requirements of this great and rapidly-growing city. It is inadequate, whether for affording means of clinical instruction to students or for dealing with the diseases of your large and increasing population. But I am glad to know that there is a prospect of better things before long. I understand that it has been not merely contemplated, but determined, to build a large new hospital provided the requisite funds can be obtained; and I have been informed that within six weeks of the initiation of the movement more than half the necessary sum has been raised. I have no doubt that the munificence of the merchant princes of Belfast will soon provide the balance. Therefore, whichever way I look at this jubilee, I feel that the College, more particularly with regard to its medical school, is entering upon a new era of prosperity. I rejoice with you in the fact, and I have felt it a great privilege to take part in your celebration.

[Since this address was delivered, the last number of the *Annales de l'Institut Pasteur* has appeared, containing a paper by M. Yersin, describing his experience above referred to. The details which he gives of the cases confirm in a remarkable manner the conclusion which the mere numbers suggest. Just as in diphtheria, and exactly as must occur if the antidote is really efficacious, the cure was most rapid when the treatment could be commenced on the first day of the disease; speedy also, but less so, when it was begun on the second day; and so from day to day till the fifth. Four patients were treated at this very late period, and the only failures were in two of these. More of the serum also was required in the more advanced cases.

Equally striking was the manner of recovery. In none of the twelve cases in which treatment commenced within two days of the onset of the complaint did the bubo suppurate. And in those of a later period in which matter did form, the abscess closed rapidly after being opened, instead of healing tediously, as it does when recovery takes place without this treatment. And the patients, instead of having a lingering convalescence, were healthy men and women in a time which was always relatively short, and astonishingly so when the treatment had been commenced early. These details are so extraordinarily confirmatory that, small though the number of cases is, they carry conviction to my own mind.

It gives me the most profound satisfaction to be able to state on the authority of the India Office, that the Bombay Government intend to employ M. Yersin, now on his way to the stricken region, to give a full trial to his method, and I have also learned through another channel that within a fortnight from this time (February 1) the serum treatment will probably have begun in Bombay. LISTER.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The election to the Professorship of Geology will take place during the present term.

This term the usual courses of lectures are being given in the various departments of Natural Science. Prof. H. H. Turner is lecturing on Elementary Astronomy, Prof. Odling on Organic Chemistry, and Profs. Vines and Gotch are continuing their advanced courses in Botany and Physiology respectively.

Prof. H. A. Miers is giving a series of lectures on the Relation between Chemical Composition and Crystalline Form.

In the Department of Comparative Anatomy, Prof. Ray Lankester is lecturing on Reptiles and Birds, Mr. R. W. T. Günther on Brachiopoda and Polyzoa, Mr. Barclay Thompson on the Osteology of the Sauropsida and on Sauropsidan Palæontology, and Mr. G. C. Bourne is conducting a class for the study of Vertebrate Histology. In the Hope Department, Prof. Poulton will give a series of lectures on the Age of the Earth.

Prof. Tylor is lecturing on the Early Stages of Knowledge, and Mr. Balfour on Realistic and Decorative Art of Primitive Peoples.

Elementary courses in the different departments are being given by Profs. Gotch and Vines, Dr. Benham, and Messrs. Churchill, Baynes, Watts, and Vernon Harcourt.

CAMBRIDGE.—The Gilbey Lecturer in the History and Economics of Agriculture will give four lectures this term on Fridays, at two o'clock, beginning on February 12. His subject is Ancient and Mediæval Agriculture.

At the matriculation on January 28, eighteen additional Freshmen were entered, bringing the total for the academic year up to 923.

Mr. W. Gardiner, F.R.S., has resigned his University Lectureship in Botany on his appointment as Bursar at Clare College, of which he is a Fellow.

DR. T. E. THORPE, F.R.S., will distribute the certificates in science subjects to evening students at the East London Technical College, People's Palace, on Monday, February 8.

MR. GARRETT A. HOBART, Vice-President-elect of the United States, has given to his *alma mater*, Rutger's College, 5000 dols. for the general expenses of the college.

AT the Queen's Hall, Langham Place, to-morrow, February 5, the Prince of Wales will present the certificates to the winners of scholarships and exhibitions of the London County Council Technical Education Board.

THE Technical Instruction Committee of the Northumberland County Council have intimated that they would not be indisposed to make a grant to the Northumberland Sea Fisheries Committee, provided the latter will undertake to arrange for something definite in the direction of hatchery, or arrange some clearly-defined work of an educational value. The Sea Fisheries Committee are making inquiries with the object of devising and establishing experimental work in hatchery.

THE Durham County Council last week sanctioned the expenditure of no less a sum than £2254 for the erection of a "band-room" by the committee of the Earl's House Industrial School, which is under its control. Though it was rightly objected by one councillor that instrumental music was not legitimately a part of an industrial training, yet, following the lead of a member of Parliament present, the Council approved of the grant on the ground that band-playing "tends to elevate the boys, and make them better citizens."

IT is proposed that Staffordshire shall unite with Shropshire and Warwickshire in a scheme which shall provide advanced and elementary technical education, in colleges and schools specially adapted for the work, for the sons and daughters of farmers. The Staffordshire Committee are also to appoint a lecturer on pottery and porcelain, with the object of improving the ceramic industry of the northern part of the county, as well as appoint a lecturer and establish a metallurgical laboratory at Wednesbury in South Staffordshire.

PROBABLY the scholarships established by Sir Joseph Whitworth have been the means of bringing more talented young men to the front rank of engineers than any similar foundations. By a will just made known, it appears that the late Lady Whitworth recognised the advantages which scholarships offer to earnest students. She bequeathed such a sum as will provide a permanent income of £100 a year to be applied as "Lady Whitworth Scholarships" in connection with the public elementary school or schools established in Darley Dale, for the purpose of enabling scholars therein to maintain themselves at such schools wholly or partially, or to proceed to other place or places of higher education. The selection of scholars has always to be made according to merit, and not on the mere ground of poverty, or any considerations of private personal favour.

THE great Fayerweather Will contest has just been finally settled by the Court of Appeals of the State of New York, confirming the judgment of the Supreme Court, and dividing the residue of the estate, amounting to about 3,000,000 dols., equally among the following educational institutions, in addition to the following named bequests, which have already been divided among them under the ninth paragraph of the will:—Yale University, 300,000 dols.; Columbia and Cornell University, 200,000 dols. each; Bowdoin, Dartmouth, Williams, Amherst, Hamilton and Maryville College, Wesleyan, Lincoln and Hampton University, and the University of Virginia and of Rochester, 100,000 dols. each; Union Theological Seminary, Lafayette, Marietta, Adelbert, Wabash and Park College, 50,000 dols. each.

WE have received a copy of the scheme agreed to between the Leathersellers' Company and the Executive Committee of the City and Guilds of London Institute for the administration of a grant of £150 a year, offered by the Leathersellers' Company, to be applied to chemical research. It has been resolved that the fellowships shall be open to natural-born British subjects, who are (*a*) students of the Institute who have completed a full three years' course of instruction in the chemical department of the Central Technical College, or (*b*) candidates duly qualified in the methods of chemical research in its relation to manufactures, without restriction as to age or place of previous study, but preferably to class (*a*). Every fellowship will be tenable for part of a year or for one year, and may be renewed for a second or third year, but in no case can be held for a further period. Holders of fellowships must devote their whole time to the prosecution of research. The researches have to be carried out at the Central Technical College. Applications for fellowships must be made in writing to the Hon. Secretary of the Institute, at the Head Office, Gresham College, E.C., and must state the name of the proposed research and the qualifications of the candidate.

THE report of the Director of Technical Instruction to the County Council for the County Palatine of Lancaster for the year ending August 31, 1896, which is to be presented to the meeting of the Council on February 4, is of the most exhaustive nature. The amount which the Technical Instruction Committee resolved to distribute among the urban and rural districts of the county for the year was £24,225, being a decrease of £4285 on the sum distributed in the previous twelve months. Short accounts of the various conferences at which the Lancashire County Council have been represented throughout the year are given, and also full information respecting the scholarships awarded by the Council, and of all grants made in aid of the different branches of study throughout the county. Under the heading "Renewal of Scholarships," we notice that a Lancashire student at Cambridge, who was Second Wrangler in 1895, has been granted a special scholarship of £60 a year to enable him to complete the terms required for a Fellowship of his college, and to make it possible for him to compete for the Smith's Prizes. A series of useful tables showing the whole of the scholarships and exhibitions awarded, as well as the total number of students receiving instruction, makes it possible to compare the work of the session 1895 6 with that of previous years. It is interesting to note that the amount actually awarded for these purposes during the year under consideration more nearly approximated to that set aside for the purpose than in any previous session. The highest number of entries of students in all subjects was in the year 1893-4, when the total reached 58,534; with the exception of this particular year there has been a steady increase up to 1896, when the total was 54,719. The excellent report of the work of the County Council Farm at Hutton completes the history of a most satisfactory year's work.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, December 17, 1896.—"On the Effect of Pressure in the Surrounding Gas on the Temperature of the Crater of an Electric Arc. Correction of Results in former paper." By W. E. Wilson, F.R.S., and G. F. Fitzgerald, F.R.S. Received November 30, 1896.

This paper describes experiments made with the surrounding gas as air, oxygen, hydrogen, and carbon dioxide. It was found that with air and oxygen large quantities of NO_2 are formed at high pressures, and that observations of the radiation at these pressures is consequently impossible. The experiments described in the former paper were made with nitrogen, and there is every reason to believe that the remarkable diminution in radiation then observed was due to the nitrogen containing sufficient oxygen as an impurity to produce NO_2. Experiments with hydrogen showed that in this gas the arc is long and thin with a red line down its centre, giving the hydrogen lines not nearly so expanded as in a spark spectrum at the same pressure. Observation of the crater under high pressures of hydrogen was impossible, because (*a*) only a very short arc could be maintained, and (*b*) soot trees and a deposit of graphitic carbon all round the margin of the crater at high pressures completely hid it. The experiments in CO_2 were the most satisfactory, but, owing to a variety of difficulties, it was found impossible to decide with certainty whether the crater was hotter or colder at high pressures.

A thermodynamic investigation of the rise of temperature in the crater due to increased pressure, on the assumption that the vapour pressure then is the same as that of the surrounding atmosphere, and that the latent heat of carbon is 4000 calories, leads to the conclusion that the temperature of the crater should have risen 220° C. for each atmosphere added, and that the radiation would have doubled for an increase of four atmospheres. Such a large increase would have, almost certainly, been observable in our experiments. Another difficulty, in the way of supposing that the carbon vapour near the crater is at the pressure of the surrounding atmosphere, is pointed out, arising from the slow evaporation of the carbon. Mercury evaporates very rapidly when used as the positive pole of an arc, and there seems no sufficient reason why the much less dense carbon vapour, at a much higher temperature, should evaporate so very much more slowly.