42 miles, and probable velocity of the object 24 miles per second.

The radiant point in the right hand of Boötes is very little known as a centre of meteoric divergence in the month of January. The only shower conformable with it was observed at Bristol in 1887-9 January 25-29, $213^{\circ}+52^{\circ}$.

In recent years fireballs have been very numerous in this month, and especially at the epochs about January 9 to 13 and 24 to 29. They appear, however, to have belonged to a great many different systems, and have not supplied evidence of any rich individual display of bright meteors at this time of the year.

W. F. DENNING.

METHOD OF PRODUCING WAVES OF FREQUENCY INTERMEDIATE BETWEEN HEAT WAVES AND HERTZIAN WAVES.

THERE is at present a considerable gap of unexplored wave-lengths intermediate between those of Hertzian waves and what is commonly known as heat. The shortest Hertzian waves which have heretofore been produced are of the order of one millimetre length.

Some years ago the writer discovered a method of producing the heretofore unknown waves above referred to.

It is based on the phenomenon discovered by the writer and published by him in a paper on insulation and conduction read before the American Institute of Electrical Engineers in 1894.

In the accompanying figure, AA are copper rods, BB are plano-convex lenses. The distance between the surfaces of

the lenses depends upon the wave-length which it is desired to produce.

If BB were metallic terminals, the discharge passing at c would have a long wave-length on account of the capacity of BB. It is impossible to make metallic terminals small enough to get very short wave-lengths. But, in the apparatus shown in the sketch, if AA are connected to the terminals of a high-voltage machine sparks will be found to pass at c, and the oscillating conductor is merely the small column of incandescent gas, c.

If the distance between BB is very short, the wave-length will also be very short.

Waves may be produced in this method having a wave-length certainly not longer than a few ten-thousandths of an inch, and there would appear to be no necessary limit to the frequency. It sometimes happens that the discharge tends to pass at a point outside the axis, and hence to give a longer wave-length than desired, but this can be avoided by properly proportioning the curvature of the lenses and the diameter of the rods AA.

Inert gases of the helium type seem to give the best results, but very good results are obtained by using quartz lenses in air, the use of quartz having been suggested to me by Prof. Elihu Thomson. Quartz does not seem to become conducting on being heated by the passage of the discharge to anything like the same extent as glass, and hence the wave-length remains more constant.

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Owing to pressure of other work, the writer has been unable to continue these experiments, but the apparatus would seem to be of interest as offering a means of obtaining waves of any desired high frequency.

REGINALD A. FESSENDEN.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The statement of the income and expenditure of the Common University Fund for 1905, published in last week's *Gazette*, shows that the income was 6806*l.* 9*s.* 8*d.*, to which the colleges contributed 6197*l.* 19*s.* 4*d.* under the statute concerning college contributions for university purposes, and the Royal Geographical Society 400*l.* towards the support of the department of geography. The total expenditure was 6260*l.* 14*s.* 11*d.*, of which sum 3662*l.* 19*s.* 5*d.* was devoted to scientific purposes, partly in the payment of the salaries of university readers and professors, and partly in assisting various laboratories and providing demonstrators and assistants.

At a meeting of the Junior Scientific Club, held at the Museum on February 23, Mr. M. H. Godby (Christ Church) read a paper on "The Place of Natural Science in Education."

CAMBRIDGE.—The Vice-Chancellor has been authorised to convey to Lord Rayleigh the grateful thanks of the University for his magnificent gift of 7733*l.* 12*s.* 8*d.*, being the amount of the Nobel prize awarded to him in 1904. Lord Rayleigh desires that 5000*l.* of this should be employed in erecting a new building in connection with the Cavendish Laboratory, and that the remainder should be devoted to the purchase of scientific books and periodicals for the University Library.

Sir George Darwin, K.C.B., Plumian professor of astronomy, will represent the University at the celebration of the 200th anniversary of the birth of Benjamin Franklin at Philadelphia in April.

The Special Board of Biology and Geology recommended that the agreement between the University and Dr. Dohrn, director of the Zoological Station at Naples, be renewed for a further period of five years by the payment to him of 100*l.* per annum out of the Worts travelling bachelors fund.

The General Board of Studies has nominated the following gentlemen as members of the Board of Electors to the professorships named below:—Dr. B. C. A. Windle, to the professorship of human anatomy; Prof. F. W. Oliver, to the professorship of botany; Lord Walsingham, to the professorship of zoology and comparative anatomy; Mr. J. Hutchinson, to the professorship of surgery; the Earl of Carrington, G.C.M.G., to the professorship of agriculture.

The following have been nominated examiners by the General Board of Studies for the special examination in agricultural science and for the diploma in agriculture:—Mr. J. B. Peace, Mr. H. Woods, Mr. T. B. Wood, Mr. R. H. Biffen, Prof. Middleton, Dr. Shore, Mr. T. A. Dickson, and Mr. A. E. Shipley.

At Gonville and Caius College the triennial Thruston prize of 54*l.*, open to a member of the college of not more than fifteen years' standing who has published in the course of the preceding three years the best original investigation in physiology, pathology, or practical medicine, has been awarded to Mr. W. S. Perrin, research student of the college. Mr. Perrin is an expert on protozoology, and has published papers on a so-called trypanosome in the oyster and on *Pleistophora periplanetae*.

LORD RAYLEIGH has promised to lay the foundation-stone of a new science school at Dulwich College on Saturday, March 3.

To the new buildings of the Sorbonne it has been decided to add a new university chemical laboratory, the Institut de Chimie, on a site between la rue Saint-Jacques and la rue d'Ulm, that is, in the neighbourhood of the Sorbonne.

PROF. R. J. HARVEY GIBSON writes from the Hartley Botanical Laboratories, University of Liverpool, to point