tention is to decentralise the administration of school grants by the Education Department, and to throw upon those bodies the duty of administering the Parliamentary grant. Should the Bill become law, the general inspection of schools will be undertaken by the county authority, and the Committee of Council—the central government—will only have inspectors who will visit the schools from time to time in order to see that the county education authority is properly fulfilling its duties, and that the education is up to the proper standard. It is proposed to hand over to this committee the powers of the county council under the Technical Instruction Act, 1889. The money received under the Local Taxation Act, 1890, will be specially applicable to secondary education, and will be administered by the education authority, and may be accumulated. It is hoped that the Bill will create a system under which all those parts of a county in which there are public schools will be connected with and under the authority of the county education authority, and will be maintained out of the general county rate. As regards secondary education, the new authority will be able to aid schools out of the money at its disposal and to establish them; and with the assent of the Education Department it may take a transfer from the School Boards of their higher grade schools. The Bill contains numerous proposals which will revolutionise the system of elementary education in this country, and greatly change the positions of Board Schools and voluntary schools.

SCIENTIFIC SERIALS.

Symons's Monthly Meteorological Magazine, March.—Extreme heat in Australia in January 1896. Mr. Russell, Government Astronomer of New South Wales, writes: "We are having a very hot summer. . . . Those who hold that icebergs cool the weather will have a nut to crack with the icebergs on one hand, and these excessive heats on the other." On January 13 the temperature in the shade at Sydney rose to 108°·5. This is the greatest heat recorded there since 1859; the highest previously registered there was 106°·9 in January 1863. A temperature of 108° was also registered in Melbourne, but this temperature had been exceeded on three occasions: in January 1862, the shade temperature reached 111°·1; in 1876, 110°·7, and in the summer of 1882, 110°·5. In some inland parts of Victoria, even higher temperatures were recorded.—Severe frost in North America. Unprecedently severe weather has been experienced over the Eastern States of America, and in Newfoundland. On February 17 the thermometer registered 39° of frost at New York, a lower reading than has been recorded so late in the year since observations were begun. In the interior of the State of New York a record of 49° below zero was obtained. In Newfoundland the winter is said to be more severe than has been known for forty years. Snow was lying on the ground to a depth of fifteen feet at St. John's. At Fortune Bay the entire failure of the herring fishery has brought the people to the verge of starvation.

Wiedemann's Annalen der Physik und Chemie, No. 3.—Influence of light upon the form of discharge of an influence machine, by J. Elster and E. Geitel. The brushes and sparks from a Holtz machine passing between a kathode plate of amalgamated zinc and an anode sphere of any metal, are replaced by a glow discharge when the kathode is illuminated with short-wave light. A smaller quantity of electricity passes by this glow discharge than by the brushes and sparks in the dark.—Change of resistance due to electric radiation, by E. Aschkinass. Gratings made of strips of tinfoil have their series-resistance lowered by electric rays. The original resistance is restored by shock or heating. It is most likely that the strips are bridged by free metallic particles, but certain experiments tend to show that the process is molecular rather than purely mechanical.—Interference of electric waves, by Viktor von Lang. This was shown by an apparatus constructed on the plan of that used by Quincke for sound waves. The electric waves enter a tube which divides into two branches, and then recombines. The length of the branches can be adjusted. After recombination the waves impinge upon a Lodge "coherer" which indicates interference by changes of resistance. Well-defined maxima and minima were obtained, and the apparatus was used for obtaining the velocity of the waves in paraffin and in sulphur. The electrical index of refraction was thus found to be 1·648 for paraffin, and 2·333 for sulphur. These values are higher than those hitherto obtained.—Fluorescence of sodium and potassium vapour, by E. Wiedemann and G. C. Schmidt. The vapours of these metals show bright fluorescence when illuminated with bright sunlight. Sodium vapour shows a continuous band in the red, a fluted band in the green, and the bright sodium line in the yellow. Potassium vapour shows an intense red band. These vapours also show electro-luminescence. These results are of importance to astrophysics. The vapours in the solar atmosphere probably owe part of their luminosity to fluorescence, and this kind of radiation would not obey Kirchhoft's law.

SOCIETIES AND ACADEMIES.

London.

Royal Society, March 19.—"On the new Gas obtained from Uraninite. (Seventh Note.) Remarks on Messrs. Runge and Paschen's Diffusion Experiment." By J. Norman Lockyer, C.B., F.R.S.

I pointed out in a previous communication (*Roy. Soc. Proc.*, vol. lviii. p. 193) that, from evidence afforded by the behaviour of the lines under different conditions of the spark, the gas obtained from clèveite is in all probability compound.

Some time afterwards (July 11, 1895) Messrs. Runge and Paschen published (*Sitz. der K. Preus. Akad. der Wiss. zu Berlin*, vol. xxxiv., 1895) the same conclusion, and, as a result of a diffusion experiment (Nature, vol. lii. p. 321) described in their paper, they came to the conclusion that the gas giving the line D_3 was heavier than the gas giving the line 5015·7. As they themselves, however, pointed out, the result was not final, because the pressures were not the same. As it is important for stellar classification to settle this matter, I have recently made some experiments in which the pressures remain the same. The experiments are not yet finished, but the first, which was made on January 22, 1896, seems to leave no doubt on one point of the investigation.

An **U**-tube was taken, and at the bend was fixed a plaster of Paris plug about 1·5 cm. thick; in one of the limbs two platinum wires were inserted. The plug was saturated with hydrogen to free it from air; the tube was then plunged into a mercury trough, and fixed upright with the limbs full of mercury. Into the leg (A) with the platinum wires a small quantity of hydrogen was passed, and as soon after as possible another small quantity of a mixture of helium and hydrogen from samarskite was put up the other limb (B) of the **U**-tube.

Immediately after the helium was passed into the limb (B), spectroscopic observations were made of the gas in the limb (A); D_3 was already visible, and there was no trace of 5015·7. This result seems to clearly indicate that if a true diffusion of one constituent takes place, the component which gives D_3 is lighter than the one which gives the line at wave-length 5015·7.

Athough this result is opposed to the statement made by Runge and Paschen, it is entirely in harmony with the solar and stellar results. In support of this I may instance that of the clèveite lines associated with hydrogen in the chromosphere, and the stars of Group IIIγ, those allied to D_3 are much stronger than those belonging to the series of which 5015·7 forms part.

Physical Society, March 27.—Prof. Carey Foster, Vice-president, in the chair.—Prof. J. A. Fleming read a paper on the Edison effect. The Edison effect alluded to in the title of the paper is that if a metal plate is placed inside the loop of an incandescent lamp, then a galvanometer of which one terminal is connected to this metal plate, and the other to the positive lead of the lamp, will indicate a current passing from the lead to the plate. If, however, the galvanometer is connected to the plate and the negative lead, no current passes. Prof. Fleming, by connecting the poles of a condenser, firstly to the two leads, secondly to the plate and positive lead, and thirdly to the plate and negative lead, and in each case discharging the condenser through a galvanometer, has shown that after the lapse of a certain time, depending on the position of the plate, if the lamp is working at about four watts per candle, the potential of the plate falls to that of the negative lead. If the plate, instead of being inside the loop of the filament, is outside, then the time taken by the plate to acquire the potential of the negative lead is considerably longer. The space between the plate and the negative lead exhibits a kind of unilateral conductivity, for a battery having a low voltage is able to send a current from the plate to the negative lead, but not in the opposite direction. If instead of using a cold metal plate a second filament, maintained