

The November meteors.—The regular November meteors or Leonids, moving in the orbit of Temple's comet (1866 I), are due between the 12th and 15th of the month, probably reaching a maximum display on the night of the 13th. The investigations of Prof. Kirkwood seem to indicate the existence of three separate clusters moving in this orbit, and there is a possibility of the earth intersecting a portion of one of the clusters the present year. Mr. Denning has pointed out that toward the end of the month circumstances appear to be extremely favorable for a recurrence of the Andromeda meteors (see *Science*, vi. 279).

Lick observatory.—In a letter to the *Sidereal messenger*, dated Oct. 20, Professor Holden expresses his thanks to the many astronomers and societies that have generously contributed to the library of the Washburn observatory, and he bespeaks a similar generosity for the Lick observatory, of which he is about to take charge. He requests that parcels intended for the observatory be addressed to the Library of the Lick observatory, San José, Santa Clara county, California, while such as are intended for himself personally be directed to Berkeley, California. Professor Holden says, "Real astronomical work at the Lick observatory will begin as soon as possible. Under the provisions of the trust, no salaries can be paid to observers until after the completion of the observatory; and this date depends upon the time at which the large telescope is finished by the firm of A. Clark & Sons. Every thing else is practically complete. I have hopes that some arrangement may be made by which the meridian circle and the 12-inch Clark refractor may soon be put to use." If the immediate inauguration of systematic observations at this observatory is contingent merely upon obtaining a fund sufficient to employ assistants during the two years, more or less, which must elapse before the permanent funds are available, we sincerely hope that the well-known liberality of California will come to Professor Holden's aid in advancing the interests of her magnificent gift to science.

NOTES AND NEWS.

THE *Scientific American* of October 31 contains an article by John C. Goodridge, jun., entitled 'Can the temperature of the Atlantic states be changed?' It is neatly illustrated by two charts, and presents a dangerously entertaining, one-sided statement that will doubtless be pleasant reading to the uninformed. The error that vitiates the whole argument is the implication that the low mean temperature of our Atlantic states depends on their being next to the Labrador current that

brings cold water down the coast, and shoves the Gulf stream out to sea. To remedy this defect, it is proposed to dam up the Straits of Belle Isle, as if all the cold water came through that narrow passage, and none reached us from the east coast of Newfoundland! But even if we grant this, and build the dam, our winters would still be cold, for their low temperature depends on the winds from the great north-western interior, and not on the chill of the Atlantic waters.

—A circular has lately been issued by the University of Michigan, descriptive of a scheme of undergraduate geological study, leading to the degree of bachelor of science after four years' work. The subjects belonging strictly to geology are taught by Professors Winchell, Pettee, and Cheever, and embrace general geology and paleontology, mineralogy and lithology, economic geology and metallurgy. Besides these, the curriculum includes a certain amount of mathematics, chemistry, physics, French, German, and drawing, and allows moderate excursions among elective studies. Field-work has no special time allotted in the course, although it is noted that students 'will incidentally acquire skill' in it. This, and the omission of surveying as a required study, seem to us as defects in the plan; the amount of French and German also seems to fall short of that needed to give an effective use of these essential languages; but, as a whole, the course must give a good knowledge of theoretical and practical geology to the inquiring student.

—The Appalachian mountain club announces that a room of moderate size, suitable to the purposes of the club, has been rented in the Ticknor mansion, on Park Street, Boston, possession to be given about November 15. The club is not yet in condition to employ a paid librarian or attendant, but it is expected that by unpaid attendance the room can be open to all club members, without charge, during the afternoon hours of several days in the week, and perhaps, if a sufficient volunteer force can be organized, every afternoon. It is confidently believed that when the books, maps, and photographs of the club are brought together, and made for the first time accessible, the room will prove a very attractive resort to members, and that the plan may be even so successful as to warrant, within a few years, a removal to larger quarters in the same attractive building.

—A meeting of the local committee to arrange for the coming session in Washington, of the American public health association, was held Nov. 3. The committee on transportation reported that a uniform reduction of rates had been secured for members on the railroads all over the country.

At the meeting of the association the prizes offered by Mr. Henry Lomb of Rochester, for the best essays on subjects of sanitary importance (*Science*, v. 80), will be awarded.

— William Benjamin Carpenter, the eminent English physiologist, died in London, November 10, from the effects of terrible burns caused by the upsetting of a lamp while he was taking a vapor bath for rheumatism. Dr. Carpenter was born at Bristol in 1813.

— Among recent deaths we note the following : Dr. Wm. A. Guy, at London, in his seventy-sixth year ; Jean Claude Bouquet, mathematician, at Paris, in his sixty-seventh year ; Dr. Max Sagemehl, in Amsterdam, August 2 ; Professor Hjalmar Holmgren, mathematician, Stockholm ; Ernest Dubruel, founder and publisher of the *Revue des sciences naturelles*, at Montpellier, May 14, in his fifty-sixth year ; Dr. J. Baeyer, president of the Royal Prussian geodetic institute, at Berlin, September 11, in his ninety-first year.

LONDON LETTER.

THE inauguration of the first practical 'telpher line' seems to have passed into history without adequate notice, though it is, in fact, the commencement of a new means of transportation which will probably develop into an important feature of industrial, if not of social, life. It is not intended to compete with railways, but to do cheaply the work of horses and carts, since by its means mineral or agricultural produce of any kind may be conveyed over considerable distances in large quantities at a comparatively small cost, and up and down steep inclines, without the need of constructing a road. The term 'telpher' is a legitimate, or at least convenient, abbreviation of a Greek compound word signifying 'carrying afar,' and a telpher line may be briefly described as an aerial light railway, driven electrically. The system is the invention of the late Prof. Fleeming Jenkin, F.R.S., and it has been severely tested for some months on a large experimental scale. Prof. Jenkin did not live to see the first practical line completed, and the final arrangements were worked out by Prof. Perry, the engineer to the Telpherage company. The line now under consideration is constructed at Glynde, on the Sussex estate of Lord Hampden, late speaker of the house of commons, and conveys clay from a clay-pit to a railway siding. It was opened on October 19. It consists of steel bars, $\frac{3}{4}$ of an inch in diameter and 66 feet long, supported 18 feet above ground on T-shaped posts about one chain apart. Two lines of way, an up and a down line (one

bar sufficing for each), are supported 8 feet apart on the cross-head of the T, the general appearance of the whole being not unlike gigantic telegraph posts and wires. The carriers, or 'skips' as they are technically termed, are iron trough-shaped buckets, each holding about 2 cwt., and suspended from the line by a light iron frame, at the upper end of which is a pair of grooved wheels, running along the line of rods. A train is made up of ten of these, the electric motor being in the centre. An automatic block system is provided, so that as many as twenty trains can be run on the line at once without possibility of collision. Moreover, an electric governor has been devised, so that the trains run at the same speed both on rising and falling gradients, even when the incline is 1 in 8. The initial source of power is a Ruston & Proctor engine, controlled by a Williams electric governor ; this drives a Crompton 6 'unit' shunt-wound dynamo. The maximum difference of potential is 190 volts, and the current for one train is 8 ampères. The Reckenzann motors run in parallel arc, and the resistance of each is large compared with that of the rods used to support the train and convey the current. The uniform speed is about four miles per hour, and it is claimed that material can be conveyed at a cost varying from 4 to 15 cents per ton per mile. A friend of the present writer has proposed to the Telpherage company to lay down a line in Trinidad, to bring material to the coast, the conveyance of which on muleback at present costs nearly \$2 per ton.

The death of Dr. Thomas Davidson will be severely felt at Brighton, where he had resided for some years past, as he was accustomed to devote a considerable amount of time and trouble to the arrangement of the geological and zoölogical collections in the town museum.

The beginning of the academical year at Oxford has been signalized by the opening of the new physiological laboratories, at the back of the university museum. The anti-vivisectionist party, in convocation, headed by some prominent resident members of the university, have made two determined attempts to prevent Professor Burdon Sanderson from teaching physiology as it should be taught ; but, fortunately for science, their efforts have been unsuccessful, and another great step has been made towards improving the medical school of the university.

On Nov. 9 the International inventions exhibition will be closed. The attendance up to the present time has been nearly 3,750,000 persons, and at present cheap excursion trains are being run from all parts of the British islands. The nightly simultaneous illumination of 10,000 glow electric lamps, and the marvellous chromatic dis-