an aurora, which was widely observed, and also with earth currents affecting the telegraphic wires. From the appearance of the traces one is inclined to associate the aurora and earth currents with the oscillations of declination rather than with those of the other elements.

On February 11, a little after 6 p.m., another disturbance took place, which continued more or less for thirty hours. As in the previous case the oscillations of the declination were most marked, but these were not so excessive as for the previous disturbance. An aurora was visible at 8 50 p.m. of February 11, and one was said also to have been observed on February 12.

The following is the record of sun-spots derived from the pictures taken :—

February	5 ...	4 small groups	2 large ones
,,	6 ...	5 ,,	1 rather large, 1 very large
,,	8 ...	5 ,,	2 large, 1 very large
,,	10 ...	3 ,,	4 large, 1 very large
,,	11 ...	4 ,,	2 very large
,,	15 ...	5 ,,	1 large, 2 very large
,,	20 ...	7 ,,	1 large
,,	21 ...	5 ,,	1 large
,,	22 ...	5 ,,	
,,	24 ...	4 ,,	
,,	25 ...	3 ,,	
,,	26 ...	4 ,,	

THE EXISTENCE OF MAN IN THE TERTIARY EPOCH

IN the *Bibliothèque Universelle et Revue Suisse* for the 15th February, M. Favre, in an article on the above subject, remarks that for some years the discovery of traces left by man of the pre-historic age on the earth have multiplied with a rapidity only explicable on the supposition that the population inhabiting a certain region of the globe was formerly abundant, and that numerous observers have recently applied themselves to the subject with extraordinary energy and zeal. He takes up the question whether the age of stone does or does not extend back to the tertiary period, and he thinks it will prove interesting to give a *résumé* of the various observations tending to show that man inhabited the earth at an epoch anterior to the great extension of the glaciers southwards, and during the tertiary epoch. On *à priori* grounds no substantial reasons can be advanced against the existence of man at the latter period. The temperate zone was then somewhat warmer than at present, and the temperature of Greeenland and Spitzbergen sufficiently agreeable to be adapted to the development of terrestrial mammals. But it is difficult to represent the duration of the period that elapsed between the end of the tertiary deposits and the termination of the glacial epoch. The portion of the quaternary period characterised by the enormous extension of the glaciers was very protracted, and many ages must have elapsed before the glaciers of the Alps were so large as to be able to transport erratic boulders to the height of 1352 metres on the Jura (near Soleure), and the glacier of the Rhone approximated the Rhine, or perhaps even reached it by passing across the cantons of Valais, of Vaud, of Freibourg, of Berne, of Soleure, and of Aargau. The form of the earth's surface must have presented to the eye of such old world inhabitants a very different aspect from that exhibited at present, and if they already existed in the middle tertiary period, they would have been contemporary with the upheaval of the Alps, and with an almost entirely distinct flora and fauna. Under these circumstances man would have to be included amongst the creatures who have survived two geological periods. M. Favre then proceeds to review the evidence that has at present been collected, embracing the following points :—First, the observations of M. Desnoyers in 1863 made at Saint-Prest near Chartres, but previously (1848) known to M. Boisvillette, and (1860) to MM. Langel and Lartel. Here, in a pliocene formation, were found the bones of the *Elephas meridionalis*, *Hippopotamus major*, *Equus arnensis*, *Cervus carnulorum*, and two other species of *Cervus*, *Bos*, *Trojonotherium Cuvieri* (a kind of large beaver), striated in such a manner as to convince M. Desnoyers that the markings were the effects of the handiwork of man. This conclusion has, however, been contested by Sir C. Lyell; but in 1867 arrow or lance-head flint instruments were found in this spot by M. l'Abbé Bourgeois, one of which appeared to have been subjected to the action of fire, though this might have resulted from exposure to forests burning by the action of lightning. Soon afterwards M. Delaunay discovered markings of an analogous nature to the former, on the bone of a Halitherium at Pouancé (Maine et Loire) in a miocene formation containing the bones of Dinotherium. About the same time M. Bourgeois found similar flints in a still older formation (the calcareous strata of Beauce) at Thênay, and at Billy near Selles-sur-Cher. Some differences of opinion exist as to whether these flints are really worked by the hand of man; but the majority of those who have seen them, and are competent to judge, is decidedly in favour of that view. Nevertheless, M. Fraas observes that he has himself seen a lamina of silex become detached from a mass by the action of the sun's rays alone in Egypt; Livingstone and Dr. Wetzstein seem to have observed similar phenomena; and a point that now demands intelligent observation is the greater or less similarity such fragments detached by natural causes bear to the flint instruments or the masses from which they have been detached. He refers also to two fragments of the jaw of a *Rhinoceros pleuroceros* found in the lacustrian chalk of Limaque, and which appear to have been grooved by man, which, however, he admits to be doubtful; and to the observations of Whitney in California, which tend to show the existence of man anterior to the glacial epoch and to the period of the mastodon and elephant, at an epoch since which vertical erosion of the surface has taken place to the extent of two or three thousand feet of hard and crystallisable rocks. Finally he refers to the observations of M. Issel in Piedmont.

MODIFICATIONS IN THE CONSTRUCTIONS OF THE NEST OF THE SWALLOW

IN the tenth number of the *Comptes Rendus* for the present year, is a paper by M. Pouchet, on the Modifications of the Nests constructed by the common Swallow, (*Hirundo urbica* Linnæus,) in which he remarks that it is evident the mode of life of certain animals, far from being persistent and invariable, undergoes modifications under different terrestrial conditions, and that, in many instances, their habits are different from what they were in former ages. Spallanzani indeed remarks in one of his remarkable memoirs on the swallows, that the shape and structure of the nests of birds are interesting features in their history, and that each species constructs its habitation on a plan peculiar to itself, which never changes, and is continued from one generation to another. And this opinion is shared by many naturalists; observations, however, when sufficiently close and attentively made, show that it is erroneous. We do not indeed see any modifications of those of their habits which are associated with their biology, so that the arboreal species seek to form for themselves a subterranean nest, or rear their young ones in dwellings adherent to the coigns of our houses, but it nevertheless is ascertained that in a succession of years, each learns to improve the construction of his residence. Certain birds work up only the products of our own handiwork, and would necessarily employ natural substances if these were deficient. Thus, as may be seen in the museum of Rouen, the Loriot of Europe sometimes forms its nest with thread ends under the