

NATURAL PHILOSOPHY.

From a late American paper.
ON THE COLD OF THE PRESENT SEASON.

FEW phenomena have occurred more difficult to be explained, than the long period of cold weather, which the habitable world experienced during the past year. Several writers in the public papers suppose that the season is out of the ordinary course of things; because say they, the climate of Europe, and consequently the American climate, has grown warmer than it formerly was on account of the woods being cleared away; the morasses dried up; and the sun acting with more power.

So far as the climate is affected by the heat of the sun, these writers may be correct. But it is well known that the sun is only one of the three causes which act upon the temperature of the atmosphere; the other two upon which the heat of climate depends are.

- 1st. The internal heat of the earth.
- 2d. The circulation of electrical fluid through the atmosphere, and over the surface of the earth.

With respect to the 1st, we know of no greater agent in affecting the general temperature of the air than the internal heat of the earth itself. Were the sun annihilated, this heat will remain. That this heat is derived from a very different source than the sun, is a fact, which innumerable experiments made in various parts of the world have long established. It has been positively asserted, as can be proved by the *Journal de Physique* of Delumetherie and other authors on the natural history of the earth, that a certain depth below the surface the heat at the same place is nearly stationary during the course of the year; but in a series of years the heat has been found to decrease.

2d. The internal heat of the earth, in the same latitude, is found to be greater in the eastern hemisphere than in the western.

3d. The internal heat of all latitudes higher than 20 of north latitude, is more than the internal heat of all corresponding latitudes south of 20 degrees South latitude.

4th. It is calculated, that upon an average over the globe, this internal heat has diminished 5 deg. of Fahrenheit in the last 1000 years.

5th. At a greater depth than those strata of the earth of which the temperature is uniform during the year, the internal heat not only increases, but is found to be much more variable; so that this point below the surface of the earth, where the heat is stationary for a period of a twelve-month, may be regarded as the point where the power of the sun ceases to operate. According to a gradual diminution of the internal heat of the globe, a theory which seems to be founded upon experiment, it follows that there was a period, when the polar zones were equally habitable as the temperate zones of the present day.

There are a number of historical facts which appear to confirm the same theory.

1st. East Greenland, or as it is now termed, lost Greenland, which several centuries ago was the residence of many hundred Russian families, is no longer accessible, and it is more than probable that this country which was once the abode of the human species now lies buried in snow and serves as the basis of immense mountains of ice.

2d. The history of the antiquities of Iceland, proves that the population of this island, must have been at one period at least four times its present population.

3d. The *AMANTATES ACADEMICÆ*, a work upon the natural history of Sweden printed by a society of which Linnæus was at the head, demonstrates in the most satisfactory manner, that the climate of Sweden in ancient times, was much milder than at present. In a memoir, published by the academy of arts at Stockholm, on Swedish fossils, it is asserted that in the neighbourhood of Upsal, the skeletons of several animals of the torrid zone have been discovered.

4th. In the Royal Museum at Copenhagen, there are innumerable evidences preserved, of the great antiquity and population in former times of the northern countries of Europe.

With respect to Italy, the climate of which is said by some writers to be warmer now than formerly; there are several arguments which may be advanced to the con-

trary. The falling of snow is a phenomenon, which has taken place even at Rome many times in the last century. The Lake of Como, at the southern extremity of which Pliny had his residence, appears never to have been frozen in the life time of that writer. Scarcely a year now passes without part of the Lake freezing. Pliniana, the very spot where Pliny used to retire in the months of summer and autumn; at present the seat of a Milanese nobleman, is situated at the foot of immense rocks and mountains, which for three months in the year are covered with snow.

The inhabitants of all the Alpine regions in Switzerland, Savoy, the Grisons, the north of Italy and Spain agree that from the annual increase of the Glaciers, the fields capable of cultivation are diminished, that the winters are lengthened, and the summers shortened.

But the long period of cold weather which we have experienced during the present summer, appears to us, to have been caused more by the absence of the usual circulation of the electrical fluid, than either a deficiency in the heat of the sun, or of that which we receive from the internal heat of the earth.

In a paper of great merit published by Doctor Stukely, upon earthquakes, in the philosophical transactions of London, between the years 1760 and 1770, for we have not the volumes by us; it is shown that, wherever the electrical fluid circulates, heat is produced. That whenever there is an equilibrium of the fluid for any length of time between the surface of the earth, and the atmosphere the temperature of the air is much lower than in its usual state.

That the circulation of the electrical fluid, is uniformly productive of thunder and lightning; and that the absence of these natural phenomena, is a certain indication of an equal distribution of electricity over the surface of the earth and in the atmosphere; as also of cold weather. Earthquakes according to the Doctor's theory, take place after the electrical fluid is very unequally diffused, and when by some causes the equilibrium is destroyed: so that an earthquake may be compared to an electrical shock of great magnitude. Earthquakes which have extended their influence over an immense part of the globe, he says, have been always preceded by a long tract of warm weather and followed by a period of cold weather.— Thus in the season of the great earthquake in London, all vegetables were uncommonly forward; but the succeeding season was later and colder, than any which had been known for many years.

The same hypothesis was advanced by signior Beccaria, but independently and without knowing any thing of Dr. Stukely's theory. Dr. Priestly likewise seems to incline to the same opinion.

With respect to the cold of the present year, and how far this theory of Doctor Stukely can reasonably be employed to account for it, it is to be recollected that, the 3 preceding years have been remarkable for earthquakes in various parts of the globe, more universal and terrible in their effects, than any which have been recorded for several centuries. More have taken place for the last nine months; and there has been also an entire absence, with the exception of a few trifling thunder showers, of the usual phenomena of thunder and lightning so frequent during the months of summer and autumn.— Although we have had several severe hail storms, yet we have not had any thunder storms meriting that appellation; vegetation is also extremely backward. In short, all these phenomena which result from the circulation of the electrical fluid appear to be dormant. The beautiful appearance which those small meteors, called shooting stars, displayed in a serene sky, we do not recollect to have witnessed this season. All nature seems to declare that electricity, the great agent of heat, when in a state of motion, is equally diffused at present through her system; and that no part either possesses a superfluity, or labours from a deficiency of that extraordinary and mysterious fluid. The earthquakes of the last years have produced this remarkable equilibrium; and we may calculate that several summers will yet pass away, before this equilibrium is destroyed and the usual quantum of heat necessary for vegetation will again be generated.

Delumetherie in his theory of the earth, (vol. 3. page 391) demonstrates in the most rigid manner, that the effects of the sun

upon the earth, only differ in different places according to the latitude; and that all places under the same parallel of latitude must be equally heated. The heat of the sun however varies in the course of the year under the same latitude from the following causes: 1st.—The sun's latitude above the horizon, 2d.—The intensity of rays, which varies with his latitude, on account of the extent of atmosphere thro' which they have to pass, 3d.—His distance from the earth, 4th.—The period of time which the sun remains above the horizon.

The striking variations of temperature in different places under the same latitude on the continent is a sufficient proof that there are other causes for heat than the sun. Lexington in Kentucky is nearly in the same parallel with the city of Richmond. Virginia is not only an old country and well cleared of woods when compared to Kentucky, but lies upon the ocean, all of which causes ought to operate in making Richmond warmer than Lexington; whereas the reverse is known to be the case, and that the mean height of the thermometer taken throughout the year, is several degrees more at Lexington than at Richmond. There is another great cause from which we ought to have inferred, that the temperature of the atmosphere is greater in Richmond than in Lexington; viz. the difference of the situation of the two places above the surface of the sea.

The city of Richmond is built adjacent to tide water; whereas according to a calculation made by Mr. Molney, the town of Lexington is elevated at least twelve hundred feet above the sea.

LONDON, Nov. 14.

Manchester Meeting.

On Monday the 28th Oct. 1816, a General Meeting of the inhabitants of Manchester took place on a large piece of ground, near St. Peter's Church; Mr. Knight, in the Chair.

He opened the business in an animated speech, and a number of Resolutions were unanimously carried, tending to shew the distressed state of Manchester, and of the country in general.

The several speakers recommended the most rigid economy and retrenchment in these times of necessity, and condemned the folly of keeping a large standing army merely for the purpose of maintaining a foreign monarch on his throne; and stating the absolute necessity of abolishing useless places and pensions.

The Prince Regent was recommended in the strongest terms to discharge his present Ministers, who were unworthy the confidence either of him or his people; and that instead of being rewarded with large salaries and pensions, they ought to be brought to an account of their past proceedings.

His Royal Highness was also told, that nothing could save this country but a reform in parliament, an extension of an elective franchise, so that every householder should be in parliament by his representative—and that all elections should be annual—that the future safety, prosperity and happiness of this country demanded it.

That they saw with the deepest regret, the industry of the people swallowed up by taxation for the support of placemen in luxury and extravagance, while weavers of Manchester and its neighbourhood were starving. Thus, the following Members of the Cabinet alone receive £124,000 per annum: Earl of Liverpool, £13,100.—Lord Eldon, £18,000.—Earl of Westmoreland, £3,000.—Earl of Harrowby, £4,000. Viscount Sidmouth, £7,500.—Viscount Castlereagh, 7,500. Earl Bathurst £30,000 Mr. Vansittart, £7,500.—Viscount Melville, £10,909.—Mr. Canning £4,000. Right Hon. Charles Bathurst, £4,850.—Earl of Mulgrave, £8,160.—Master of the Mint, £10,850; and that this, enormous as it appeared, was but a mere drop in the overwhelming vortex of Corruption.—Upwards of 40,000 persons were assembled, who dispersed in the most orderly manner as soon as the Meeting was concluded.

The Duke of Wellington has purchased of his brother, the Marquis Wellesley, his elegant residence, Apsley House, Hyde Park Corner, for which he paid him £40,000.

General Sir George Beckwith, G. C. B. having been appointed to the Chief command of the forces in Ireland, has left this country for the sister kingdom.

The London Gazette announces that the

Prince Regent has permitted the 6th regt. of foot, to bear in its colours and appointments the word "Niagara," the 7th foot "Martinique," and "Albuera," and the 8th foot "Martinique;" and commanded that the 9th, 12th, 16th, and 23d Light Dragoons, shall be armed and equipped as Lancers.

LONDON, Oct. 14.

The Emperor of Austria saw his intended bride, for the first time, in 1814, upon his return from his successful campaign in France.

The gallant Lord EXMOUTH is a native of Dover. His Lordship's father, Capt. PELLEW, formerly commanded one of the Post-Office Packets on that station.

Among the presents offered by the city of Amsterdam to the Princess Royal of the Low countries is a lace gown, valued at 225,000 fr.

The Hon. Charles Noel, of Barham Court, in Kent, was lately convicted, on the information of the Earl of Romney, of the singular offence of having admitted persons in the neighbourhood, to the number of more than twenty, to attend Divine service in his house with his family and domestics. The Act of Parliament for this offence is imperative, and Mr. Noel, immediately paid the penalty, one half of which, after discharging the expences of the prosecution, goes to the poor of the parish, and the other moiety to the informer.

The Newspapers of Rome give the following account of a shocking murder perpetrated in that city, which excites much surprise and horror:—"the assassin has confessed his crime: his name is Thomas Borzoni, an ecclesiastic, condemned to exile for a robbery, and finding himself in misery, he conceived the idea of assassinating a Priest, named Dominique Valdambri, his maid servant, and a young man who lived in the same house, and taking all the money which he was in hopes of finding. The assassin had been treated with the greatest kindness and liberality by the ecclesiastic. One evening he went to his house armed with a poinard, told him that he was condemned to exile, that he was pursued by the Police Officers, and solicited of him an asylum for the night, promising to quit Rome the next morning. The good old man granted his request. In the night the assassin rose with the intention of committing the crime, but the feelings of humanity and friendship got the better of him, and he renounced his plan, and returned to bed. Next morning, after having