SUBTERRANEAN HEAT.

The following are the temperatures of the ground in the Foreman shaft, from the surface to the depth of 2100 feet, as ascertained by drilling holes not less than three feet deep into the rock, and inserting a Negretti & Zambra slow acting thermometer (of the pattern adopted by the Under ground Temperature Committee of the British Association, and standardized at Kent,) into the hole with clay and leaving the thermometer for twelve hours—not less than three holes being tried at each point:

Depth.		Temperature.	
100	feet	50½	degrees.
200	"	55	"
300	"	62	"
400	"	60	"
500	"	68	"
600	"	71½	"
700	"	74¾	"
800	"	76½	"
900	"	78	"
1,000	"	81½	"
1,100	"	84	"
1,200	"	89¼	"
1,300	"	91½	"
1,400	"	96½	"
1,500	"	101	"
1,600	"	103	"
1,700	"	104½	"
1,800	"	105½	"
1,900	"	106	"
2,000	"	111	"
2,100	"	119½	"

It will be seen by the above that, although there is on the whole a steady increase of temperature as depth is attained, the increase of temperature is not regular. For instance, the rock at the 400 level is two degrees cooler than at the 300 level, between the 400 and 500 level there is a difference of eight degrees, while in other places an additional depth of 100 feet shows but a slight increase in the temperature. Thus at the 1800 level the temperature is 105½ degrees, while at the 1900 it is but 106 degrees, an increase of but one half a degree. This difference is undoubtedly owing to the character of the rock at the points where the holes were made; therefore it would be of great interest to have in connection with the temperature, a description of the rock, not only one kind of rock, but also the nature of the same, whether carrying much lime, gypsum or iron pyrites. It would probably be shown that where there was much lime there would be an increase of heat not warranted by the increased depth, and the reverse where lime was absent.—*Virginia City* (Nev.) *Enterprise.*

A WARM SPOT IN THE SNOW.

While Mr. William L. Reid, of Craig's Creek, Va., was hunting on the mountain in his neighborhood recently, and a heavy snow lay on the ground, he came across a spot about ten or fifteen feet square, from which the snow had melted, and, laying his gun on the ground to give himself a rest, he found that in a few minutes some ice that had frozen hard upon it also melted. Upon examination he found that a slight current of warm air was rising from the ground, and that the ground also was warm. He also noticed that the limbs of the trees overhanging this spot was filled with icicles instead of snow, caused by the warm atmosphere melting the snow in the day, probably, and freezing at night. Some days after this discovery Mr. Reid again visited the spot, after another heavy snow had fallen, and found the same condition of things existing. He also noticed that the trees surrounding the spot had been blazed, from their appearance, many years ago as if to identify the place.—*Fincastle Herald.*

WIND AS A MOTOR.

Wind will, probably, always be employed more or less extensively as a motor. Its universality, the fact that no expense is involved in producing it and the simplicity of the machinery necessary to make it available are peculiarities which have a tendency to make it a popular source of mechanical power. On the ocean, it can scarcely be superseded by steam, in all those cases where quick passages are not required, and long distances have to be traversed. On the land, it will continue to be employed where work is to be performed which requires but little personal oversight, such as the pumping of water into reservoirs, and, in a great variety of cases, where the least possible cost of production is of more moment than the quantity manufactured.

It is true that much study is being given, just now, to the devising of appliances by which agents, which have, as yet, been of no practical value in the propulsion of machinery, may be utilized. Heat, electricity, gas formed by the combination of gases liberated from water and naphtha and compressed air are all being experimented with in this connection, in the hope that the future is to develop machines which may replace the steam engine in their power and adaptability. It may, however, be an open question whether inventive genius might not be advantageously employed in efforts to construct such a combination of the mechanical forces as would render the agency of wind a more important element in the mechanical industries than has been the case hitherto. It appears to have been accepted by many as conclusive that there is but little, if any, further progress to be made in putting to practical account this power which Nature has furnished at our hand, but when we consider the great advance which has been made between the ungainly windmills of three centuries ago, which performed their work in the most awkward manner and whose products were of the most primitive description, and those which now are constructed upon scientific principles, and when we recall the unwieldy and misshapen hulks of the primitive navigators which only spread one triangularly shaped sail to catch the wind, when it blew in the same direction in which they wished to advance, and compare them to the clipper ships of our time, we see how much has already been accomplished in making the wind subservient to our interests, and, at the same time, it furnishes an incentive to make it still further conduce to our welfare. Some attention appears, however, to be given to this matter, and we notice that M. L. Purpur, of Paris, has recently invented what he calls the "Tourbillon" Wind-Motor. This is a device by which the necessity of setting the machine according to the direction of the wind is avoided, but by an ingenious arrangement of screens the wind is directed from whatever quarter it blows and at the same time increases its intensity, so that, while other mills in a gentle breeze are useless, those which are provided with this contrivance are equal to work of two or three horse-power. When the irregularity of the wind by this or any other invention has been reduced to its minimum, one of the most serious objections to its use will have been overcome. Whatever the developments of the future with regard to the use of the other forces, we have no doubt that wind will continue to become more and more serviceable to man as a motor.—*Industrial World.*

—"People who have nothing else to talk about, talk of the weather," is a very common saying. But it is just such people who know least about it. That individual who talks so freely and loudy about the folly of "weather predictions" probably cannot tell you which way the wind is blowing; and less likely the freezing point of water—certainly not that of Mercury or Spirit.

The Level of Lake Ontario.

Says the Oswego *Palladium*:—"Some time ago there was printed a tabulated statement designed to show that the water in Lake Ontario is undergoing a gradual and permanent fall, whereby Toronto harbour is being damaged so that larger expenditures will be necessary to extend the docks into deeper water. One of the causes assigned was the deepening of the channel of St. Lawrence River at the Galops Rapids. Major McFarland, of the United States Engineers, Oswego, became greatly interested in the subject, and undertook an investigation, upon which reports of an exhaustive character have been made by Major McFarland and Lieutenant-Colonel C. B Comstock. The latter, in his report, states the character, extent and effect of the work by the Canadian Government at Galops Rapids. Forwarding his report to the Chief Engineer with his conclusions, Major McFarland says that the tracing accompanying it shows that the lake was as low in 1846 and 1848, thirty years before the Galops improvements were begun, as it was last year, and it is necessary to look somewhere else for an explanation of the phenomenon than to the rapids. The report shows that the channel making through the Galops Rapids is to be 200 feet wide, with a depth of 16 feet on the upper bar and 17 feet on the lower bar. The hydraulic mean depth of this part of the channel north of Galops Island is 10 feet. The mean slope of the river is that assumed by General Comstock—.00002, but at the Galops Rapids it increases to .00185. The reduction of level of the water surface due to these dimensions is but 4½ inches at the lower bar, while at the upper bar it becomes imperceptible, and the improvement cannot possibly affect the level either of the Upper St. Lawrence or Lake Ontario."

Red Snow.

At a meeting of the Microscopical Society, held Monday evening, Dr. Harkness presented a bottle of "red snow," which he gathered last June on the Wasatch Mountains. The red snow was found on the north side of a spur which rose about 10,000 feet above the sea level. When fresh, the snow had the appearance of being drenched with blood, as though some large animal had been killed. The red snow is caused by the presence of a one-celled plant called *protoccus nivalis*, which reproduces itself by subdivision—that is, the cell divides itself into several new cells. This is done with great rapidity, and a few cells lodged in the snow, under favorable conditions, soon will give it the appearance called red snow. It was remarked that the phenomenon of red snow had been observed from the earliest time, as Aristotle had a passage which is thought to refer to it. The subject was, however, lost sight of until brought up by the investigation of Saussure, who found it on the Alps in 1760. He made chemical tests which showed him that the red colour was due to the presence of vegetable matter, which he supposed might be the pollen of some plant. In 1819 an Arctic expedition under Captain Ross, brought some specimens from the cliffs around Baffin's Bay, and they were examined by eminent botanists, some of which mistook the nature of the plant, and there were long discussions as to its proper classification, some holding it to be a fungus, some a lichen, but it was finally set at rest as one of the unicellular algæ. It is of interest also that some of the early examiners pronounced the colour due to animalcules, but this was disproved.—*San Francisco paper.*

A sixth of France (including Corsica) is under wood, but, notwithstanding this, an immense amount of timber is annually imported into the country. In 1824 the Nancy School of Forestry was instituted, and a new code of forest laws was adopted in 1827. The fact has of late years been recognized that the floods which have proved so terribly destructive in France have been largely due to the absence of trees on the mountain sides. A forest acts both mechanically and hydrographically; in the former case by preventing any large body of water from collecting, and as a sort of permanent floodgate; in the latter by the trees absorbing a vast deal of moisture.