Ice-Making in India.

From Chambers' Journal.

Let me allude to an industry peculiar to the cold weather, which, except in small stations distant from the rail, is fast dying out, and that is the manufacture of ice. When I came out in 1853 Calcutta, Madras, and Bombay were wholly dependent on American ice, supplied by the Tudor Ice Company, and retailed at two annas a *ser*, that is two pounds of ice brought from America was sold in India for 3*d*.! The *mofussil* (up country) was entirely dependent on artifical ice, which could only be made where the cold weather was really felt; in all other parts we were obliged to cool our drinks with saltpetre and sal ammoniac, or, during the hot winds by placing the bottles before the khus-khus tatties, or swinging them in a basket covered with wet straw. By these appliances we could cool our drinks down to 65° Fahr.; or by carrying on the cooling with fresh supplies of salts, we could even freeze water. But the process was tedious and expensive. Science came to our aid, and sulpheric ether and ammoniac machines came gradually into vogue, and latterly Carrés wonderful pneumatic machine, which I have seen produce ice in two minutes in a temperature of 65°. With their great appliances, block-ice is now available in districts where it could not formerly be had at from one and one-half to two annas per *ser*. To return to the old process—it depended entirely on the production of cold by evaporation, as also on sufficient cold weather and presence of the dry west wind; the east wind being absolutely fatal to the production of ice. The essentials for the process are: 1. Exposed and treeless ice-fields, which are partitioned off into four or five feet squares, in which two or three inches of straw are laid down. 2. Myriads of flat, porous earther saucers, six or eight inches in diameter. 3. An unlimited supply of water. 4. An army of coolies, and water-carriers. 5. The ice-pit. This, the most important adjunct in the process, is very carefully constructed; a great pit is dug, and in it rests a huge timber cone, the space between it and the sides of the pit being rammed with charcoal, chaff, or straw as non-conductors of heat. the cone itself is lined thickly with coarse felt or blankets and then a layer of matting; over all a straw hut, with very thick roof and walls and a very small entrance, is constructed. Now for the process. Whenever the outside thermometer reads 42°, then ice can be manufactured by evaporation. Half an inch of water is poured, over night, into saucers by *bhersties* (water-carriers); then at 2 A.M. a great drum is beaten at the pit to summon the coolies, who assemble in hundreds, each armed with a scoop, with which the ice is skillfully turned out of the saucer into an attendant vessel, and well rammed into it. When full it is taken to the pit, emptied there, and again rammed down. Thus all the ice has a chance of consolidating by regelation, and in good season thousands of pounds' weight of ice may be stored, according to pit-room available.

The Mental Effect of Earthquakes.

The outbreak of new earthquakes, first at Agram, then in Ischia, and now in Chios, the last the most destructive of all, and costing thousands of lives, within a few weeks of each other, seems to show that a period of earthquake-shock may have begun which may affect, to an extent by no means inconsiderable, the history and life of our century. No one can doubt that the earthquakes and volcanic eruptions which visited the same general region, but more especially Asia Minor and Italy, during the first and second centuries of our era, produced great effects, not only on the minds and characters of that generation, but even on the distribution of population, nor hat the earthquake at Lisbon, in the last century, produced almost as great a shock on the thoughts of men as it produced physically on the immense region over which its effects were felt, a region which included almost all Europe, part of Africa, and part of the American continent. A spell of earthquake of any violence and duration, which should extend over such a field as that, would, in a time like our own, when every influence is intensified by the simultaneous transmission of the impressions it produces to all parts of the globe, produce the most powerful effects, not simply on the countries which might suffer from it, but on all the world. No physical phenomena, however dreadful, seem to produce the same sense of paralysis as earthquakes. A correspondent of Captain Basil Hall, who was in the earthquake at Copiapo, in 1822, describes the effect on the mind as something which begins before any other sign of the earthquake has manifested itself at all,—an anticipatory horror, which is even more marked in the case of lower animals. "Before we hear the sound, or at least are fully conscious of hearing it, we are made sensible, I do not know how, that something uncommon is going to happen; everything seems to change color; our thoughts are chained immovably down, the whole world appears to be in disorder, all nature looks different to what it is wont to do, and we feel quite subdued and overwhelmed by some invisible power, beyond human control or apprehension.' In the Neapolitan earthquake of 1805, these anticipatory signs were most remarkable in relation to the life of the animal world. An Italian writer, quoted in Mr. Wittich's "Curiosities of Physical Geography," says: I must not omit in this place to mention those prognostics which were derived from animals. They were observed in every place where the shocks were such as to be generally perceptible. Some minutes before they were felt, the oxen and cows began to bellow, the sheep and goats bleated, and rushing in confusion one on the other, tried to break the wicker-work of the folds; the dogs howled terribly, the geese and fowls were alarmed and made much noise; the horses which were fastened in their stalls were greatly agitated, leaped up, and tried to break the halters with which they were attached to the mangers, those which were proceeding on the roads suddenly stopped, and snorted in a very strange way. The cats were frightened, and tried to conceal themselves, or their hair bristled up wildly. Rabbits and moles were seen to leave their holes, birds rose, as if scared, from the places on which they had alighted; and fish left the bottom of the sea and approached the shores, where at some places great numbers of them were taken. Even ants and reptiles abandoned, in clear daylight, their subterranean holes in great disorder, many hours before the shocks were felt. Large flights of locusts were seen creeping through the streets of Naples towards the sea the night before the earthquake. Winged ants took refuge during the darkness in the rooms of the houses. Some dogs a few minutes before the first shock took place awoke their sleeping masters, by barking and pulling them, as if they wished to warn them of the impending danger and several persons were thus enabled to save themselves." What it is, before the sound or shock of earthquake is felt, which warns both animals and human beings of the approach of some dreadful catastrophe threatening the very basis of their existence, no one, of course, can say, since the impression made upon the nervous system is, at least as regards our own species, evidently one of general disturbance, and not one to which experience attaches any explicit significance. It may be, of course, that some very great change in the magnetic conditions of a spot threatened with earthquake, leads to that extreme excitement of mind exhibited by all living creatures previous to the onset of the earthquake. This, however, is pure conjecture. What is interesting is that a certain blank consternation seems always to be the characteristic herald of an earthquake, as well as the characteristic result. That it should be the characteristic result, is, of course, no wonder. The very condition of human life is the solidity of the not very thick earth-crust on which we live, and when the solidity is exchanged for positive fluidity, as it is in the worst earthquakes, it is natural enough that stupefaction should be the result. In one of the Calabrian earthquakes, it was discovered that large pieces of ground had so changed places, that a plantation of mulberry-trees had been carried into the middle of a corn-field and there left, and a field sown with lupines had been carried out into the middle of a vineyard. The Italian lawsuits which resulted from this liquefaction of "real" property may be easily imagined. Still stranger, in the earthquake in Riobamba, in 1797, Alexander von Humbolt found that the whole furniture of one house had been buried beneath the ruins of the next house. "The upper layer of the soil, formed of matter not possessing a great degree of coherency, had moved like water in running streams, and we were compelled to suppose that those streams flowed first downwards, and, at last, rose upwards. The motion in the shocks which were experienced in Jamaica (July 7th, 1692) must have been not less complicated. According to the account of an eye-witness, the whole surface of the ground had assumed the appearance of running water. The sea and land appeared to rush on one another, and to mingle in the wildest confusion. Some persons who, at the beginning of the calamity, had escaped into the streets and to the squares of the town, to avoid the danger of being crushed under the ruins of the falling houses, were so violently tossed from one side to the other, that many of them received severe contusions, and some were maimed. Others were lifted up, hurled through the air, and thrown down at a distance from the place where they were standing. A few who were in town were carried away to the seashore, which was rather distant, and thrown into the sea, by which accident, however, their lives were saved." Such a liquefaction of all that is most solid in our world, seems a grim enough realization of the prayer of the prophet, "Oh that thou wouldest rend the heavens, that thou wouldest come down, that the mountains might flow down at thy presence," for the mountains do really flow down, in earthquakes, but the effect of that flowing is a consternation such as no other phenomenon of physical life, not even the worst darkness of volcanic eruptions, ever produces. The loss of everything stable at the basis of human life, is the collapse of the ordinary foundations even of the spiritual life itself, though if that life has got its roots firmly into the heart, the original foundations may fall away, without impairing the vitality of that which at first had propped itself upon them. Put where this is not the case, nothing tends more to that truest nihilism, which, so far from thinking it worth while to destroy anything, finds both destruction alike childish under the tottering of the very pillars of life, than the phenomena of an earthquake. Amidst the moral shocks which the collapse of the very earth itself produces, only a faith which has profoundly convinced itself that the physical frame of things is a mere scaffolding, by the lines of which the spiritual dwelling of man has been fashioned, remains at all. Positivism itself, with its heirarchy of the sciences, all of them resting on the material life has the substratum of everything, along with the menace to that physical foundation on which it bases its whole system.

It is curious to think what such races as the Teutonic would become under the influence of frequent earthquakes. Their "solidity" of character, as it is called, largely consists of the confidence they feel in the sameness of all nature's ways, and whether it would survive that confidence, and outlive the constancy on which it was nourished, is very doubtful. An English squire, for instance, whose timber and crops had changed places with the timber and estates of his next neighbor, would certainly not be recognizably an English squire much longer. An English merchant whose stock of satins or teas had vanished under the establishment of his rival, would find the world so very much out of joint, that he himself would probably become an unmeaning phenomenon. It is, indeed, clear that even rare periodical attacks of earthquake would render the existence of a great capital impossible, and the character of an agricultural population quite different, and probably much more capricious than before. And not unreasonably so. Spiritual faith, even if it remain, cannot well rule the actions of physical beings in a physical world which has lost all aspects of constancy. Indeed, repeated shocks to the physical basis of things, though they may well test the strength of faith, cannot of course be often repeated on this earth of ours, without transferring all the characteristic operativeness of faith to a world of another kind. Faith is faith in divine constancy, and the constancy which has ceased to govern our bodies must be discoverable in some other region, not that of our bodies, if faith is to be of use. Morally, then, the only use of earthquakes must be to *test* the growth of a spiritual faith in a world and life beyond the reach of earthquakes. Clearly it cannot strengthen or educate such a faith. It can only sift the false faith from the true, and accord to the true its triumph.—*Spectator*.

He who comes up to his own idea of greatness, must always have had a very low standard of it in his mind.—Hazlitt.