into stagnant lead, we should still believe with Lord KELVIN that the earth is only 100 million years old instead of the 2,000 million that geologists now accept. The truth is that the earth is still an enigma. When it ceases to be that it will be time enough to look about in the universe for "impulses" to explain what is still perplexing.

One hundred degrees in the shade, one hundred and forty-one in the sun. But the city where these temporary conditions prevail has more cool lobbies of great stone buildings than any city in the world. Its populous centres are only an hour or so from the Atlantic Ocean and breezy points on bays and the Sound. The hills of Connecticut, New Jersey and Westchester are within commuting distance. Montauk, where some people wore top-coats on Sunday, is little more than three hours away. Three rivers gird Manhattan Island. and great parks are green in every borough. There are millions of Americans, far from hill or broad water, who go through weeks like Sunday and yesterday and content themselves with the thought that "it will be cooler after the middle of September."

## OUR UNKNOWN EARTH.

When he considers such mysteries as the slight variations in the length of the day noted ever since HALLEY'S time. the shifting of the Poles and the great crustal movements, Dr. ARNOLD HEIM, a geologist of international reputation, finds it necessary to go out into the vast universe to account for them. He told his confrères at the International Geological Congress last week that we need a Newton to discover "cosmic impulses" and thus illuminate what is now dark. When we think of the radioactive elements, electrons, cosmic rays, outer nebulae which seem to be rushing away with speeds of over 12,000 miles a second, electric ionspheres in which the earth is encased, all fairly recent additions to our stock of knowledge, it would be idle to dismiss such speculations as something too vague for serious consideration. Grant that new forces remain to be

discovered to account for what is still

mysterious, and we imply that we

know all about the earth. Something

has been found out about the outer

crust to a depth of ten miles—which

is the vertical range from the highest

peak to the bottom of the deepest ocean basin. Miners have not succeeded in

sinking shafts for more than a mile and a half. What lies below the eggshell on which we live is a matter of sheer inference and much guessing. Not even the exact shape and size of the earth have been determined. Vast continental areas have still to be examined by geologists and related to areas that have been surveyed. There is not a decent map extant of any ocean basin, while of ocean bottoms we know next to nothing—so little dredging and sounding has been done for actual samples. Even the topography of the surface on which we live has been established for only a few coun-When an earthquake causes a tries. mass of land to shiver for a minute or two we actually see an earth-changing force at work, but of the origin of the force and the nature of the process we have only theories, which we are compelled to modify from time to time. Volcanoes are not less puzzling. Un-

in the laboratory, we speculate on the probable origin of the granite, basalt and minerals that we see about us, and talk much too confidently of a primeval melting pot which undoubtedly played its part in making the earth what it is, but about which we have no direct knowledge. We juggle years by the million when we speak of geological periods, and give the impression that we are scarcely less certain of mountain-making in the Himalayas than of the way a skyscraper is built. If it were not for the accurate timing of

uraniem's spontaneous disintegration

able as yet to create and control en-

ergy enough to make synthetic rocks