

he said, there were, in the popular apprehension, few animals more symbolical of degradation and horror. Quoting the primeval curse in Genesis, he remarked that no creatures seemed more easily destroyed by man and few less able to defend themselves. Few wounds would be less harmful than a snake's bite were it nothing more than the sudden closing of the teeth. Yet there were not many animals gifted with so many faculties. It can stand up erect, climb as well as any ape, swim like a fish dart forward, and do all but fly in seizing its prey. The destructiveness of snakes to man was illustrated by the fact that 20,000 human lives are yearly lost in India by their poison, and it might safely be said that they are a more deadly enemy to our race than any other beasts of the field. Professor Huxley spoke first of the three classes indigenous to our own climate—the ringed snake, the coronella, and the viper. Of these the viper alone was venomous, which the difference between its structure and that of the harmless British snakes helped to explain. It might be that the reason there were no snakes in Ireland was the multiplicity of its other plagues. Everybody must be struck with the beauty of the harmless snakes, which formed the overwhelming majority—especially the grace with which they wreath their bodies into circles, and their fine eyes. The venomous snakes were not so beautiful. None admired our native viper, with its yellowish scales. To adults its bite was far sadder serious than to the young. Passing to snakes in general, of which there were many hundreds of distinct species the lecturer illustrated in great detail the adaptation of their organization to its manifold work. Very graphic was his description of the manner in which some of the more destructive snakes dart suddenly on their prey, twisting themselves round its body, crushing it into a shapeless and writhing mass, and at last swallowing it whole. He pointed out some very curious arrangements in the anatomical mechanism and jaw-bones illustrative of the statement that the snake cannot properly be said to swallow his prey; he holds on to it rather, gradually working it down his throat in a most leisurely manner, but never letting it go. He would take a sleep for six weeks before giving up his task, and if the morsel were really to big would sometimes die in the effort to get it down. Of course, the snake required a very fully-developed and effective apparatus of salivary glands for this purpose. The poison-bag of the venomous snakes was nothing but a modification of the salivary glands of the harmless species, the structure of both kinds being in almost all respects not only parallel throughout but almost identical. As another instance of the close relationship, it was shown that the sharp channel-needle which conveys the poison of the cobra and its congeners is nothing but the development of the tooth which these murderous reptiles possess in common with innocuous snakes. The fact that the salivary glands was the poison laboratory of the deadly snakes, as well as the known properties of the saliva of dogs or other living creatures affected with rabies, appeared to Professor Huxley to point out the direction in which lay the solution of the difficult problem of the cause of snake-poisoning, and of a possible antidote against it. At present there was no man living who could heal the bite of the cobra, except by cauterisation in very fresh cases.

THE PROBLEM OF SOLAR RADIATION.

One of the most stupendous problems staring the modern physicist in the face, is to explain how it is possible that the solar energy, which reaches us in the form of heat, can pass through millions of miles of that space through which the earth is being driven by its momentum, and in which space a most intense cold prevails.

If the earth had no heat of its own, this solar radiation would be incompetent to heat its surface to such a degree as to make organic life possible. This is proved by the perpetual snow on high mountain tops, which loses so much more by radiation than the valleys and plains, that the interior heat of the earth cannot keep them at a temperature above 32° Fah. It is proved by the low temperature prevailing on the surface of the moon, which, being so much smaller than the earth and possessing little or no atmosphere, has long since lost the heat required for organic life. It is also proved by the fact that the mean temperature of the ground is always a little higher than that of the air, and increases with the depth, and finally, the 200 active volcanoes on the earth's surface, with the numberless hot springs, are the most potent proofs that the earth's interior must be very hot, and loses this heat only very gradually.

That this terrestrial heat is, at the present stage of the earth's existence, utterly incapable of developing organic life, is proved

by the low temperature prevailing at the poles, where the formation of ice is due to the deficiency of solar heat, while on mountain tops it is due to the insufficiency of terrestrial heat.

Still, however, evident and clear is the action of this terrestrial heat, the transmission of the solar heat through millions of miles of a medium so attenuated as to surpass the best vacuum we can produce in our air pumps, is, at the present condition of our knowledge, an apparently insoluble puzzle, and has become more so since the discovery that heat is merely a mode of motion, and, like light, a mere vibration of material molecules. The question is, how can the motion of that interplanetary medium, which is apparently a mere nothingness, evolve through such enormous distances the stupendous energy on our terrestrial surface, which energy is consumed in the raising of water into clouds, and its return as rain and water-power; it is consumed in raising winds and storms, in evolving vegetable and animal life, in short, in performing all the functions pertaining to a live planet. How is this stupendous energy, or latent motion, transmitted through a mere nothing? That is the question.

THOSE DANGEROUS SCIENTISTS.—The *New York Herald* in its usual sardonic style, makes the following remarks in regard to the danger to which science exposes the modern condition of this world in a religious as well as in a secular aspect. We reprint it for the sake of a few well-deserved hits. Says the *Herald*:

"Modern science has its advantages and its disadvantages. It is all very well to tell the sun that he needn't trouble himself to rise any more, because we can light up the world with electricity; but when it comes to the use of the telephone in such a way that the Christian ministry is in danger of abolition, the matter becomes serious. In Lowell, the telephone is attached to a certain pulpit and then carried into the houses of the parishioners, who sit in their easy chairs or puff away at the friendly cigar, while the voice of the preacher resounds through the room. If this thing is carried much further Othello's occupation is gone. Dr. Storrs can be hired to preach to the entire continent. Sitting in his study, he can deliver a discourse to a large bundle of wires connecting with every house this side of the Rocky Mountains, and the rest of the ministers will have to engage in some honest but respectable employment. However, there would be a compensation for even that misfortune, for Dr. Talmage would have no use for the clerical trapeze, and even Dr. Fulton would be compelled to be civil. These two advantages would make the world seem brighter, and we are almost inclined to hope that Mr. Edison may complete his invention."

WHERE THE COLD WAVES COME FROM.—Meteorological observations have now become so extended that evidence is rapidly accumulating to enable us to determine positively the source of the cold arctic waves which sweep across our country during the winter season. The indications are that we owe them to the great area of high barometer in northeastern Siberia, where the pressure sometimes exceeds 31.50 inches, and the temperature falls as low as 76° below zero. The pole of greatest cold is in the neighborhood of Yokutsk, on the Lena, where the average thermometric reading in January of 41° below zero, and where the severest cold exceeds by 10° that experienced by explorers in high arctic regions. This is also the region of the highest barometric pressure known in winter; and from it, doubtless, proceed the waves of intense cold which play so large a part in our winter experiences.

THE EARTH'S DAY INCREASING.—In a recent lecture on "Eclipse Problems," Prof. Charles A. Young of Princeton, said, with reference to the observed increase in the rapidity of the moon's motion, that the discovery led at first to the opinion that the moon's orbit was growing shorter, and that ultimately the moon would come down upon us. More accurate calculation, shows, that there is no danger of so disastrous a result. The moon is not coming nearer, but our day is growing longer, owing to the friction of the tides upon the earth's surface. The tides act like a brake, and slowly diminish the speed of the earth's rotation.

TO SOFTEN PUTTY.—Slake three pounds of stone quicklime in water, then add one pound of pearl-ash, and make the whole about the consistence of paint. Apply it to both sides of the glass, and let it remain for twelve hours, when the putty will be so softened that the glass may be easily taken out of the frame.