that as a force of nature, the wind can be used for many mechanical purposes; and that for many purposes the wind is the cheapest power available. It will drive vessels through the water, and it will drive machinery. The tides of the ocean are a force of nature that for centuries past has been harnessed, like the wind, for the use and benefit of man. Heat, and cold, which is but the absence of heat, are forces of nature with some of the properties of which we are all more or less familiar; and we know that without heat there could be no life. The action of heat upon water produces effects, some of which are also familiar. Some of these are the clouds in the sky and the fog that covers the earth under certain conditions.

When Watt discovered that the vapor or steam generated from boiling water could be made to do service for man, he became a benefactor of the human race. He observed that steam was expansive; and his ingenuity invented an engine that could convert that expansive power into motion that could be made useful to man: and although there is a long distance between the steam engine invented by James Watt and the ponderous machinery that drives a floating palace into the very face of ocean storms, at a speed of twenty-five miles an hour, the expansive power of steam is the secret now as then. The force of nature as developed in the steam engine, like that captured from the wind, has been harnessed down for the use of man. Time was when that other force of nature, electricity, was as wild and unknown as the winds that swept over the chaotic face of the world before it assumed shape. The thunders and lightning that encircled Mount Sinai were believed by the awe-stricken beholders to denote the actual personal presence of the Almighty, threatening vengeance against any who might violate His divine law: but scientists now tell us that the thick darkness that encompassed the Mount was caused by an accumulation of vaporous clouds, and that the thunders that reverberated and echoed from mountain top to valley—the loud artillery of heaven; and the lightning that pierced the clouds and held high carnival there, were but demonstrations of electrical energy that only indicated a peculiar but natural phenomena that any student of philosophy can account for. One understands now that there is more danger in being an electrical conductor in an exposed place during a passing storm than in being struck by lightning for some violation of other than a law of nature.

For many years scientists have explained some of the mysteries of that great force of nature—electricity; but when Franklin brought the subtle fluid from the skies, he demonstrated that electricity could be made the friend and servant of man; and since then the great thinkers of the world have been busy developing methods by which electricity could be thus used. Morse discovered that the incredibility swiftness of the current could be controlled—that it could be arrested and released at pleasure; and that these pulsations could be converted into signs and demonstrations by which the lightning could be made to carry the messages of men. This gave us the electric telegraph. Noah sailing on the ark discovered that the wind, a force of nature, could be utilized for the benefit of man; and Saint Paul, a captive sailing on a ship towards Rome, observed that this force was capable of taking the place of human labor, although his ship was buffeted about for many days; yet neither of these ancient mariners invented the wind. Watt did not invent or discover steam, but he taught the world how to harness and control this valuable force of nature. Franklin nor Morse invented electricity, but they showed how it could be utilized; and since then the world is alive to the fact that electrical science is in its infancy, and its wise men are busy working out the problem of its thousand uses.

Are there other forces of nature that are as undeveloped to-day as was the uses of electricity a thousand years ago? Mr. Keely says yes—or rather that sound is one of these forces; and it is in this field of science that he has been working for many years; a result of his study being the discovery in the high realm of applied acoustics which he calls sympathetic vibration or etheric force. Of course in the earlier of his experimental investigations he met with many baffling failures; but he claims that he has certainly discovered how to utilize this force of nature. One feature of his discovery is the disintegration of water by vibration, this being accomplished by sonorous vibration alone; not by heat, electricity, chemical combustion or any other known force. He maintains that in the operation of his motor he takes only water and the surrounding atmosphere, and by the concussion produced by certain musical sounds, or vibrations, disintegrates these elements. The cohesion previously existing between their particles is destroyed, and they are dissolved into ether, thus setting free a force which he says resides in the infinitesimal spaces that separate the ultimate atoms. Mr. Keely is not alone in the assertion that the forces of nature are due to vibrations propagated like waves of motion of the ultimate particles of matter such as is known to exist in light, heat, sound and electricity. As an instance of the close analogy between some observed phenomena of Mr. Keely's experiments, attention is called to the fact of unisonant tuning-forks responding to each other, when one or the other is vibrated, although they may be a wide distance apart. This is sympathetic vibration; and it is upon this that Mr Keely depends for his force.

Some of the experiments made in developing the power sought by Mr. Keely were exceedingly interesting. The first was in the realm of sympathetic vibration, when he by vibrations alone of a sonorous structure effected the disintegration of water, not decomposing it into its component gases, but separating it molecularly or atomically, which resulted in the evolution of a gas of enormous expansive energy of about 20,000 pounds per square inch. The change from the liquid to the gaseous condition was unaccompanied by any appreciable thermal change.

During the second experiment Mr. Keely caused the rotation of an insulated copper globe by sound waves emanating from an ordinary mouth organ sounded at some distance from the globe, the link of connection being the atmosphere alone, and it was observed that the velocity of the globe was in proportion to the duration and the volume of the particular key-note sounded, with which the globe was in sympathy.

The third experiment was the very antithesis of the first one. During this two cast iron discs were held together by molecular attraction originating in a structure separate and apart from them, but connected to them by a small wire, the force of attraction being very great.

The fourth experiment illustrated the conversion by sympathetic attraction of the vibrations of one structure into rotary