large doses of morphine, and the administration of large doses of castor, which is a powerful anti-spasmodic. About one grain of the sulphate of morphine, was injected, under the skin, once in four hours, and half a drachm of the powdered castor, mixed with syrup, given internally.

The effect was to produce sleep in about half an hour, which lasted about an hour and a half, when the convulsions returned at intervals of an hour to an hour and a half until 9 o'clock on Sunday morning, when the last convulsions occurred, after which he suffered severely from obstinate vomiting until Monday at 10 o'clock, when that also ceased, leaving the patient comparatively easy, but very much prostrated. Since that time he has gradually improved, and now is, to all appearances quite well. In addition to the above treatment, small quantities of chloroform were inhaled at times, and on Sunday morning the patient was wrapped in a woolen blanket wrung out of a warm solution of muriate of ammonia. This was the treatment which checked this fearful malady, and which Dr. Axford, for the sake of humanity, is anxious should be published to the world and thoroughly tested.

The Motions of the Stars.—It will seem utterly incredible that astronomers have learned not merely whether certain stars are receding or approaching, but have actually been enabled to determine respecting this kind of motion what they cannot determine respecting the more obvious thwart motion, viz, the rate at which the motion takes place. This is rendered possible by what is known of the nature of light. If a star is approaching, the light which comes to us from it will have its waves closer together than if the star were at rest, and *vice versa*.

Now, the distance between the wave crests of light signifies a difference of colour, the longer waves producing red and orange light; waves of medium length, yellow and green light; and the shorter waves producing blue, indigo and violet light. So that, if a star were shining with pure red light, it might, by approaching very rapidly, be caused to appear yellow, or even blue or indigo, according to the rate of approach; while if a star were shining with pure indigo light, it might by receding very rapidly be caused to appear green or yellow, or even orange or red.

But stars do not shine with pure-coloured light, but with a mixture of the colours of the rainbow; so that the attempts to estimate a star's rate of approach or recession by its colour would fail, even though we know of the star's real colour, and even though stars moved fast enough to produce colour-changes. The spectroscopist has, however, a much more delicate means of dealing with the matter. The rainbow-tinted streak forming a star's spectrum is crossed by known dark lines; and these serve as veritable milemarks for the spectroscopist. If one of these lines in the spectrum of any star is seen to be shifted toward the red end, the observer knows that the star is receding, and that swiftly; if the shift is toward the violet end, he knows that the star is swiftly approaching.

Now, Dr. Huggins had been able nearly four years ago to apply this method to the case of the bright star Sirius, though his instrumental means were not then sufficient to render him quite certain as to the result. Still he was able to announce with some degree of confidence that Sirius is receding at a rate exceeding twenty miles per second. In order that he might extend the method to other stars, the Royal Society placed at his disposal a fine telescope, fifteen inches in aperture, and especially adapted to gather as much light as possible with that aperture. Suitable spectroscopic appliances were also provided for the delicate work Dr. Huggins was to undertake. It was but last winter that the instrument was ready for work; but already Dr. Huggins has obtained the most wonderful news from the stars with its aid. He finds that many of the stars are travelling far more swiftly than had been supposed. Arcturus, for example, is travelling toward us at a rate of some fifty miles per second, and, as his thwart-motion is fully as great (for this star's distance has been estimated), the actual velocity with which he is speeding through space cannot be less than seventy miles per second. Other stars are moving with corresponding velocities.—*Popular Science Monthly for September.*

Danger from lightning.—The notion that lightning does not penetrate the earth to any considerable depth, was in ancient times a widespread one. It is still prevalent in China and Japan. The Emperors of Japan, according to Kœmpfer, retire during thunderstorms into a grotto, over which a cistern of water has been placed. The water may be designed to extinguish fire produced by the lightning: but more probably it is intended as an additional protection from electrical effects. Water is so excellent a conductor of electricity, that, under certain circumstances, a sheet of water affords almost complete protection to whatever may be below; but this does not prevent fish from being killed by lightning, as Arago has pointed out. In the year 1670, lightning fell on the Lake of Zirkitz, and killed all the fish in it, so that the inhabitants of the neighbourhood were enabled to fill twenty-eight carts with the dead fish found floating on the surface of the lake. That mere depth is no protection is well shown by the fact that those singular vitreous tubes, called fulgurites, which are known to be caused by the action of lightning, often penetrate the ground to a depth of 30 or 40 feet.

Another remarkable opinion of the ancients was the belief that the skins of seals or of snakes afford protection against lightning. The Emperor Augustus, before mentioned, used to wear seal-skin dresses, under the impression that he derived safety from them. Seal-skin tents were also used by the Romans as a refuge for timid persons during severe thunderstorms. In the Covenues, Arago tells us, the shepherds are still in the habit of collecting the cast-off skins of snakes. They twist them round their hats, under the belief that they thereby secure themselves against the effects of lightning. Whether there is any real ground for this belief in the protecting effects due to seal skins and snake-skins, is not known; but there can be no doubt that the material and colour of clothing are not without their importance. When the church of Chateau-les-Montiers was struck by lightning during divine service, two of the officiating priests were severely injured, while a third escaped—who alone wore vestments ornamented with silk. In the same explosion, nine persons were killed, and upwards of eighty injured. But it is noteworthy that several dogs were present in the church, *all of which were killed.* It has also been observed that dark-coloured animals are more liable to be struck (other circumstances being the same) than the light-coloured. Nay, more; dappled and piebald animals have been struck; and it has been noticed that after the stroke the hair on the lighter parts has come off at the slightest touch, while the hair on the darker parts has not been affected at all. It seems probable, therefore, that silk and felt clothing, and thick black cloth, afford a sort of protection though not a very trustworthy one, to those who wear them. The notion has long been prevalent that metallic articles should not be worn during a thunderstorm. There can be no doubt that large metallic masses, on or near the person, attract danger. Arago cities a very noteworthy instance of this. On the 21st of July, 1819, while a thunderstorm was in progress, there were assembled twenty prisoners in the great hall of Biberach gaol. Amongst them stood their chief, who had been condemned to death, and was chained by the waist. A heavy stroke of lightning fell on the prison, and the chief was killed, while his companions escaped. It is not quite so clear that small metallic articles are sources of danger. The fact that, when persons have been in every case affected by the lightning, affords only a presumption on this point, since it does not follow that these metallic articles have actually attracted the lightning stroke. Instances in which a metallic object has escaped, are more to the point, though some will be apt to recognize here a protecting agency rather than the reverse. It is related by Kundmann that a stroke of lightning once struck and *fused* a brass bodkin worn by a young girl to fasten her hair, and that she was not even burnt. A lady (Arago tells us) had a bracelet fused from her wrist without suffering any injury. And we frequently see in the newspapers accounts of similar escapes. If it be conceded that in these instances the metal has attracted the lightning, it will, of course, be abundantly clear that it was preferable to remove from the person all metallic objects, such as watches, chains, bracelets, and rings, when a thunderstorm is in progress.

The Homes of Other Days.—The Anglo-Saxon *ham*, or home, consisted generally of a *heal* or hall, with little rooms, *burs* (afterwards bowers) on the outside, or surrounded by an earthwork or wall, inclosing the house and a yard (*Geard*). The remains of these Saxon homes are often mistaken for early camps. Here the Anglo-Saxon nobleman or Gentleman kept a rude state, according to his means; and a very slight investigation into the manners of our fore-fathers, show how much they needed the polish and refinement of their Norman conquerors. They had strength of mind and body the latter predominating—but both obscured by sloth engendered by habitual drunkenness. There can be no doubt that the Norman Conquest infused into our race the energy which is our national characteristic. It as there is abundant reason to believe—many of the Saxon noblemen were like Athelstane of Coningsburg, depicted by Sir Walter Scott in "Ivanhoe," we cannot wonder at their incurring the ridicule and contempt of the more refined Normans. The English language survived because the unmarried among the conquerors selected wives among the beautiful Saxon maidens, and