SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. XVII.—No. 16. [NEW SERIES.] NEW YORK, OCTOBER 19, 1867. $3 per Annum. [IN ADVANCE.]

OBITUARY.

With great regret we have to announce the death of Elias Howe, Jr., the inventor of the sewing machine. He died on the 3d of October in Brooklyn at the residence of his son-in-law. His personal appearance made him a marked man among those who did not know him by his intrinsic worth. His life is an instance of success under difficulties and a lesson for all who believe in the power of perseverance. He was born in 1819 at Spencer, Mass., the son of a farmer, who also carried on the business of a miller. His youth was spent on the farm, but when still a young man he learned the trade of a machinist. While working at this business in Boston he conceived the idea of a sewing machine. He succeeded in 1845 in producing a working machine, which would cost at least $300, even if manufactured in large quantities. So much opposition was made in this country to his invention that he was compelled to try to find a market in England. He succeeded in disposing of his right for two hundred and fifty pounds, reserving a royalty of three pounds on every machine sold. On his return to this country he found that machines were being made which infringed on his patent and he immediately took means to defend his rights and was driven into litigation to secure his patent from piracy. This occupied years and demanded large sums of money. In the meantime this invention began to pay, and from a few hundreds of dollars a year it rose to at least $175,000 annually. It was not until 1854 that Mr. Howe's claims were acknowledged. Having, ourselves, been employed and consulted by him from the date of his first patent until his final success, we understand thoroughly the painful and arduous labors which in Mr. Howe's case were necessary to his triumph. The merit of his invention and the persistence of his character combined, were the elements of his prosperity. In his death the world has lost a useful mechanic and society a valuable member. We give herewith an engraving of Mr. Howe, which will recall him to the recollection of many.

One trait in Mr. Howe's character should not be unnoticed; his useful patriotism. When the country was in need of soldiers he contributed money largely, and at a public meeting in Bridgeport he enlisted as a private soldier in the 17th Regiment, Conn. Vols., and the writer, then in the office of the Adjutant General, well remembers the stir of surprise among the clerks when Mr. Howe's enlistment papers came in to be filed. He went to the field and performed his duties as an enlisted man. More than this, when the government was pressed for funds to pay its soldiers he advanced the money necessary to pay the regiment of which he was a member.

ELIAS HOWE, JR.

THE BRITISH ASSOCIATION.

REAL IMAGE STEREOSCOPE,

Mr. Maxwell read a paper on a real image stereoscope, with illustrations of solid geometry. In ordinary stereoscopes the observer places his two eyes opposite two lenses, and sees the virtual images of two pictures apparently at the same time. In the real image stereoscope the observer stands about two feet from the instrument, and looks at a frame containing a single large lens. He then sees just in front of the lens, a real and inverted image of each of the two pictures, the union of which forms the appearance of a solid figure in the air between himself and the apparatus.

THE ANEROID BAROMETER.

Dr. Stewart, Superintendent of Kew Observatory, read an interesting paper on the behavior of the aneroid barometer at different pressures. Experiments had lately been made with the view of ascertaining to what extent an aneroid may be considered a reliable instrument when exposed to considerable changes of pressure, such as occur in mountain districts. By means of an air pump the aneroids, when placed in the receiver, might be subjected to any pressure. A method of tapping the aneroids has also been devised, and by this means the experiments as to the deviation of the results given by these instruments were conducted with comparative ease, and with the greatest accuracy. The experiments were still going on.

Sir William Thomson said the aneroid had become so popular an instrument that many had satisfaction in learning that it was capable of giving results with scientific precision. Dr. Stewart had shown that in taking a barometer up a mountain of 12,000 feet the error would only be about 300 feet, and had also shown how to correct this error. By carefully using these instruments, therefore, they had a probability of determining, with much less probability of error, the height of a mountain of 12,000 feet. Among the very important matters which occupied the attention of the British Association, one which might with very great advantage, be followed up, would be the carrying out of experiments on the elasticity of metals, and all solids capable of being experimented upon. He remarked upon the elasticity of metals, and even of rocks, and referred to the time taken by the earth in consolidating—that this had taken place less than a thousand million of years ago. The earth was not, he considered, one-tenth as old as the popular geologists would make it.

MAGNETISM.

Professor Swan read a paper on the phenomena which occur when magnetized steel is dissolved in acids. Dr. Phipson remarked that magnetism, like electricity, distributes itself upon the surface of bodies: and he possessed one or two striking experiments calculated to prove that the amount of surface alone influences the intensity of magnetism in a body.

Sir Wm. Thomson stated that the paper which had just been read contained a very interesting investigation, from the continuation of which they might look for some very important results, but that it was impossible to allow this paper to pass without a protest against the first sentence. Dr. Phipson commenced his paper by saying that it was generally admitted that electricity, like magnetism, generally distributes itself on the surface of bodies, and the only conclusion that could be drawn from this was that it pervades their entire mass. The president did not blame Dr. Phipson for supposing that magnetism resides on the surface, for he had quoted authors of repute. But the truth was that this was just another illustration of the fact that a very large portion of the statements made on natural philosophy were false. In many of the popular books there were statements not merely false in theory, but false as being in direct opposition to facts published many years ago. For example, the question of where magnetism resides was long ago tried, and on examination a false conclusion was arrived at, and which had been proved to be false by a celebrated mathematician. Harlow, long ago, when experimenting on bars of iron, found that the magnetic influence was not discoverable. His experiments were rough, as indeed were all his experiments, and with the rashness which characterized many investigators, he at once stepped to the conclusion that magnetism resides at the surface, and that statement of his had been the fruitful parent of many fallacies.

LUMINOUS METEORS, COMETS, ETC.

Mr. Glaisher, in his report upon luminous meteors, said that the object of the committee was to ascertain more particularly the nature of meteoric flights. Last year there were a vast number of observations. One large meteor was observed at Cardiff, and the luminosity remained visible for about eighteen minutes. One was also seen above Dundee of extraordinary brilliancy, which was ascertained to be about 51 to 57 miles above the earth. A curious detonating fireball was then described. This body was seen in broad daylight in France in the month of June last, and was of a very extraordinary character. Another was seen at Glasgow, which passed nearly over St. Andrews, where it appeared to consist of three parts, each equal to Venus, and it was calculated that this meteor passed at a distance of about 50 miles above the earth. At Aberdeen, a brilliant fire ball was first seen last November, which, it was afterward found was seen also over the whole of Scotland, and as far as Nottingham. A remarkable fire ball, seen near Basle—of which there was a colored diagram on the wall—had been observed in the observatory at Basle and also in Paris.

Professor Alexander Herschel, Glasgow, said that the spectroscope showed a yellow light, but of what this light was composed it was impossible to say. As observers multiplied, however, with telescopes armed with spectroscopes, this difficulty would no doubt be resolved. The connection between comets and meteors had this year been established without doubt, and that connection gave wide scope for speculation as to the origin and character of meteoric bodies. Mr Huggins had made an observation of the light of a comet, and although that observation was not perfect, still it was sufficient to identify the light of the nucleus of the comet with that of the meteoric bodies. There were two theories as to these meteors. Leverrier had shown that their orbit extended from that of Uranus to that of the earth, while an Italian astronomer believed that they came from the utmost fields of space. Fifty-six showers were well established, and it was by the study of these showers that they hoped to continue, and possibly confirm and extend their researches by the assistance of those zealous observers who had hitherto been their supporters and constant assistants.

Professor Herschel said it was too bold to say that every shooting star was a comet. They were more likely the dissipated parts of comets—probably comets torn into shreds by the sun's attraction drawing them into space.

ON THE COLORS OF SOAP BUBBLES.

Sir DAVID BREWSTER.—In repeating the beautiful experiments of Prof. Plateau "On the Equilibrium of a Liquid Mass Without Gravity," the colors of the soap bubble were presented to him upon soap films plane, convex, and concave; but the changes of form which they underwent, and their motions upon the film itself, were so incompatible with the common theory of their formation, that he was led by a few experiments to discover their origin and mode of production. The paper proceeded to give an account of experiments which, Sir David remarked, were sufficient to establish the almost incredible truth, that the colors of the soap bubbles are not produced by different thicknesses of the film itself, but by the secretion from it of a new substance flowing over the film expanding under the influence of gravity and molecular forces into colored groups of various shapes, and returning spontantaneously, when not returned forcibly, into the parent films.

Several inquiries were made as to the nature of the soap used, and whether glycerine might not be added with advantage. Sir David Brewster briefly replied to these questions, stating that the experiments could be made by any person in the course of a few minutes, and that all the phenomena described were emitted with ordinary soap bubbles. A mixture of glycerine made the films last much longer.

Sir Wm. Thomson pointed out that the mechanical questions involved in the seemingly simple operation of blowing soap bubbles were the greatest enigmas to scientific men. The extraordinary expansion and adhesion combined in the