2. Thirteen views in Chester and Cheshire, taken in 1810 for Lysons's "Magna Britannia."
3. A photogram of the Bazaar which stood until recently at the corner of Church-street and Whitechapel.

By Mr. H. Ecroyd Smith.
The plan of a fine hunting villa of the Roman period found some years ago in the neighbourhood of Treves, with numerous coloured drawings of its Mosaic pavements.

By Mr. J. H. Gibson.
1. An elaborately carved oval picture frame of Chinese work.
2. A group in ivory procured at Penang, believed to be the work of the Malays.

By Mr. J. S. Dalton.
A copy of the *Liverpool Chronicle* for May 12—19, 1768.

The following papers were read:—

On the Training, Ceremonial, and Maxims of Chivalry, *by the Rev. W. T. Barry, B.A.;* and On the Scarcity of Home Grown Fruits in Great Britain, with remedial Suggestions,* *by C. Roach Smith, F.S.A., &c.*

14*th May*, 1863. MISCELLANEOUS MEETING.

Joseph Mayer, Esq., F.S.A., V.P., in the Chair.

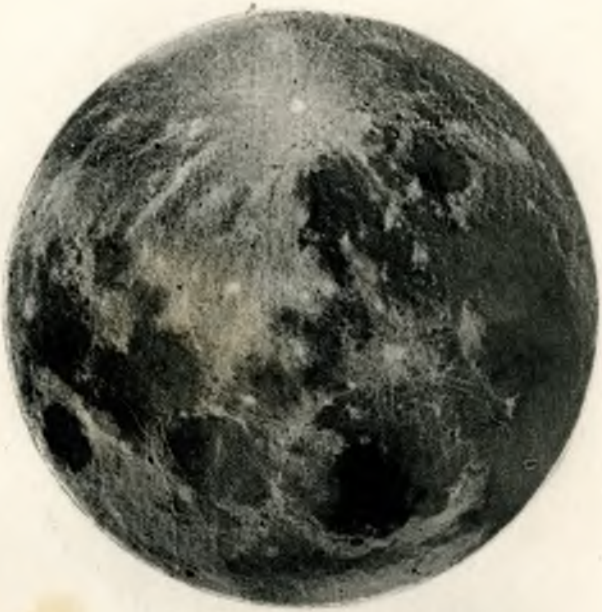
This meeting was held by invitation of the Chairman, at his Museum of British and Foreign Antiquities, 8, Colquitt street, and was numerously attended by ladies and other friends as well as members. After having inspected the contents of the various rooms, the company assembled in the principal apartment, when Mr. Mayer, after cordially welcoming his guests, announced his intention to offer his collection to the town of Liverpool on a suitable building being provided for it.

Mr. J. A. Forest then read—

An Account of the earliest successful Experiments made in England in producing, by their own light, Photograms of the Moon and other heavenly bodies.

In the first number of the *Liverpool Photographic Journal*, published on the 1st January, 1854, is announced the fact that the British Association had offered a premium for the best photograph of the moon, for which it was expected our resident photographers would compete. On the 12th of January I waited upon Mr. John Hartnup, at the Liverpool Observatory, and asked him if he would co-operate with the Liverpool Photographic Society in endeavouring to obtain photographs of the moon for the coming meeting of the British Association, which was proposed to be held in Liverpool in September of that year. He acqui-

* Transactions, p. 129.



THE MOON.

From a Photograph taken at the Liverpool Observatory in Sept.r 1854 by Messrs. John Hartnup and J.A. Forrest

PHOTOLECTRIC ENGRAVING (DALLAS PROCESS)

esced most cordially in the proposal, and we commenced our arrangements immediately afterwards. At this early stage of our proceedings we were assisted by the counsel of Mr. G. R. Berry, and in February we were joined in our operations by Dr. Edwards.

Before proceeding further with the narrative, I will describe the position of lunar photography in the beginning of 1854. The discoveries of M. Daguerre and Mr. Fox Talbot were both brought out in England under the bane of the patent laws: the result was that our American cousins, free from such trammels, made rapid progress in the development of the Daguerreotype silver-plate process. We find that Professor Bond, of Cambridge, U.S., was the first person that applied this process to the delineation of the moon. He possessed instruments of larger magnifying power than those at the Liverpool Observatory. His perseverance was highly creditable to him as a scientific investigator, for he spoiled one or two hundred Daguerreotype plates before he obtained a good result. Some of these specimens reached England, and stimulated the British Association to make the offer above named in the session of 1853. In the meantime a new discoverer had appeared in Mr. Scott Archer, of London, imparting his valuable collodion process to the world, with a disinterestedness which cannot be too highly praised, no restrictions having been imposed after the discovery. Had he done otherwise, his fortune was secure; for at this moment all other photographic media have nearly ceased to exist, and his alone remains.

The telescope of the Liverpool Observatory is furnished with an excellent equatoreal mounting and clock-work motion of great firmness and steadiness. The object-glass has a focal length of about 12½ feet; and a small camera-box being substituted for the eye-piece, the image is received upon the ground glass or the prepared plate in the ordinary manner. After much fruitless labour the chemical focus was discovered to be about eight-tenths of an inch beyond that of the visual one, the glass being over-corrected to that extent in respect to its actinic focus. It was at first difficult to decide whether the want of sharpness of outline observed was due to the motion of the object or to imperfect focussing, and the most excellent specimens were obtained by the continual guidance of Mr. Hartnup's steady hand in addition to the clock-work movement, while his eye was kept on the finder with a micrometer eye-piece of good power, crossed with fine wires, by which he could maintain the position of a given point in the field. The time for taking these pictures varied from thirty seconds to three minutes, and the chemicals employed were those ordinarily used for taking positive collodion pictures. The bath was slightly acid, and the developing agent was sulphate of iron, in the proportion of ten grains to the ounce of water. The pictures were afterwards converted into negatives by aid of chloride of gold. The impressed image measured one inch and one-third in diameter. This was too small to be useful, and the consequence was, that Mr. Hartnup and I called upon an optician to inquire how far we might safely enlarge it without loosing sharpness. He said he thought two or three diameters. A few days afterwards Mr. Hartnup proposed to send to Mr. Towson for his magic lantern, and our first attempt was to enlarge it on the screen to twenty-five feet diameter. You may easily imagine our astonishment to find it nearly as sharp as the original, and our optical friend's theory utterly groundless. We beheld the crater of Copernicus, which is almost invisible in the original, six inches in diameter, with its shadow

beautifully delineated; and, like Cuvier when he placed the bones of the mammoth together for the first time, we looked with delight on seeing the surface of the moon as no one had seen it before. With data like this to go by, we proposed to get a screen made fifty-six feet square, to cover the side of St. George's Hall, and to project the image across the hall by the means of an oxyhydrogen light. We were very kindly assisted in this by Mr. Wood, of the firm of Messrs Abraham and Co., Lord street.

It was found necessary to enlarge the first impression suitable for the magic lantern. This part of the arrangement was intrusted to Mr. John M'Innes, who adopted the mode of enlargement proposed by Mr. Stewart in a letter to Sir John Herschel, which appeared in the *Athenæum* early in 1854—with only this difference, that instead of having the box made in one piece he used his small camera, introducing the lens into the opening of a half-plate camera box, thus placing them front to front. The negative to be copied he placed in the groove of the slide of the small camera, and exposed it to the direct rays of the sun, or to the brightest portion of the sky, the picture being received upon a collodionised glass plate placed in the slide of the larger box.

In the course of our experiments a question arose as to the practicability of taking a stereoscopic view of the moon. Mr. Hartnup suggested a plan by which this would be settled: it was by taking the moon twelve hours before her full and then twelve hours after, and the result was that we got a shadow of both sides. We put these impressions into the stereoscope, on looking through which the moon appeared a perfect ball.

This paper was followed by a description given by the Rev. A. Hume, D.C.L., Hon. Secretary, of the Ancient Messedag Stave or Prim Stave, derived chiefly from a treatise of the learned Professor Munch of Copenhagen.

After describing the old Scandinavian system of measuring and dividing the year, the rev. gentleman proceeded to say that, although the calendar was altered, on the introduction of Christianity, everything which could in any way be retained was transferred from the old to the new. Instead of Pagan festivals came those of the Christians, which out of church were celebrated as before by merry-making, and several, as, for instance, Christmas (yule) did not even change names. The Summers-feast became St. John's day, and the harvest-feast was either transferred to Michaelmas day, fourteen days before, or to All Saints' day, fourteen days after. Instead of the old pagan Gods, to whom special days had been dedicated, came the Catholic Christian saints, and the confidence reposed in the former as patrons was transferred to the latter. Inasmuch now as particular Gods were supposed to exercise influence over the weather, the yield of the crops, &c.; and the days dedicated to them denoted when particular work, as ploughing, shearing, &c., ought to be done, or were supposed to indicate the coming state of weather and the prosperity of the year (the so called Mark-days)—it became necessary to have saints to supply their place. As may be supposed, it was the office of the clergy to keep account of the time, and calculate when the various holydays would occur. For the laity this was much more difficult than formerly, as so many Christian festivals do not fall on any fixed day, but are governed by Easter, and thus occur now sooner and now later. The fixed holydays could be more