

the one to the other is unintelligible. There are many difficulties connected with the subject of potential energy which the progress of science is likely to remove, but they are not to be got over by the verbal alteration proposed by your correspondent. The energy of compressed air was at one time supposed to be potential and is now regarded as kinetic. Further inquiries into the constitution of matter may enable us to see that many forms of energy which are still regarded as potential are really "actual." Meanwhile we may, I think, suppose potential energy to mean the power of acquiring the power of doing work and to be located in the system possessing this power.

P. M.

The Arts Club, October 7

Indications of the Ice-age in Shetland

SHETLAND will now be narrowly searched for proofs of glacial action by every tourist who takes an interest in such vestiges of a bygone era. Smoothed surfaces, striae, and grooves are so abundant and distinct on Mr. Peach's ground—the sandstones on the shores of the Loch of Clickhemin, and of the immediately adjoining bay—as to have long ago suggested the innocent or waggish notion that the last were scratches made by the plows of the Norsemen! Still on the mainland, but some forty miles distant, on the shores of the magnificent bay of St. Magnus, striae are to be seen on the sandstones of the hääf-fishing station at Stennis, and till, or boulder-clay, lies in patches on the Tuans of Hillswick. Ice has made distinct markings, running east and west on the gneissose rock close by the door of the farm-house of Ailesburgh, which is perhaps about a mile north of the narrow isthmus of Mavis-Grind. The huge moraine-looking mound, which lies between the south-east foot of Ronas-hill and the head of Ronas-voe, claims a special examination by those who wish to be further satisfied as to the former existence, or otherwise, of glacial action in Shetland. G. G.

The Discoverer of Photography

IN your account of the death of Mr. Fox Talbot (NATURE, vol. xvi. p. 464), you state that he first entertained the idea of the art of what is now called photography in 1833, and that it was not till 1839 that he and Daguerre first made known the principles of photography under the name, I think, first of Daguerrotype, followed by Talbotype. I therefore think the following notes concerning Niepce may interest some of your readers:—

I cannot now from memory give exact dates, but I think it was at least ten years previous to 1839 that there lodged in a neighbouring house to where I now reside a Frenchman of the name of Niepce; he was, I think, engaged on a perpetual motion machine. He died, which necessitated his brother coming from Paris to Kew. The brother was a theatre-scene-painter, and had discovered the art of fixing upon metal the pictures of objects reflected by the sun. On arriving at Kew he put up at the "Coach and Horses" Inn, then kept by Mr. Cusel, and not being able to speak English, Mr. Cusel introduced him to Mr. Francis Bauer, the celebrated botanical artist, then residing at Kew. Niepce had brought with him three pictures, specimens of his discovery, which he showed to Mr. Bauer, who became much interested in them. He deemed the discovery worthy of being made known to the Royal Society, but as the method of obtaining the pictures was not described in the notice sent to the Society, they would not entertain it, and nothing was done in the matter. Niepce returned to Paris, leaving two of the pictures with Mr. Bauer, and the third with Mr. Cusel in part payment of his bill, he being a poor man. Being a frequent visitor to Mr. Bauer, the latter naturally called my attention to the two pictures that hung in his room for at least ten years. In time Niepce let the secret of his discovery become known to M. Daguerre, and in 1839 this discovery came before the public under the name of "Daguerrotype," and about the same time "Talbotype" was announced. This led Mr. Bauer to write a letter to the *Athenæum*, fully explaining all particulars of what I have here stated from memory. In his letter Mr. Bauer said he should be happy to show the pictures to those interested in the subject. Consequently he had many callers, one of the earliest being Dr. Percy, whom I remember coming to me, wanting to know where he could find Mr. Cusel, who had then retired and was living at Richmond. Dr. Percy went off to Richmond with the intention of buying the picture, but I remember telling

him Mr. Cusel would not sell it as he was not in need of money. Such was the case, as Mr. Cusel told me some time after "that he would not sell it; no! not if he was offered 100*l.* for it." Mr. Cusel is long since dead, and what became of his picture I know not. After Mr. Bauer's death, in 1840, these two pictures came into the possession of his friend, Mr. Robert Brown, and I believe are now in the British Museum.

If you consider what I have now stated worthy of a place in NATURE, it is at your service.

J. SMITH

Park House, Kew, October 9

The Portrait of Tycho Brahe

IN reference to the portrait of Brahe engraved in NATURE (vol. xv. p. 406), and to Mr. Dreyer's remarks on it (vol. xv. p. 530), I have the pleasure of sending you the following particulars. In the first place I have permission from Herr Friis, of Copenhagen, the learned editor of *Tichonis Braheii ad eum doctorum virorum Epistolæ. Havnia, 1876, &c.*, to publish an important letter from himself:—

Copenhagen, June 9, 1877

DEAR SIR,—I have seen in NATURE (vol. xv. p. 405) an article on Tycho Brahe, with a portrait of him after a painting in your possession. On that account I take the liberty of addressing myself to you.

In a book printed in Copenhagen in the year 1668 is mentioned a portrait of Tycho Brahe which once belonged to King Frederick III., and which, no doubt, has had an emblematic figure and inscription similar to that of the portrait you own. The title of this book is "Inscriptiones Hafnienses latinae, danicæ et germanicæ una cum inscriptionibus Amagiensibus, Urani-burgicis et Stelleburgicis, &c., edi curavit Petrus Johannis Resenius," and in that you read at page 335 the following:—

"Sub pyramide tegumento quodam cooperta ad effigiem ejus quæ in Augustissimi Regis Danicæ Friderici III. Bibliotheca hodie reservatur depicta hæc legitur inscriptio:—

STANS TEGOR IN SOLIDO VENTUS FREMAT IGNIS ET UNDA
VANDESBECHI

AN. MDXCVII QUO POST DIVITUM IN PATRIA EXILIUM DEMUM
PRISTINÆ LIBERTATI RESITUTUS FUI
TYCHO BRAHE, OT.

On leaving Denmark T. Brahe sent his portrait to his friend, the learned Holger Rosenkrantz. This has, I suppose, been one resembling the one you now possess, even if it should not be just the same. Compare T. Brahe, "Astronomiæ instauratæ mechanica." Wandesburgi, 1598, fol 4.

The German letters on the order M. H. Z. G. A. indicate Frederick the Second's motto: My hope (is) in God alone (*Meine Hoffnung zu Gott allein*), which is often seen in buildings, &c., from his time.

If you will be kind enough to send me a photograph of the before-mentioned portrait, I should feel very grateful to you, as I have made the biography of T. Brahe my special study, and just recently began to publish his correspondence with his learned contemporaries.

Hoping that you will not deny me this favour, I am, dear sir,
Yours obediently,

F. R. FRIIS

Cortadellers Gade, 7, Copenhagen

I have referred to an exquisite copy of the Inscriptiones Hafnienses, from the library of Colbert, belonging to Chetham's Library, in this city, and on the same page referred to by Herr Friis I find a poem by Oliger Rosenkrantz addressed to T. Brahe, and prefixed to the *Mechanica*, of which the last two lines are very interesting, as alluding, in my opinion, to the emblem on my portrait. They are:—

"Pectora quam Divi dispensant tramite justo,
Stansq. vado fluctus, imbres et flamma tenne."

I wish to add a few remarks, and before I proceed farther I would observe that in your engraving the dress of Brahe is not given correctly, not from any fault of yours or of your engraver, but because the detailed drawings sent in answer to a request from him to me for details did not reach him until the plate was too far advanced. I have had the picture re-photographed, the photograph worked upon from the picture in a strong light, and a satisfactory result will be published in the *Memoirs of the Literary and Philosophical Society of Manchester*, and also, I believe, in Herr Friis's very interesting and important work, two fasciculi of which he has kindly sent me.