Remarks on a peculiar state of polarity induced in soft iron by voltaic magnetism

E.M. Clarke

To cite this article: E.M. Clarke (1835) Remarks on a peculiar state of polarity induced in soft iron by voltaic magnetism, *Philosophical Magazine*, 7:41, 422-423, DOI: [10.1080/14786443508648747](https://doi.org/10.1080/14786443508648747)

To link to this article: <http://dx.doi.org/10.1080/14786443508648747>

Published online: 01 Jun 2009.

Submit your article to this journal [↗](#)

View related articles [↗](#)

sophers; let us, however, recall to mind how very quickly they got intelligence of magneto-electricity: but how the discoveries of Mr. Faraday could be so unknown or wilfully passed over in Paris, that a year later the treatise of Mr. Matteucci could be brought before the public, without a single comment, is truly incomprehensible. To science it is, indeed, indifferent by whom its boundaries are enlarged (although nobody acknowledges the truth of this maxim when his own interest is concerned); but a discovery of such importance as this last of Mr. Faraday's, undoubtedly the only real advance in our knowledge of the chemical action of electricity since 1800, the year of the discovery of the decomposition of water by the battery, such a discovery does at least require some gratitude towards its originator, and the public acknowledgement of his well-founded right of priority is surely the smallest tribute of thanks that can be paid him."—*Poggendorff*.

KUPFER-ANTIMONGLANZ.

This mineral has been discovered by M. Zinken, in the Wolfsberg mine, already celebrated for the specimens of antimony glance, bournonite, zinkenite, and rosenite or pligionite, which it affords. The specific gravity of kupfer-antimonglanz is 4.748, hardness 3.5. Lustre, metallic; colour, lead grey—iron black. Form, prismatic; cleavage parallel to c and b , the latter being very perfect. $g g = 135^\circ 12'$, $g g = 111^\circ$, $g b = 112^\circ 24'$, $g b = 129^\circ 30'$, $c b = 90^\circ$; b is streaked parallel to its intersection with g . According to H. Rose the composition of this mineral is expressed by the formula $\underline{\text{Cu}} + \underline{\text{Sb}}$.—*Poggendorff's Annalen*.

REMARKS ON A PECULIAR STATE OF POLARITY INDUCED IN SOFT IRON BY VOLTAIC MAGNETISM. BY E. M. CLARKE, MAGNETICIAN.

To Richard Taylor, Esq., F.L.S., &c.

SIR,

Having in the year 1833, being occupied in various experiments to produce locomotion by means of voltaic magnetism, I observed various interesting facts; one was, that when a bar of soft iron was placed in contact with one limb of a voltaic magnet (commonly called an electro-magnet,) it partakes of its peculiar polarity N. or S. throughout, as indicated by the invariable position of a magnetic needle whenever brought in approximation with it, an effect strikingly at variance with received opinions on the subject. This law appears to hold good, as far as I have experimented, with several additional bars in various trying positions, as may be seen in fig. 1.

Another fact, which has since created some interest, was also discovered by me whilst experimenting with the same apparatus. I observed that when the compass needle was placed above the poles of the voltaic magnet, as in fig. 2. on breaking the connexion with the voltaic battery, the needle was suddenly deflected half a revolution from its previous position; on restoring the connexion the needle completed its revolution in continuation: by timing the operation a continuous rotatory motion was produced in the needle in various positions (and also in several needles at the same time) adjacent to the voltaic magnet.

This rotatory effect is well known to all who have repeated Oersted's original experiment, in which the voltaic wires alone are used to affect the needle.

This rotatory motion was applied lately (and described in your valuable Journal for July) to an apparatus copied from that constructed by Mr. Saxton, which construction is merely a modification of one invented by Professor Ritchie, and exhibited two years ago by his assistant (my late talented and ingenious friend Francis Kirby of the London University). Professor Ritchie described his apparatus in the Philosophical Transactions, part ii. p. 319. The only difference between them is, that invented by the learned Professor makes the voltaic magnet rotate, while that of Mr. Saxton causes the steel magnet to rotate.

39, Charles-street, Parliament-street,
August 1835.

E. M. CLARKE.

Fig. 1.

Fig. 2.

LETTER OF PROFESSOR ROSENBERGER TO THE EDITOR OF THE
ASTRONOMISCHE NACHRICHTEN; WITH AN EPHEMERIS OF
HALLEY'S COMET.

The positions refer to the mean equinox of the 16th November, 1835. Regard has already been had to the aberration, through the change of time, which is the foundation of the calculation (mean noon Berlin). The elements are those transmitted on the 6th of October, namely,

$$\log. a = 1.25498073, \quad e = 0.96744336,$$

$$- T = \text{Nov. } 16.05351 \text{ m. t. Berlin.}$$

$$n = 55^\circ 11' 21''.40 \quad \omega = 110^\circ 43' 59''.42 \quad i = 162^\circ 9' 48''.53.$$