

150 years on the shoulders of giants: the origin of the SI unit names.

Should the **volt** be the **volta**?

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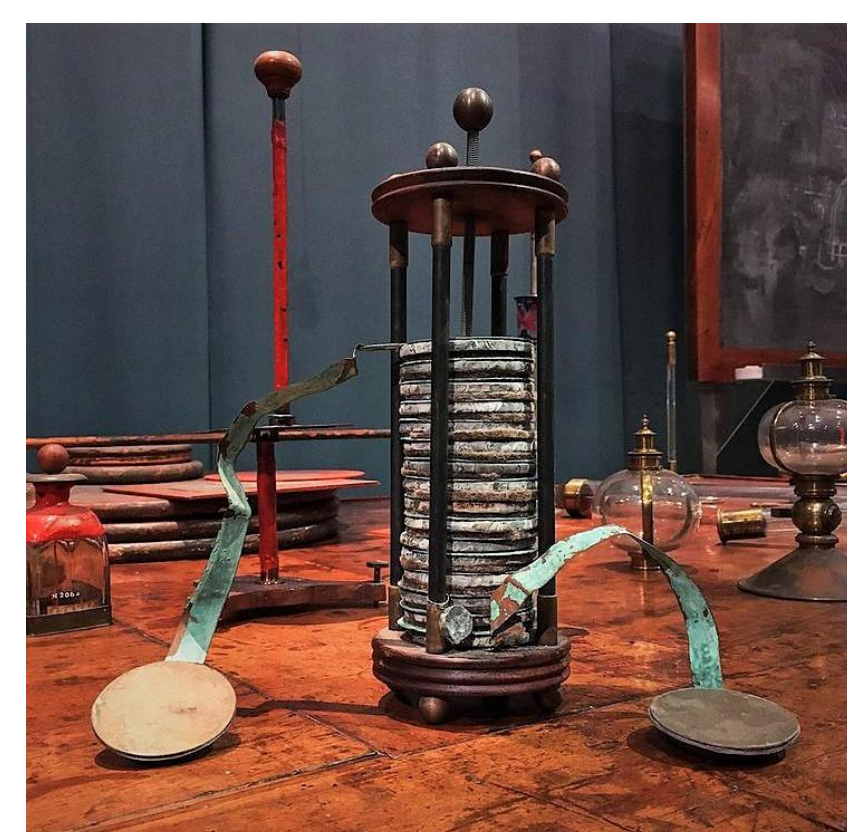
Summary

Alessandro Volta, a founding father of electromagnetism, was honoured by Latimer Clark in an 1861 paper introducing practical measurement units for the then new physical quantities. For reasons known only to him, Clark distorted the names of Volta, Luigi Galvani and of George Simon Ohm to the unit names Volt, Galvat and Ohma. Already in the 19th century the unit Ohma was properly adjusted to ohm. The surname Volta remains truncated to **volt** to this date.

In two years, 2027, the bicentennial of the death of Alessandro Volta will occur. The international scientific community honoured Volta by naming an SI unit after him. We believe this honour should be reconfirmed by correcting the historical wrong spelling by renaming the unit of electric potential difference **volta**.

Alessandro Volta

- 1745** Born in Como, Duchy of Milan
- 1774** Professor of Physics in Como
- 1776-78** Chemistry of gases
- 1779** Professor of Physics in Pavia
- 1800** To solve a dispute with Galvani about the interpretation of electrical phenomena, **invents the pile**, the first electrochemical voltage generator
- 1809** Made Count by Napoleon
- 1819** Retired
- 1827** Death

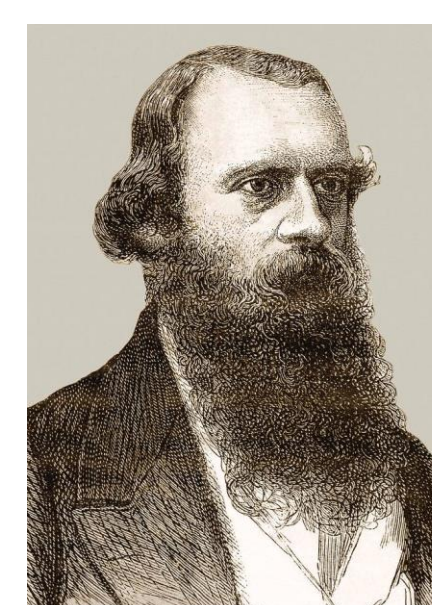


Voltaic Pile (History Museum, University of Pavia)



Volta's Memorial on Lake Como, Italy, 1928

Clark and Brown's 1861 play with the surnames



A.—Tension.
1 Daniell's Element = 1 Ohma, or unit of tension.

B.—Quantity.
1 Ohma, by one metre square at one millimetre distance ... } = 1 Farad or unit of quantity.

C.—Current.
1 Farad per second = 1 Galvat, or unit of current.

D.—Resistance.
1 Farad per second = 1 Volt, or unit of resistance.

The value of this mutual relationship and dependence will be seen more clearly if we assume a nomenclature for these units, and for this temporary purpose let us derive terms from the names of some of our most eminent philosophers, neglecting for the all etymological rules.

Ohma for **voltage**

Farad for **charge**

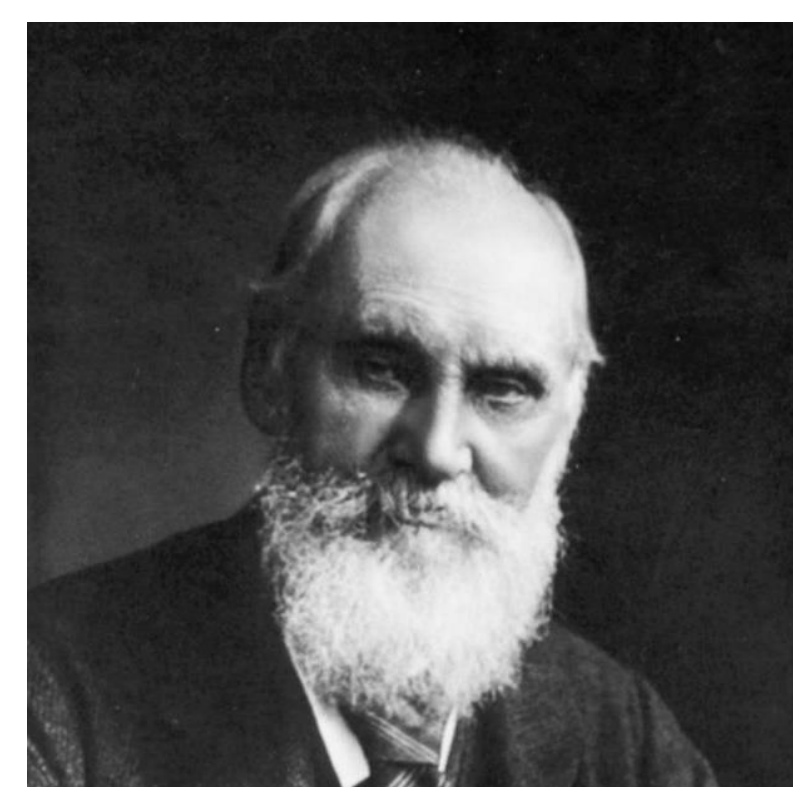
Galvat for **current**

Volt for **resistance**

"**temporay purpose...**
Neglecting for the all etymological rules".

L. Clark and C. Bright, "Measurement of electrical quantities and resistance", The Electrician, Vol. I (Nov 9, 1861 - May 2, 1862), Thomas Piper, London, 1862. Paper read at the British Association for the Advancement of Science, Sep. 1861.

Lord Kelvin, 1874: ohm is restored... volt stays!



The "ohm," as represented by the original standard coil, is approximately 10^9 C. G. S. units of resistance; the "volt" is approximately 10^8 C. G. S. units of electromotive force; and the "farad" is approximately $\frac{1}{10^9}$ of the C. G. S. unit of capacity.

A more extensive and difficult part of our duty is the selection and nomenclature of electrical and magnetic units. Under this head we are prepared with a definite recommendation as regards selection, but with only an interim recommendation as regards nomenclature.

volt for **voltage**, remains truncated

ohm for **resistance**, restored to Ohm's surname

Flipped the assignment to quantities

"... an **interim recommendation** as regards nomenclature"

W. Thomson [Lord Kelvin], G. C. Foster, J. C. Maxwell, G. J. Stoney, F. Jenkin, W. Siemens, F. J. Bramwell, Everett [reporter], "First report of the **Committee for the selection and nomenclature of dynamical and electrical units**", Report of the forty-third meeting of the British Association for the Advancement of Science, Bradford, Sep. 1873. Pp. 222-225. Murray, London, 1874.

Present status and the proposal

2019 Revision of the SI maintains the name **volt**,
Realisation of the unit with **quantum technologies**

2025, 150th Anniversary of the Metre Convention
2025, International Year of Quantum Science and Technology
2027, 200th Anniversary of the death of Volta

Let's correct the historical distortion and celebrate Volta by renaming the unit name of electric voltage **volta**

... and the unit name of electric capacitance **faraday**

