



Start > Stories > by subject area > Physics > Joule and energy > The hard work of experimenting James Prescott Joule, William Thomson, and the mechanical equivalent of heat.

- › by topic
- › by NOS-feature
- » by subject area
 - › Biology
 - › Chemistry
 - » Physics
 - › Guericke and vacuum
 - › Lichtenberg and the electrophorus
 - › Rumford and calories
 - » Joule and energy
 - » **The hard work of experimenting James Prescott Joule, William Thomson, and the mechanical equivalent of heat.**
 - › Scientific Partnership; James Prescott Joule, William Thomson, and the mechanical equivalent of heat.
 - › Mouchot and the solar cooker
 - › Joliot-Curie and artificial radioactivity
 - › Democritus and the atoms
 - › Dalton and the atoms
 - › Maria Skłodowska-Curie: discoverer of two radioactive elements
 - › Rutherford's Nuclear Atom

The hard work of experimenting

«» Listen

Manchester, in the early 1840s. Manchester was a busy industrial town in these days, actually, it could be named as the industrial center of England, and in those days, this was synonymous with the industrial center of the world. James Prescott Joule, a young owner of a brewery, was walking towards his factory. Well, actually it was still his father's factory, but he had taken responsibility some years ago already. While he was walking through the street, he appeared absent minded, and there was a pretty good, even though not that obvious reason for this absentmindedness: His brewery was doing well, actually, the beer he produced was among the most popular ones in the town. However, there was something completely different that puzzled and to some extends troubled Joule. ...

The hard work of...
Full Story



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Biographies und historical backgrounds

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Biography: Joule «»	07/14/2015	696 KB (PDF)
Biography: Sir Benjamin Thomson, Baron of Kelvin «»	07/14/2015	247 KB (PDF)
Historical background: Energy «»	07/14/2015	1 MB (PDF)

Educational Resources

- › [Video on the Inner Detail of Joule's Paddle \(Video\)](#)
- › [Video on Joule's Paddlewheel Experiment \(Video\)](#)

Educational Resources

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Student's Learning Activities «»	07/22/2015	367 KB (PDF)
Suggestions to Teachers «»	07/22/2015	191 KB (PDF)

Historical Sources

A Primary Sources

Joule, James Prescott: On the Mechanical Equivalent of Heat, in: Philosophical Transactions of the Royal Society of London 140, 1850, S. 61–82.

Joule, James Prescott et. al.: The Scientific Papers of James Prescott Joule 1884, available online: <http://archive.org/details/scientificpapers01joul>.

B Secondary Sources

Clagett, Marshall: Critical Problems in the History of Science 1962.

Heering, Peter: On J.P. Joule's Determination of the Mechanical Equivalent of Heat, *The History and Philosophy of Science in Science Education: Proceedings of the Second International Conference on the History and Philosophy of Science in Education* 1992.

Kuhn, Thomas S.: Energy Conservation as an Example of Simultaneous Discovery, *Critical Problems in the History of Science* 1962.

Sibum, Heinz Otto: Reworking the Mechanical Value of Heat: Instruments of Precision and Gestures of Accuracy in Early Victorian England, in: *Studies in History and Philosophy of Science Part A* 26, Ausgabe 1 (1995), S. 73–106.

Dateiname ^	Datei
Story and all resources	3 MB (ZIP)

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[Back to top](#) Page # [16943](#) [Permalink](#) 06/19/2018

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