

Leaflet No. 32.

THE CAMBRIDGE
SCIENTIFIC INSTRUMENT COMPANY, LTD.,
CAMBRIDGE, ENGLAND.

STANDARD CADMIUM CELLS.

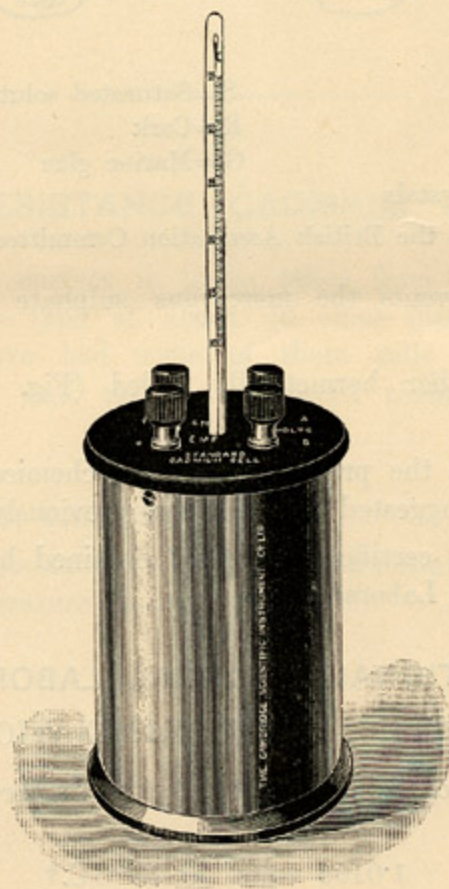


Fig. 1.

The extensive use of Standards of Electro-Motive Force and the recent work at the National Physical Laboratory have led us to put upon the market the well-known form of Standard Cell originally suggested by Mr Weston. This cell possesses the great merit of a practically negligible temperature co-efficient over the ranges of temperature usually found in a Physical Laboratory.

Acting upon the suggestion made in the 1905 report of the Committee of the British Association for "Experiments for improving the Construction of Practical Standards for Electrical Measurements," we are constructing this cell of the H form originally suggested by Lord Rayleigh. (See Fig. 3.)

The Cambridge Scientific Instrument Co., Ltd.,

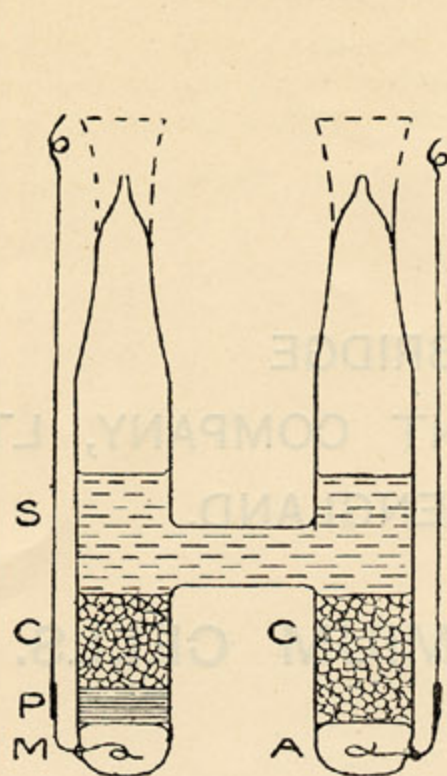


Fig. 2.

M = Mercury
A = Amalgam
P = Paste
C = Cadmium sulphate crystals

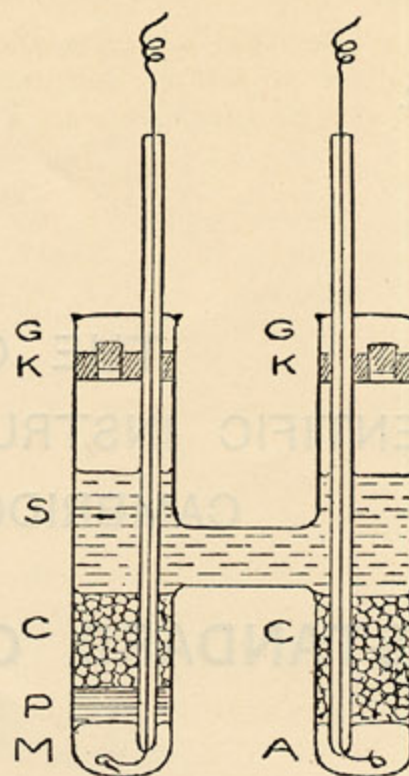


Fig. 3.

S = Saturated solution of cadmium sulphate
K = Cork
G = Marine glue

Figs. 2 and 3 are taken from the British Association Committee's Report, referred to above.

This form of construction prevents the mercurous sulphate attacking the amalgam and also renders it more portable.

The cells can be supplied either hermetically sealed (Fig. 2), or closed with a cork and wax (Fig. 3), as desired.

The greatest care is taken in the preparation of the chemicals employed, and the methods of manufacture are practically those suggested in the report previously mentioned.

The following is a copy of a certificate recently obtained by a double cell (two cells in one case) sent to the National Physical Laboratory:—

THE NATIONAL PHYSICAL LABORATORY.
CERTIFICATE OF EXAMINATION.

Cadmium Cells A & B, Case No. 3251, N^o 1087, by the Cambridge Scientific Instrument Co., Ltd.

Value of A:—

1.0195 volts* at 18°·0 C.†
Mean Temperature Co-efficient for range 18°—32° C.
= -0.00002₅ volts per rise in temperature of 1° C.

Value of B:—

1.0195 volts* at 18°·0 C.†
Mean Temperature Co-efficient for range 18°—32° C.
= -0.00002₅ volts per rise in temperature of 1° C.

* The Standard adopted is Wolf Cell No. 1712 of the Board of Trade, for which the value of the E.M.F. at 15.0° C. is taken as 1.434 volts.

† The cells were maintained at this temperature for 24 hours previous to the observations being made.

R. T. GLAZEBROOK,
Director.

July 27th, 1905.

Reference S.C. 2-29 F.E.S.

Cambridge, England.

We strongly advise that all cells should be purchased with the National Physical Laboratory Certificate of E.M.F. and temperature-coefficient, and unless ordered to the contrary the cells will be supplied with a certificate, which is charged at cost price.

	Without Certificate			Code Word	With N.P.L. Certificate			Code word
	£	s.	d.		£	s.	d.	
Single cell, H form, unmounted ...	0	12	6	<i>Heartfelt</i>	1	2	6	<i>Heartstung</i>
Single cell, H form, in brass case ...	1	17	6	<i>Heartless</i>	2	7	6	<i>Heather</i>
Single cell, H form, hermetically sealed, in brass case ...	2	0	0	<i>Heartache</i>	2	10	0	<i>Heathcock</i>
Double cell, H form, in brass case (Fig. 1) ...	2	17	6	<i>Heartbred</i>	3	12	6	<i>Heaving</i>
Double cell, H form, hermetically sealed, in brass case ...	3	2	6	<i>Heartburn</i>	3	17	6	<i>Heaviness</i>
Any of the above cells can be mounted in a mahogany case with lid to protect the ebonite top and terminals from sunlight and dust. Per cell extra ...					0	2	6	<i>Emboxed</i>
Mercury thermometer divided to 0.5 of a degree and reading from 0° to 30° C. for use with the above cells ...					0	6	6	<i>Hecatomb</i>

LOW RESISTANCE CADMIUM CELL.

For work where an appreciable current is to be taken from the cell, or for low resistance circuits, we construct a large bottle type of about 40 ohms internal resistance, as designed by Professor H. L. Callendar. We have had some of these cells in constant use with Callendar Electric Recorders for several years and they have proved themselves satisfactory, especially in recovery after short circuiting.

	£	s.	d.	Code word
Low Resistance Cell in brass case, without certificate ...	2	7	6	<i>Eelspear</i>
The same, with National Physical Laboratory Certificate for Determination of E.M.F. and Temperature Co-efficient ...	2	17	6	<i>Hebetude</i>