October 8, 1841

"RECORD OF EXPERIMENTS"
Henry Papers, Smithsonian Archives

Oct 8th [1841]

Made an attempt this morning to determine the direction of the currents from galvanism by means of the effect on the nerves but without any definite effect.1 Neither myself nor Sam gave the same indications in reference to the secondary and tertiary current. Perhaps we were not sufficiently sensitive galvanometers.

Took the direction of the ending tertiary current with three sperals—same as those at the top of the page.2 Each gave the same direction. The result in accordance with all my previous determinations. The tertiary current was one of quantity.

Took the direction of the tertiary current with the galvanometer—noted the first impulse, which was in the proper direction or in that which is given by the needle. The long swing however is in the opposite direction and might be mistaken for the true direction were attention particularly directed to the fact. Repeated this with the long coil and by passing the current through water. The effect was not however much increased.

1 By having his subject grasp two handles and thus passing the current through the arms and torso. Henry hoped to find the direction of current unambiguously by seeing which side of the body twitched first.

2 See the last two paragraphs of the previous entry.

"RECORD OF EXPERIMENTS"
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Oct 9th [1841]
Description of magnetometer also
Batteries—Magnetization of
needles transverse to conjunctive wire

Made arrangements for experimenting with ordinary electricity. Constructed an instrument for determining the intensity of the needles. It consists of a graduated circle within which is suspended a magnetic needle. The needle to be tested is brought at right angles to the magnetic needle and the deflection gives the intensity required.

To measure the quantity of electricity passed into the battery from the
October 11, 1841

machine, the unit measure of Snow Harris was employed. The slide or
gage was placed at the 7th mark on the stem.¹

The batteries used were th[re]e in number

First of 7 jars each of 10 × 18, 180 square inches = in all to 8¾ square feet

afterwards added 5 more jars the whole surface was then 13 feet

2nd of eight jars 18 × 12=156 inch = in all to 8½ square feet

3rd consists of 23 bottles each 17½ by 7½ making 131 square inches = in all
to 21 square feet nearly. This is the old Dr Franklin battery²

Exp. 1st Stretched fine copper silvered wire between the glass posts of the
Universal discharger 30 inches long.

1st needle placed

1st with 3rd battery charge 50—11 needles in

contact mean deflection—

4° 5. hund

at 1st 10 wires

2nd Same 12 needles in contact mean

of the magnet. deflection of the magnetometer

3. 16 hnd

2nd By the same arrangement—25 charge mean deflection

of 4 needles in contact

Charge 50 4 needles

Again same arrangement 4 needles in contact

charge 100—deflection

Again charge 150 mean deflection

³A collection of Leyden jars, probably re-
ceived through A. D. Bache, Franklin’s great-
grandson. See also Henry to O’Shaughnessy,
October 30, 1845, footnote 3, below.

1 On Snow Harris’s electrometer, see En-
cyclopaedia Britannica, 8th ed., s.v. “Electric-
ity,” by David Brewster, p. 562, and Henry
Papers, 3:177-178.

“RECORD OF EXPERIMENTS”

Henry Papers, Smithsonian Archives

October 11th Monday 1841

To determine if the same action is exerted alike on every part of the con-
junctive wire—eleven needles were placed at equal distances from each
other <and> along the wire and in contact with it. With the charge of 50
the following were the results the battery remained the same as before

1st 2nd 3rd 4th

3° 3° 4 4½, 5°, 5°, 6°, 6°, 6¼, 5½, 6 farther end of the wire

Again same arrangement

2½, 3, 2½, 4, 3½, 2½, 3½, 3½, 3½, 2½, 6, 2½ farther end

¹ Henry had eleven needles, but here made

twelve entries. It is possible that he mistaken

entered “3 ¾” twice, as the second number is

slightly smudged, as if it were partially erased.

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