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 refference 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 not 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.

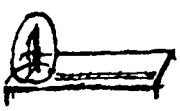
"RECORD OF EXPERIMENTS"

Henry Papers, Smithsonian Archives

Oct 9th [1841]

Description of magnetometer also Batteries—Magnetization of needles transverse to conjunctive wire

Made arrangements for expermenting 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

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 *15 feet*

2nd of eight jars 13 × 12=156 inch = in all to 8½ square feet

3rd consits of 23 bottles each 17½ by 7½ making 131 square inches = in all to 21 square feet nearly. This is the old Dr Franklin battery[2]

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

needle placed at 1st 10 wires of the magnet.	1st with 3rd battery charge 50—11 needles in contact mean deflection—	4° 5.	hund
	2nd Same 12 needles in contact mean deflection of the magnetometer	3. 16	hnd
2nd By the same arrangement—25 charge mean deflection of 4 needles in contact		2° 25	hnd
Charge 50 4 needles		2. 89	
Again same arrangement 4 needles in contact charge 100—deflection		3° 12	
Again charge 150 mean deflection		3 —	

[1] On Snow Harris's electrometer, see *Encyclopaedia Britannica*, 8th ed., s.v. "Electricity," by David Brewster, p. 622, and *Henry Papers*, 3:177–178.

[2] A collection of Leyden jars, probably received through A. D. Bache, Franklin's great-grandson. See also Henry to O'Shaughnessy, October 30, 1843, footnote 3, below.

"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 conjunctive 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

2¾, 3, 2½, 4, 2¾, 2½, 2¾, 3¾, 3¾, 2½, 6, 2½ farther end[1]

[1] Henry had eleven needles, but here made twelve entries. It is possible that he mistakenly entered "3 ¾" twice, as the second number is slightly smudged, as if it were partially erased.