Errata of the book "Wilhelm Weber Main Works on Electrodynamics Translated into English", edited by A. K. T. Assis, Volume 2: "Weber's Fundamental Force and the Unification of the Laws of Coulomb, Ampère and Faraday" (Apeiron, Montreal, 2021), ISBN: 978-1-987980-25-7.

Available in PDF format at `www.ifi.unicamp.br/~assis`

- Page 14, the 1st line should be replaced by:

2.3 Gauss to Weber, 19 March 1845

- Page 15, in the paragraph below the equation, two Figures from Gauss were missing: and that I do not know, whether Ampère (whose Memoire, as I said, I do not have at hand) used the first or the second notation. Both of them signify the same thing, and one uses the first form, when one measures the angle $\theta$, $\theta'$ with the same delimited straight line; thus, this line determines the side of the second angle in the opposite way,
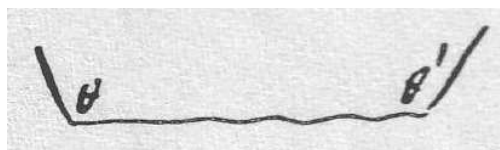
but determines the other form, when one is considering a straight line of indeterminate length, and, for the measurement of angle $\theta$, $\theta'$, one resorts to that line twice, in one sense or another.
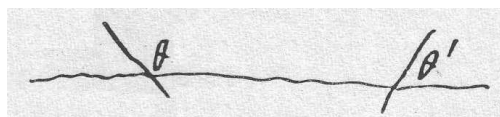
And, likewise, one can place a $+$ sign in front of the whole formula instead of the $-$ sign, if one is considering as a positive effect, not repulsion, but attraction.

- Page 39, the last paragraph of footnote 83 should be replaced by:

According to this, the voltaic circuit is formed: (1) by the circular arc $BB'$ together with the conductors $MN$ and $M'N'$; (2) by a circuit which consists of the parts $RJP$ and $P'J'R'$ of the apparatus, of the curvilinear conductor which goes from $R'$ to $S$, and of the battery itself. The latter circuit acts as a closed one, because it is only interrupted by the thickness of the glass plate which isolates the two cups $P$ and $P'$: it is therefore sufficient to observe its action on the circular arc $BB'$ in order to empirically establish the action of a closed current on a circular arc in the various positions which one can give them in relation to each other.

- Page 45, the 10th line of the 2nd paragraph should be replaced by:

2). The two suspension wires are made of copper, 1 meter long, and 1/6 millimeter thick; their distance

- Page 48, the words "derivation", "drainage" or "diversion" should be utilized instead of "deduction" as the translation of the German word "Ableitung" in the context of the fifth line of Section 5.3, footnote 93.

- Page 55, the 10th line should be replaced by:

values of the deflection for the observations in the Table from 11 to 11 are derived from the 11

- The last line of page 74 and the first two lines of page 75 should be replaced by:
this action for both current elements coincides with their connecting-line, and is opposite for the two current elements, it is repulsive, when the above expression has a positive value, attractive in the opposite case.

- Page 77, the 12th line should be replaced by:
which the perpendicular to the plane of the circle $n$ makes with the coordinate axes, then the

- Page 78, the 2nd line should be replaced by:
planes are perpendicular to one another, and the perpendiculars erected on them at their centers intersect

- Page 84, the last line of the first paragraph below the Table should be replaced by:
(Section 5.5) in the determination of the dynamometer deflection at a 300-mm distance.

- Page 84, the two last lines of the third paragraph below the Table should be replaced by:
The signs of the calculated values in the foregoing Table thus teach us, that if the fixed coil acts on the bifilar coil at a distance from north or south, a rotation of the bifilar coil results, which, if it amounts to 90 degrees, will cause the currents to go in *opposite* direction around axes aligned in the same way; if, on the other hand, the fixed coil acts at a distance from east or west, there will be a rotation of the bifilar coil, which, if it amounts to 90 degrees, would cause the currents to go about co-directed axes in the *same* direction. The latter also takes place, according to calculation, if the centers of both coils coincide.

- Page 85, the first two lines of the 2nd paragraph should be replaced by:
For the purpose of our measurements, we have, however, based the unit of current intensity on the *electromagnetic principle*, according to which the fundamental unit of current

- Page 87, the 7th line of the footnote should be replaced by:
simple association of these different classes of phenomena can easily be overlooked, which does not immediately

- Page 89, the 2nd line should be replaced by:
and the comparison of the factor thusly determined with that utilized above, namely, with

- Page 92, the 8th line from bottom to top should be replaced by:
in which the value of $\psi$ for our case $= 0$, and $\delta$ is the complement of the observed displacement

- Page 97, the 4th line of item (c) should be replaced by:
against the bounded conductor; however, if the bounded conductor moves against

- Page 98, the last sentence of the second paragraph should be replaced by:
After these experiments, he ascribes to these induced currents in parallel wires alternately opposite directions; to the first, however, the same direction as the vanishing current of Volta's battery due to the *breaking* of the circuit.

- Page 98, the 2nd line of the last paragraph should be replaced by:

coil is *swinging*, with a voltaic battery, then, in order to *induce* a current in the *other* coil,

- Page 102, the following sentence should be included at the end of the first paragraph:

It is also easy to see that the position in the last half of the observations was somewhat greater than in the former.

- Page 116, the third sentence of the second paragraph should be replaced by:

The use of a wet string is, however, not absolutely necessary to this fundamental experiment, but seems to be advantageous only when one wants to apply the electricity *accumulated* in Leyden jars or batteries, and is dispensable if one directly connects the wire ends of the multiplier of a sensitive galvanometer with the positive and negative conductors of an electrical machine. One then also observes the deflection of the needle in the direction predetermined by the electromagnetic laws during the rotation of the electrical machine.

- Page 118, the 3rd line from bottom to top should be replaced by:

relevant, in which a battery of 8 such jars as before was used, and a hemp string of

- Page 131, the 7th line of the third paragraph should be replaced by:

acting on the *ponderable mass of the current conductor*. Ampère did not deal with the *electrical*

- Page 148, the 3rd line from bottom to top should be replaced by:

with Ampère's formula, then a third will be derived from them for the same force, likewise

- Page 163, the 26th line should be replaced by:

obtained as

- Page 166, the 15th line should be replaced by:

the plane of the magnetic axis and of line $r$, from whose angle with straight line $r$ the sine is to $\sin \psi$

- Page 175, the 4th line from bottom to top should be replaced by:

has an equal value according to both coordinate systems, then

- Page 175, the 2nd line from bottom to top should be replaced by:

which was to be proven. That $zdx - xdz$ has the same value for all right-angled

- Page 176, the 1st line should be replaced by:

evident from the fact that $\frac{1}{2}(zdx - xdz)$ represents the area of the triangle projected on a plane normal to

- Page 179, the 8th line should be replaced by:

or, since according to page[240] 144, $aeu = i$, consequently, because $u$ is variable, $ae{\cdot}du = di$,

- Page 180, the 6th and 7th lines of the second paragraph of Section 5.29 should be replaced by:

which a current element of *constant* intensity $i$ elicits, while the induced element is infinitely removed from a given position parallel to itself in the direction of the straight line $r$, or, from an

- Pages 183 and 184, "conical surface" should be utilized instead of "cone".

- Page 183, the 4th line of the first paragraph should be replaced by:
given element. On this theorem, see Section 5.31 below.

- Page 183, the 11th line from bottom to top should be replaced by:
have to be delimited by the same conical surfaces. And specifically, a current, which goes into $\alpha'$ *from the outer conical surface to*

- Page 184, the 4th line should be replaced by:
through them, it can be easily recognized, that if in $A$, $\sin(\gamma' - \gamma) = \mp \cos \vartheta'$, then in $A'$,

- Page 184, the 7th line should be replaced by:
It can occur, that in addition to $\alpha'$ and $\mathfrak{a}'$, yet a *third* element of the conductor is bounded

- Page 185, the 4th line from bottom to top should be replaced by:
positions through which it passes and of the speed, with which it runs through it, and merely depends upon the difference in the *potential*

- Page 205, the 3rd line of the first paragraph should be replaced by:
translation has been published in 1852, 1966 and 2007.[269] I am maintaining the original title

- Page 210, the 3rd line should be replaced by:
hole $d$, and projects from it. When the wire is placed upon the reel and the end fixed by

- Page 212, the 3rd line from bottom to top should be replaced by:
wires, since these wires act at $b$ and $b'$ as it were at the ends of a lever, the centre of motion

- Page 220, the following paragraph should be inserted just below the first Table:
These observations are reduced so that the former furnish a measure of the electro-dynamic force with which the two conductors of the dynamometer act upon each other, when currents of equal intensity are transmitted through them, whilst the latter furnish a measure of this intensity itself.

- Page 230, the 7th line of the first paragraph should be replaced by:
occurrence of the deflection of the dynamometer to one side or the other does not, as in the

- Page 233, the 5th line should be replaced by:
Finally, if, *fourthly*, in the original expression we consider $-\alpha e \alpha' e'$ as the product of the

- Page 238, the 6th line of the second paragraph should be replaced by:
of application in those cases where the latter is inapplicable; hence its greater utility.

- Page 244, the last line should be replaced by:
element $\alpha$, upon the induced element $\alpha'$, in the ordinary meaning of the word,

- Page 246, the 4th line of the fifth paragraph should be replaced by:
consequently the induction for any period of time in which the intensity of the inducing

- Page 264, the 1st line should be replaced by:

$$R = -\frac{du}{dN} \ ,$$

- Page 265, the 13th line from bottom to top should be replaced by:

to a neighbouring one is only conditioned by the forces which are exerted upont the particles

- Page 269, the 5th and 6th lines of the third paragraph should be replaced by:

from which it is clear that if the numbers $e$ and $i$ are determined by measurement, the number $w$ is also indirectly obtained without needing a special measurement.

- Page 269, the 10th and 11th lines of the fourth paragraph should be replaced by:

and hence it is clear that if the three numbers $f$, $t$, $s$ are determined by measurement, the number $e$ is also thereby indirectly given without necessitating a special measurement.

- Page 270, the 7th and 6th lines from bottom to top should be replaced by:

*velocity.* But if, by an alteration of the given measures, the standard of velocity is diminished or increased $n$ times, an $n$ times larger or smaller value is obtained for the factor $r'/s$, and

- Page 272, the 3rd line should be replaced by:

$BC = R$, and $\varphi$ the angle which the magnetic axis of the needle in $C$ makes with the direction

- Page 273, the 1st line of the third paragraph should be replaced by:

Hence the execution of the measurement of an electric resistance in absolute terms depends on the mea-

- Page 273, the last line of the third paragraph should be replaced by:

is to be determined by measurement according to an absolute standard.

- Page 274, the 7th line should be replaced by:

into rings of large cros-section. In that case, however, the influence of all the windings must

- Page 274, the 5th line of the second paragraph should be replaced by:

a semicircle around its vertical diameter, so that the perpendicular upon the plane of the ring at the commencement and

- Page 274, the 2nd line of the third paragraph should be replaced by:

its plane coincided with the magnetic meridian, and the needle in the middle of the ring $B$ was

- Page 274, the 4th line of the third paragraph should be replaced by:

needle in the middle of the ring $B$ was set in oscillation,[348] and by means of the telescope the

- Page 276, the last line of the second pargraph of Section 11.4 should be replaced by:

to form a single ring which serves at once for inductor and multiplier.

- Page 276, the 4th line of Section 11.4 should be replaced by:

in the *centre* of the ring formed by the induced conductor. The magnet may then either be

- Page 277, the 3rd line should be replaced by:
powerful to cause a strong damping; and also that the length of the needle be very small as compared with the diameter

- Page 285, the 2nd line of item 4. should be replaced by:
expression of the mass of magnetic fluid $\mu$, of the velocity of inducing motion $c$, of the length

- Page 292, the 34th and 35th lines should be replaced by:
like to further point out that the length of the weighed wire amounted to $25\frac{1}{8}'$ (so $25\frac{1}{8}' = 22.5495\ g$) and that $\frac{3}{4}''$ of it at either end was soldered onto the screws.

- Page 294, the 7th line of Section 13.3 should be replaced by:
that it experiences in its rest position and will not take on a permanent deflection in that way.

- Page 304, the last line of the second paragraph should be replaced by:
Absolute resistance measurements have an intrinsic meaning only when they are performed in such a way that absolutely no new units are used as a basis, other than the ones that are present and have already been used and are indispensable for other purposes, such as, for example, those of space and time.

- Page 304 , the last line should be replaced by:
Rather, it will be shown that assuming Jacobi's proposal will also remain the most desirable on practical grounds, because a direct absolute determination of resistance can be performed precisely only in isolated cases and under especially favorable conditions, but accepting Jacobi's proposal creates a bridge by which one will

- Page 307, the 11th and 12th lines from bottom to top should be replaced by:
plane of those circles. However, two more wires belong to that circuit that lie close to each other, are insulated from one another, and exhibit a double connection between the two circles. Finally, let each circle be cut

- Page 316, the 1st line of footnote 401 should be replaced by:
The rotation of the inductor, given its size, could not be accomplished so quickly that its duration would be negligible against the period of oscillation of the needle.

- Page 316, the penultimate line of footnote 401 should be replaced by:
$(1 + 2/3t^2)\alpha$. Now, since the total oscillation arc $2\alpha = 79.4$ millimeters, and one had $t = 10.2818$, the value of

- Page 317, the 3rd line from bottom to top should be replaced by:
distribution to the extent that it seemed necessary. Namely, a small compass was

- Page 318, the 2nd and 3rd lines should be replaced by:
deflections $v_3$ and $v_4$ were observed when the needle was displaced parallel to itself at an equal distance on the opposite side from the compass, and the value of:

- Page 318, the 6th and 7th lines should be replaced by:

the compass and for different directions of the line that went through the middle of the needle and the compass, namely, at distances of 400, 500, and 600 millimeters when the

- Page 319, the first sentence should be replaced by:
If these experiments are to be used as a basis for calculating the resistance of the circuit in absolute units, some complication arises from the fact that even with the moderate dimensions of the needle compared to the diameter of the damper, the distribution of the magnetism in the needle must not be completely disregarded.

- Page 319, in the third paragraph, the word "compass" should be used instead of the word "galvanometer".

- Page 320, the 7th line from bottom to top should be replaced by:
moved from the distance $BC = R$ into the center of the circle $B$ itself, which will increase the

- Page 322, in the 4th line from bottom to top we should have a comma "," instead of the full point ".", namely:

$$\vartheta = \frac{1}{1770} \; ,$$

- Page 324, the 10th and 11th lines of Section 13.18 should be replaced by:

$$\lambda = 0.064\,445 \; ,$$

in natural logarithms.

- Page 325, in the first paragraph, the word "compass" should be used instead of the word "galvanometer".

- Page 325, in the last paragraph, the word "compass" should be used instead of the word "galvanometer".

- Page 329, the 12th line should be replaced by:

$$= 1854^2 \cdot \pi^2 \cdot 0.05054 \cdot \frac{\pi^2 + 0.007944^2}{0.007944} \cdot \frac{352.71}{3.9527} \; ,$$

- Page 343, the 11th line from botto to top of the footnote should be replaced by:
denote the distances of the elements $ds$ and $ds'$ and the point of intersection of the perpendicular $x$

- Page 353, the 4th line should be replaced by:
the basic law of electrostatics, the force that acts from $H$ to $E$ in the tangential direction

- Page 353, the 7th line should be replaced by:
while the force that acts from $G$ to $E$ in the same direction is equal to:

- Page 361, the 5th line of the first paragraph should be replaced by:
electromotive force equal to $a$ shall be given for a single point of it.

- Page 361, the 4th line of the second paragraph should be replaced by:

electromotive forces at the two points $A$ and $B$ are balanced. If $+e$ then denotes the

- Page 361, the 5th line of the third paragraph should be replaced by:
consequently for the requested balancing:

- Page 361, the 5th line of the fourth paragraph should be replaced by:
balanced. That is because if $\pm e_1$ denotes the free electricity at $(A^1)$, $(A_1)$, and $\pm e_2$ denotes

- Page 366, the 1st line of Section 13.32 should be replaced by:
It is clear that when electromotive forces are given only at the individual points

- Page 366, the 7th line of Section 13.32 should be replaced by:
in front of them persists in a state of rest, then that displacement of the positive fluid from

- Page 373, the 1st line should be replaced by:
for the free positive electricity in the other half, in which, from page 370:

- Page 373, the 21st line should be replace by:
intensity $eu$, where $e$ is the mass of the positive or negative electricity that is included in a piece of the

- Page 374, the 2nd line of the last paragraph should be replaced by:
for the unit of its length and cross-section and indeed in the units that were defined in Section 13.27.

- Page 378, the 4th line should be replaced by:
upon their magnitudes, distance, relative velocity, and the change in it. Meanwhile, for the sake of

- Page 378, the 31st line should be replaced by:
If only the electromotive force $c$ acts upon the negative mass considered, then it would

- Page 380, the 3rd and 4th lines of Section 13.37 should be replaced by:
tion 26 of the firste treatise on *Electrodynamic Measurements*.[454] That treatise, which was not yet printed at that time, could be cited there only in the form of the abstract that appeared in Poggendorff's

- Page 380, the 5th line of the fourth paragraph of Section 13.37 should be replaced by:
electricity in one element on the two electricities in the other element. That

- Page 384, the 3rd line from the bottom to the top should be replaced by:
ring from which it returned to the rod. The current then split between those two paths,

- Page 386, the 16th line should be replaced by:
divisions if each rotation were to generate an electromotive force that would be equal to the one

- Page 387, the 20th line should be replaced by:
produced a permanent deflection of the magnetometer needle of 377 scale divisions, although a

- Page 390, the 4th line should be replaced by:
derivation of the law of voltaic induction from the basic general law of electric action in Section

- Page 398, the 4th line should be replaced by:
for (1), (2), and (3), in which $m$ denotes the number of induced circles, and $n$ denotes

- Page 408, the 3rd line of footnote 480 should be replaced by:
for the position of the oscillating needle that equals $x$ at the end of a time equal to $t$, where $T$ denotes the

- Page 408, the 15th line of footnote 480 should be replaced by:
and if the position of the needle up to that starting point were taken to be the elongation $x$, so $x = 0$ for $t = 0$,

- Page 409, the 5th line of footnote 481 should be replaced by:
If one then calculates the time $t$ from the moment when the instantaneous current acts upon the needle and

- Page 409, the 7th line of footnote 481 should be replaced by:
or $A = C\tau/\pi$. If one then sets the original position of the needle $p = 0$, to simplify, then one will get:

- Page 413, the 3rd line of the second paragraph should be replaced by:
passes its original position for the first time, an instantaneous current will again act upon it

- Page 417, the 5th and 6th lines of the second paragraph should be replaced by:
cylinder, while the *second* copy consisted of a varnished wire that was wound around a varnished glass tube. The experiments split into five sets. The ends of the inductor wire

- Page 422, the 2nd and 3rd lines of the second paragraph should be replaced by:
when two arbitrarily-placed magnetic elements $\mu$ and $\mu'$ exert equal and equally directed electromagnetic forces on a current element $ds = \alpha i$, then their electromotive forces on

- Page 424, the 5th line below Equation (I) should be replaced by:
to the plane of the circle, to be equal to the force that is exerted by a magnet in the same

- Page 427, the 1st line of item (5) should be replaced by:
5. The comparison of the torque that the multiplier exerts upon the needle that

- Page 432, the 2nd, 3rd and 4th lines should be replaced by:
lies from the center of the ring $B$. Consequently the needle magnetism is

$$M = 2em \ ,$$

then if $\gamma$ is the angular velocity of the needle, for

- Page 433, the 21st and 22nd lines should be replaced by:
where $e$ is the base for natural logarithms, $t$ is the time counted from one passage of the needle through the meridian, and:

- Page 434, the 2nd line should be replaced by:

closed ring $B$ that is produced by the electromotive force $e = 2n\pi M/r'$:

- Page 435, the second paragraph should be replaced by:
1. The electromotive forces that are exerted by the elements of the moving current segment $bc$.

- Page 436, the 2nd and 3rd lines should be replaced by:
the induced element $\alpha'$ be an element of a concentric circle whose radius is equal to $R'$, and let the movable radius $CA$ form an angle $\varphi = AC\alpha'$ with the radius through $\alpha'$. Let $r$ be the line that is

- Page 437, the 10th line should be replaced by:
The sum of all electromotive forces that all of the elements of the moving current segment

- Page 437, the 14th line should be replaced by:
the electromotive forces for the time interval $t$ or the path $vt$ that is traversed by

- Page 437, the 17th line should be replaced by:
electromotive force for $n$ revolutions of the inducing current, namely:

- Page 440, the 10th line should be replaced by:
expression above, one will get the sum of the electromotive forces that the newly-entering

- Page 440, the 3rd line of the 2nd paragraph should be replaced by:
one at the sliding contact as a result of the change of velocity that it experiences during