十五年
元
2

4.

Observation Book.

1890-10-15.

1890-10-16.

Owing to the rainfall which continued for some days since the 8th of this month, water got into the pit, so that on the morning of the 9th ~~when this~~ it was found filled with water to the depth of nearly 2 feet, & the instrument there all drowned. The instrument of the pit taken out.

On the 10th, at noon the water was about 5 feet deep. The water was emptied, but found in the evening filled to the same depth. From the 11th, the water gradually decreased.

1890-10-16.

In the afternoon of the previous day, a slight ~~eqk~~ shock was felt at Hitotsubashi, but not noticed at Hongo.

In the early morning of the 16th (perhaps about 4 o'clock?) a shock occured. I felt it in the bed, as something slow (imperfectly) oscillation.

~~At~~ At Hitotsubashi, record was obtained At Hongo, the drum machine only was successful, The weakened battery having failed to ~~@~~ start the time-machine, & record the time.

1890-10-16.

20 D new battery cells were obtained,
each cost $3 cen, & is 6 inches in diamtr
& high 1 foot.

Old small cells were replaced by these
new cells

1890-10-17. happened

On the evening, a slight shock ~~was felt~~
I was then writing in my ~~room~~ dormitory room,
and noticed the earthquake as a very slight & gentle
movement. (The first attention was called by some
slight rattling of the windows.) It lasted only for
a short time.

This earthquake happened at about 8.35 m P.m.
The clock & the coin machine failed. (The battery
was not yet sufficiently powerful.)
The Drum machine was successful.
The two duplex seismographs recorded very
similar diagrams, which consisted almost
entirely of the East-West ~~ms~~ lines, not
exceeding 3 mm (in the glass plate figures)

The night was very calm, & the sky completely overcast

1890-10-18

Put some more Zn Sulphate in
the cells, ~~and~~ were found flat

1890-10-19

At 2h 30m 13s. P.M., a small shock occured. Those in the Dormitory said that they had felt it as a slight sudden shock. I was then sitting in a house at Asakusa, and did not notice the shock. Mr. Nagaoka said he had felt the earthquake quite strong in his house. (his house is on the edge of a cliff overlooking the valley in Azabu.)

All the machines were successful (except the pit one, which was not yet installed.) The two Duplex pendulum showed similar displacements, which were very simple, consisting of almost a few E.W. (slightly towards the ~~west~~ South) motion, of small extent.

1895-10-20.

During the preceding night, a very slight shock was felt at Hitotsubashi. At Hongo, however, no indication could be noticed, though the instruments were in good order.

no shocks felt these a few days (till noon, the 28th), a period of calm quiescence.

1890-10-30.

During the preceding night there was a tremor at Hitodenbashi. Not felt at Hongo.

(No earthquake these a few days, a period of rest.)

1890-10-30

Today I got a mean time chronometer from the Tokio Astronomical Observatory.

A very good clock, whose rate is constant 1 sec. per day ($\Delta T = -1$).

(1890-11-4 no earthquake or tremor yet felt since 1890,10,19)

Sunday.
1890, 11, 2 (~~Saturday~~).

A very small shock at Hitotsubashi;
not felt at Tokyo. (between 1 & 2 o'clock P.M.)

(1890, 11, 4 夜)
〃, 1890, 11, 5
= $0^h, 36^m, 24$ Apr.) incorrected clock-time
$0^h, 45^m, 14^s$. (corrected ??)

Time comparison:—

Chronometer	Clock	
$0^h, 33^m, 44^s$	$8^h, 12^m, 0^s$	(morning of the 5th).
$\Delta T = 4, 14, 42$	$\Delta T = +7^m.2^s$	

A small shock, I felt it in my bed
※ 昼寝中ナガラ bed frame, 重力振ニテ感ジタ
The Drum machine and the 2 duplex pendulums were successful. But the cone-machine failed.
(The underground instrument not yet read)

* yellow in the Duplex pendulum diagrams.
There is a curious trace (like this), on all the 3 records. (This must have happened before the 3rd Afternoon.) At Hitotsubashi, no such record.

1890, 11, 5
night,
A small shock, felt at Hitotsubashi.

At Hongo, the 2 duplex pendulums showed a small E.W. motion. But the cone & drum machine did not start.

23, 11, 9 (Sunday) A tremor.
0, 36, 13, P.m. (Clock)
corrected time = 0h 40m 47s.
(Short Long
8, 42, 6 1, 1, 19, P

On the next morning, the machines found started, but no distinct trace. On the 2 pendulums, almost no trace.

At Hitotsubashi, there was felt no motion.

28, 11, 12, night
A tremor felt in Hitotsubashi.

Not felt in Ishigo.

日本

23, 11, 4, 2, 4, 0 Aug (Aug = 2h 22m 16° ?).

A small earthquake occurred during the early morning of 1890, 11, 14.

Chron. of

11, 14, 2.5 E. 4°, S

I felt it in my bed, was awaken partly by the shock, I felt the rocking of the bed frame.

At Kyoto all the machines — 2 duplex pendulums, 1 drum machine — were successful.

23, 11, 14 4秒 (A tremor ?).
3h 29m 11s P.m. (clock uncorrected)
Merchants started, but no discipline.
{ 4h 49m 0 clock p.m.
{ 9, 17, 13 chron.
not felt at Hitosanbashi

29, 11, 15, 午後 (A tremor?)
1, 25, 26 P.m. (Clock in observatory)
(1, 21, 0 P.m. Clock
3, 49, 12.5 slow about 2 min.

Madam Atsuda but was dispersed
I was in the observatory, but did not
notice the movement.
No indication at Kitasaibashi

Smoked glass. Set of the Cent movement
[illegible]

1890, 11, 18 E

~~6h 42m 27s p.m.~~ (clock),
Corrected time = 0h 44m 2 sec. p.m.

{ 5h 12, 0 P.M. clock
  9, 26, 51 Chr.

All machine successful.
A small earthquake. I was then in a House at Asahiura, but did not notice the movement. Chiri also did not notice the shock at Hakodate, though the motion was then quite large.

23, 11, 17

1 m 9 morning

9, 33, 29 A.M. (clock)

corrected time = 9h 36m 32sec. A.M.

chron.	1, 51, 99,	P
clock.	9, 38, 0	P

A small earthquake. All machines successful.
I was writing in the observatory, but did not
notice the movements of the ground.

23-12-11

In the previous night, a very small shock was felt at Hatotsubashi, not recorded at Hongo.

No considerable earthquakes these a few days, a period of rest.

23-12-6

A new vertical machine was made as exactly as the old one as possible. This new machine is to be used in the pit.

On (23-12-6), the new & old machines were compared. The result was very satisfactory.

1890-12-11. Evening
about ½h 14m pm
A slight shock of short duration
The machine at Hongo failed to start.

庇陰花屋ナシ

(1890-12-17) 4h Verdict (murder) &
the hero Sen-ke (prostitution) were stated
in the Court, everything was ready
for 神戸病院ニ於テ面会ニ決定ス
若干減ヘリタシ

23-12-24 morning

$6^h\ 51^m\ 48^s$ (clear) chron.

($9^h\ 35^m$ 0. $1^h\ 12^m$ 3-80 = Emp.

A small earthquake. I was up, but probably walking, and did not notice the shock. But some in the dormitory noticed it.

Time = $7^h\ 22^m\ 21^s$ A.M. (corrected)

The motion was very small, and has no visible trace in the surface sand also in the pit.)

(午前入時頃より風吹きだす南西ノ方位ニ暖気ヲ帯ビ不快ヲ感ズ)

Mount moon, it became cold, the weather very stormy this day.

quite darkness at half-past noon, rain began to fall. Mirage with waves at the 3 p.m.

(23, 12, 05)
Almost 6h 55m Am.
Daylight-motion felt at Wadsworth Landing
not felt at Norfolk.

(23, 12, 05) About 7 o'clock P.M.
Same shocks as felt at Wadsworth, Lexington
and the Virginias, were felt.
Nothing felt at Norfolk.

1894-1-17

~~2h 53m 20s p.m.~~ Chronometer time = 9h 8m 51s p.m.

Chron 12 9h 1m 0s } mean time
Chron 1h 14m 8s }

No observation. Was waiting time — the clouds today, but did not favor it

(24-1-9)
early morning 4h 40m (?), Am
At [illegible] at Hidotsu-ashi
Not felt at Hongo

(1891-1-25)

1.23.53 pm

clock 4.26.0 pm | 8.26.36 chron.

(1891-1926) $p_{m.}$

~~6+p~~ 6.953 p_{m^2}.

(mixture) 1.11.16 dyson - 9.10.0 charge

(1891-2-13) morning

~~clock 6.30.37 Am~~ ~~(corrected after comparing clock 7.52.0.~~ clock. 11.46.30)

The shock was tolerably severe.

I felt the shock in the bed. The duration ~~in~~ by my estimate was thought to be about 40 sec. I was unable to find any direction in which the movement was felt.

All the earthquakes at Hongo (both surface & underground) were successful. This shock occurred about 6.30.0 Am. About 20 minutes after a second shock was felt. The latter was weaker & shorter in duration than the former. This latter shock was lost at Hitotsubashi of Hongo.

Time of occurrance = 6.30.9 Am.

(1891-2-14) Morning.

~~10.9.22 Am (clock)~~

~~(Comparison chronometer 2.9.0.S.~~
~~(Immediately after) do.R 10.15.22~~

Time of occurrence = 10.10.37 Hrs. (Probably correct to 1 sec.)

I was driving with the Seismological Observatory. The earthquake was felt as a sudden shock, like a blow, followed by another after a few seconds. At Hongo, all the surface instruments vanished. The Underground instrument started, but stopped after a few seconds. The motion was not great, but the period is short, and a good proportion of vertical motion is present.

The motion seemed to be smaller in the pit than on the surface.

The amplitude is not large, but the period is very short, quite discordant with that of a severe shock.

Some living in Tokio said that they heard a rumbling sound accompanying the shock. I myself did not notice that.

(1891-2-20)
About 6.40.0 A.M. a very slight shock felt at Hitosubashi. not felt at Hongo.

Prof. Milne also felt the shock at Hongo, very weak, just perceptible.

(1891-3-1) About 20 m. past 4 o'clock. P.M.
Clock time 4.20.21. p.m.
Comparson —
Clock 8.39.0
Chrono. 0.26.16
Corrected time = 4.18.13 P.M.
(The time of occurrence might be wrong by 1 minute.)
All the machines at Hongo and Hitotsubashi were successful.
The amplitude is not large, but the period is very short, and there exists a good proportion of the vertical motion.
I felt the shock upstairs of a School at Nihonbashi-ku (日本小学校樓上), and the motion seemed to be pretty violent in character. The duration of the shock as far as perceptible to my sense was 25 Sec. (ascertained by a stop watch.) I thought I heard some rushing noise like wind (the air was perfectly calm). Prof. Milne at Hongo noticed no such phenomena.

(1891-3-23) P.M. Live about 6 o'clock?

Next morning the machine was found stopped, but no visible cause.

Load 0.373 P.M.
Coal 0.326 P.M.
8.47
0.26

(1891-3-25) 11.57 mm

Clock 5.9.21 corrected time = 5.13.38 pm.

(21.12 42.0
(clock 11.32.09

very
A/well shock (I was hardly awakened by it from sleep.) The one machine, pit instrument and two duplex pendulums were successful
But the cylindrical machine failed to start
Doubtless owing to the small sensitiveness
of the contact-maker, for on test the
mechanical arrangements were found to be all right

(1891-4-6 (P)
Clock 4.8½ (?) P.M.
A small shock
~~Met machine successful~~
~~Few small traces on the drum~~
~~Other machines, but not very great~~
~~variation during the Day from Indications~~
~~I felt not the shock~~
machine stood, & record obtained
But I did not feel the shock, & the
machines were left not readjusted till
next morning.
At about 10 o'clock A.M. (1891-4-7)
a shock occurred. Duration long
Oscillation very gentle. Two of
earthquakes missed to be recorded
except the 2 duplicate Pendulums
which showed pretty large
movements.

(1891-4-15),
About 3 P.M. a slight but sudden shock was felt. — ~~Just~~ Casting only from instrument. Over ~~the Observatory~~ the machine did not start, — probably because the motion was so small, I suppose the contact water.
I marked the time by my watch to be ~~2.58.15 P.M.~~
correction +2m
i.e. — 3.0.50 p.m.

(1991-4-19)

Pond weed at 4:49:32 p.m.

~~Clock 6.5.0~~

~~Stove 9.52.9~~

Corrected time = 4.49.37 p.m.

The smaller pondweed weeds did not start
Perhaps or three ? not
felt at / stretch [illegible]

1891-4-20 A tremor.
3.56.20 P.M.
Record clock. Corrected time = 3.56.44 P.M.

Also felt at Hitotsubashi
The smaller contact marker did not act.
Record was almost invisible, so effaced
while being photographed.

(1891-5-21)

(Mrs. Nagaoka in the Physical Laboratory did not feel the shock, Mr. Kishinouye working with a microscope in the Zoological Laboratory distinctly recognized the shock.)

Room clock 10.49.8
clock 12.6.0
chron 3.53.6

correction time
= 10.49.10 Am.
Love machine 5.

Long clock 10.40.3
clock 11.58.0
chron 3.53.59

corrected time
= 10.48.3.57
(Love machine)

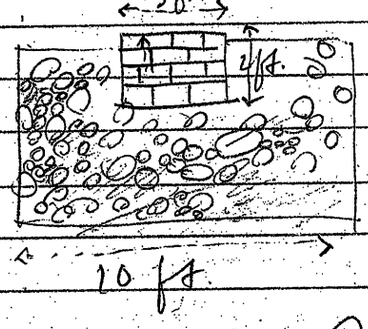
All machines successful.

The motion was considerable, both on the surface and in the pit. I was at the Imperial College of Engineering in the Geological Laboratory, but did not feel the shock, neither did Omori feel it in the Seismological observatory (because perhaps the period is long.) People in Tsukiji said they felt the shock severely.

(1891-4-22.)

In the morning right a small shock was vended at Hitachi-Tabashi. Not felt at Tokyo.

The arrangement for the foundation-experiment was completed.



Excavation: 8 feet deep, 10 feet square filled with a mixture of somewhat large gravels and small pebbles throughout.

The brick support is 3 feet square and 2 feet thick.

The excavation and the filling of sand were completed in January, 1891.

(1891—5—5) morning

round clock 8.15.32 Am (corrected time 8.16.44 Am.
~~clock 8.23.0~~
~~chron 0.11.05~~ (from machine)

Long clock. 8.15.40 Am. corrected time
~~clock 8.27.10~~ 8.16.50 Am.
~~chron. 0.15—39~~ (From machine.)

All machine successful.

This earthquake was very slow — period, and ~~was~~ initial stroke ~~in~~ its amount of ampli was not ~~sensible~~ strong enough to be felt by us at Hongo. (though I was writing in the Observatory.)

People sitting in 3rd story of a house at Tsukiji said that they had felt the shock quite distinctly.

(1891—5—19)

~~Wood clock 0.0.27 P.M.~~

~~Clock 3.27.0~~

~~Chron. 7.27.43~~

Corrected time :—

0.0.42 P.M.

(Long machine)

A small earthquake of mild character.

All machines in excellent.

I was walking and did not feel it.

On the 20th afternoon :—

(1891—5—19)

~~Wood clock 3.27.17 p.m.~~

Corrected time :—

3.27.32 P.M.

(Long machine).

~~Long clock 3.27.11~~

~~Long clock 3.40.0~~

~~Chron 17.30.68~~

Corrected time :—

3.27.32 P.M.

(Drum machine)

A very small shock I did not feel it, though I was watching in the observatory. Not recorded at the Potsdam station.

(1891-5-4)

About 9 o'clock P.m. I felt a small shock. not recorded by the instruments at Tokyo.

Recorded at Hitotsubashi.

(1891-5-22)

A small shock abo

Standclock	5.9.30 Am.
clock	9.2.0
Chr.	0.57.10

corrected time:—
5.13.30 A.m.
(cm-machine)

(1891-3-22)

round 3.28.0

clock 5.45.6

chron. 9.40.07

pm

corrected time :—

3.52.40s p.m.

(corr-machine)

(not filled at Hitotsubashi)

(1891-5-23).
About 2 P.m
A tumor
Only 0mm Started.
Successful at Hitotsubashi

(1891-5-25)

Afternoon.

Clock	1.33.37 P.M.
Chron.	5.35.07

Only done — machine started.

Corrected time:—

1.37.45 P.M.

(1891-5-98)

~~Rudd~~ clock 2.9.11 P.M.

~~clock 2.15.0~~

~~chron 6.18.48~~

A small earthquake I did not feel
at Wrangell during drilling — the
observatory

All machine successful

corrected time, 2.20.7½ P.M.

(1896-6-1)

~~Riverside 0.39.34 P.M.~~
~~Lucas 0.43.6~~
~~Chron. 4.33.19~~

corrected time
0.38.49 P.M.

A small earthquake. I did not feel it, though Mrs. Richardson and the Misses Hunter,

(1891 6-4)

9.19.5 P.M.

~~clock. 8.12~~

~~clock. 8.10.0~~

Corrected time.—

9.23.28 P.M.

A small earthquake, I scarcely felt it.

(1891-6-12) p.m.

~~clock 3.51.10~~

~~clock 3.51.10~~
~~Chron 6.8.18~~

a.m.?

Corrected time, 2.6.39 p.m.
(4?)

(1897-6-19)
~~Aura~~ 6 Aur ?
A small shock felt at Saugus

(1891-6-25). Early morning

~~Rom clock, 3.7 15.~~
~~Clock. 407.0~~
~~Chaon. 0.20.6~~

Hz
Corrected time:
3.42.33.7 Km.

This shock was pretty long, and felt quite well. I was roused from my sleep. The bedstead rocked for some seconds. (Duration. The motion as recorded after Tokyo was smaller than might have been expected.

This earthquake was followed a few minutes after by another, of equal intensity, but of shorter duration. (Located by the Tokyo and Hitotsubashi.)

(1891-6-30)

About 11 o'clock P.M. of (1891-6-29)
there was a slight shock felt at Hitotsubashi.
Again on the morning of 1891-6-30)
a tremor felt at Hitotsubashi.
Both of these were not felt at
Hongo.

(1891-7-1)

~~5.5 7.4 A.M.~~

A tremor. I did not feel it
Also felt at Hitotsubashi
(~~clock 8.3.0~~
~~chron 0.6.33~~ civil date time 5.39.57 a.m.

In the afternoon of the preceding day
there was a tremor felt at Hitotsubashi
not felt at Hongo.)

(1891-7-6)

~~1.28.27. P.m.~~ (one machine)

~~Tokio 5.48.23~~
~~clock 1.38.0~~

corrected time:—
1.38.28 p.m.

A tremor I did not feel it, though I was sitting in the Observatory. (Nitta Chiné) Tai (workmen) in the workshop noticed the earthquake by a slight rattling of windows.

As the trace was immensely small, the glass plate was wiped off without being photographed.

Also felt at Hitotsubashi.

(1891-7-7) just after 3pm

~~clock 11.52.3 pm (by the clock.)~~

~~(clock. 11.58.0~~
~~chron. 4.16.27~~ corrected time,
0.6.18 p.m.

This occurred about 7 or 8 minutes after noon — was quite sensible (but feeble).
All machine successful (except that the N.S.-component pointer of the one machine failed to record for some beginning portion.)

1891-7-11

2.46.5 P.M. (only time noted)

Mrs Andrewes

Clock 8.37.0

Chron. 0.54'33"

(1891-7-15) morning

① ~~9.23.27~~ A.m
(clock ~~9.31.0~~
sun ~~1.30.10~~)
corrected time:—
9.17.11 A.m.

A tremor. Only one machine started

(clock changed)

② Some morning
soon after one o'clock noon
~~9.43.45~~ A.m
clock ~~10.15.0~~
sun ~~2.10.17~~
corrected time:—
9.33.36 A.m.

(this was lost

③ on the same morning of the same day after a third tremor.
clock ~~6.0.10~~ P.m
clock 8.56.0
sun ~~0.55.5~~
corrected time
5.53.25 P.m
in the morning

(1891—7—19) P.m.

clock. 6.0.30 P.m.
~~clock 8.49.0~~
~~chron. 0.55.51~~

corrected time—
6.0.0 P.m.
(?)

(in the dormitory) did not feel it.
All machines successful

(1891—7—21)

clock 8.14.14 P.m.
(clock 8.22.0 corrected time :—
(chron. 0,35-3 8.19.23 p.m.

An earthquake of long duration.
I (in the Dormitory) first thought that
I had heard some ~~no~~ faint noise like
a distant gush of wind ;— at first
feeble tremours, and gradually rising
in intensity. But the intensity of this
earthquake was much weaker than perhaps
might be expected from a glance at the diagrams
which showed motion of large amplitude but
of a long period. This earthquake was
felt much less severely than that of
(#88/1891—3—1).
All machines quite successful.
(except the roller machine)
The Drum and Cross machines gave diagrams
quite similar to each other.

(1891-7-24)

Clock 6.0.44 a.m. a small shock

~~Clock 6.17.0~~

~~watch 6.33.23~~ Corrected time,
6.16.27 a.m.

I felt distinctly in the bed

(1891 - P-4) Early morning -

~~clock 4.28.15~~ A.M.

~~clock 4.10~~ ~~clock 4.52.57~~ Correct time, 4.40.22 a.m.

Felt drowsy in the sleep - long duration -
~~pleasant~~ pleasant feeling

All machines successful

The ~~motions~~ given in the day ~~were~~ were
small ~~that~~ that might be expected from feeling

(1891-8-3) Morning.

A sudden small blow felt for a moment all via clinic once more felt.

I looked at the watch and marked 8.15.15 a.m.

(ΔT = 8.14.37. a.m.

~~clock. 8.17.35~~ Am. 8.15.0

~~clock 8.35.0~~ corrected time, ~~8.14.37~~ a.m.

watch 8.32.37

(1891-9-3). about 2.8.10 P.M.
water.
(lost except the Dominion).

10 a.m.

18 22
33 48
:28

(1891-9-8) a small & flattish shock,
clock 10.33.48 Am
[clock 10.40.0 corrected time,
[watch 10.35.12 10.48.20 a.m.

(Was sitting in the dormitory, first noticed something like a slight sound (like that of wind blowing at a distance), and at the same time a tremor. Looked then at my watch—the time was
10.48.45 Am
ΔT = -40. corrected time 10.48.5 a.m.

all machine shaken for
Have doubtless I felt the shock some time after the
clock

(1891-9-23)
5.41.57 P.M.
(clock 6.32.0
chron. 11.5.31
ΔT of chron = -4.34.46.
A tremor. Only the one registered (marked) : no visible movement.

Doubtful. (?)
(1891-9-24) 2.53.46 P.M.
(clock 2.57.0
chron. 7.31.43
no trace perhaps not the earthquake

1897-10-4) Evening
(6.28.40) Pier first erected
~~6.28.40 Pier erected time, 6.37.40 p.m.~~

(6.17.0 p.m. (sound.)
clock 6.34.0
clock 11.23.5 corrected time, 6.28.40 p.m.

A sudden jerk (which was felt as an earthquake
of 1st sudden jerks).
Sound was heard before the shock
(鉄工氏)

The core + the roller successful. Successful on the 2nd.
Lost in the pit. Drum lost.

watch.
(1891-10-5)
$\Delta T = -60$ sec.

correct changed.
(1891-10-5)
$\Delta T = +68$ sec. (?)

Eqke. in the evening,
by my watch —
(1891-10-5)
8.9.5 p.m.

(1891-10-6)
$\Delta T = +57$ sec.

(1891-10-6)
6.46.45 a.m.

(1891-10-5) 8. p. m.
~~7.53.09~~ a small shock
~~clock 6.0~~ corrected time 8.10.27 p.m.
~~watch 1.0.8~~
I noticed no premonitory sound.
All machines successful.
(8.9.5 p.m. $\Delta T = +57$ sec.)
By my watch, corrected time, 8.10.2 p.m.
Both of the above two time values are equally correct.
The time as directly observed by my watch is much earlier than that given by the clock, which shows that I felt the shock sooner than the contact maker of the seismograph.
This earthquake was not felt very severe in the Dormitory at Hongo. Mr T. Kimura (辰三郎) felt this shock very severely in his house at 回 三 春町 (本郷三丁目会).
(三丁目会ト春町ト麦飯町ト隙、英国公使館、真砂谷町ヤリ同氏ノ話ニ由レバ此地震ハ頗ル強ク且ツ長ク大地震ニデモアウカトテレバヨシト思ヒ居リシトヤ且ツ地震ノ来ル前ニ鳴動甚ダシク往来ヲ歩行セル人モ家屋ノ動揺セル音ニテ地震ナルヲ知リタリトゾ。鳴動ガ大方家屋ノ揺ル音ナルベシト同氏家ノ台所ノ瓶ノ類ガ地ニ落チテ砕ケシ故ニ強キ地震ヲ感ジタルモノベシ。)

(1891-10-6) ~~by my watch~~ midnight.
~~by my watch 6.46.25 Am~~
~~ΔT=~~
a tremor.

Ex. 0.50.2 Am. (B) Corrected time
6.47.30
-1.38 -13
0.47.18 a.m. 1/7

R. 0.46.20 Am.
6.47.0
-1.42.36
corrected time (2)
1.1.49 a.m.

The Cone machine + the Drum + the Roller successful.
Lost in the pit + on the gravel.
I did not notice it (目が覚ナカッタ)
(among these 2 values, there must be some mistake. (1) might be the correct one.

(1891-10-6) morning. A small shock (but felt distinctly)
(By my watch 6.46.25 Am)
ΔT=+57 Sec. Corrected time 6.47.22 a.m.
Lost except by the roller.

(1891-10-7)

A ~~10.53.10~~ a.m.
clock 11.33.0
chron. ~~4.42.7~~

corrected time
11.24.17 a.m.

B ~~11.24.14~~ a.m.
~~12.6.0~~
~~4.43.43~~

corrected time
11.24.54 a.m.

a very slow earthquake. I did not feel.
All machines obeyed.

(1891 — 10-9) morning:
5.23.53. a.m.
[dvcr 6.2.0
clavon 11.39.42
a train
Carlyle. One machine shop.

5.34.0
4.9.20
4.40
1.2
5.34.18
10.20.18
1.24.40
8.55.38
4.39.45
4.16.23
2.13
4.15

1891—10—11

At ~~4.9.20 p.m.~~
Elect ~~5.34.0~~
Chron. 10.20.18 corrected time 4.16.23 p.m.

or ~~5.37.0~~
~~10.23.18~~ (by my watch, 4.15.13)?

I was in the Botanical garden, lying flat on the ground I first felt distinctly the preliminary tremor which was very feeble & lasted some 10 sec, and then the motion became suddenly great. Houses violently shaken & windows & doors 落ちた引っ掛ける ア・ア・ア・ア 植物園 - 玄武門 = ware 人々 ワイワイ 言ふ (同) (園内, 地中 = ware propagation 生じた (S-W?) all machines successful. The diagram from the pit - is much smoother & devoid of ripples which are found in the surface diagrams.

(1891-10-17)

(9.28.0 p.m. by watch) GMT z + 2m 38sec.

9.30-38 p.m. by watch.

At ~~9 m 38 p.m~~ corrected time,
~~(clock 9.36.0~~ 9.30.40 p.m.
~~chron 2.23.22)~~

Only the cylinder & pit Reverberation.

Then was a very feable shock I first noticed the rattling of distant windows shortly before I felt the shock.

(24-10-27) morning fair
A small sudden shock lasting only for a moment
[6.26.53 a.m. by watch
$\Delta T = -35$ sec.
∴ corrected time = 6.26.18 a.m.

~~clock 5.24.39 a.m.~~
~~clock 5 35 0~~
~~clock 11.17.39~~

corrected time
6.26.20 a.m.

~~clock 6.10.9~~
~~clock 6.35.0~~
~~clock 11.22.17~~

corrected time
6.26.18 a.m.

All machines successful.

(1891-10.22) night

~~9h 2.48 p.m.~~ 大地震
~~clock 55.0~~ corrected time
~~time 1-53:22~~ 8.59.53 p.m.

~~My watch 9.0.50 p.m.~~
~~△T = -73.~~ corrected time 8.59.37 p.m.

Only a tremor I ~~decided~~ just felt it.
First I thought I felt some slight trembling and after a moment a rough feeble blow and I perceived distinctly.

(Prof. Yamagawa said he had first heard a detonation which trembling, ~~the~~ like some powder explosion.
Some people in the dormitory also heard a detonation.)

(24.10.24) night
An extremely small & slow earthquake
No one felt it in the dormitory
On reading by the computer with the unaided eye

~~7.14.48 p.m.~~ corrected time
~~(clock 8.9.0~~ (next morning 8.18.4 p.m.
~~chron. 1.53.59~~

(1891-10-27) Morning
in London Hospital
I was walking, and noticed a sudden rattling sound
of the head Drug, but did not feel the shock distinctly.

~~E.T. 6.14.57~~ a.m.
corrected time,
Clo. 6.12.0 6.16.18 a.m.
~~Chro.~~ 11.5.21

N. All Machines successful.

(24.10.27) ~~to night~~
A very small shock, just felt while sitting quietly.
(by watch 7.10.48 p.m.
ΔT=

~~clock 6.52.4 p.m. (B.S.T.)~~ E.S.T.
~~chron. 0.5.39~~ corrected time
~~clock 7.0.0~~ 7.9.36 p.m.

Only the Ommanney storm — as the first

the pendulum clock, Cross on the surface & on the pedestal in one circuit.
Drum machine on the surface & the cone in the pit
the Bond clock in another circuit.

horizontal
The pointer of the Ewing's machine still there oscillating through the whole radius of the glass plate, which motion however I no longer distinctly felt. The end of the pointer of the vertical motion seismograph was also seen to be vibrating through a length of about 1 inch.

(suspended by chain about 8 feet long
Lamp { made (10') : 31 sec. } time of complete oscillation
Range of arc (20 cm.
almost exactly the same as in the N-S direction
(When I went to the observatory.)

the nearest period of oscillation of the lamp.

at (24, 10, 28) a.m. 1st shock in the morning.

~~(6.40.35 a.m. by watch~~ (by watch Δπ = -90 sec.)
(the cones of the seismographs
were still swinging at 6.40.35 a.m. by watch (≡ 6.49.30 corrected,
in complete amt. at 6.53 (≡ 6.51)

~~watch 7.40.0~~
~~chron. 6.20.34~~
~~to 6.20.15 a.m.~~
~~6.39.0 clock~~
~~11.39.42 chron~~

Corrected time,
6.39.5 a.m. by watch
6.38.53 a.m. by pendulum clock

∴ 6.37.12 a.m. pendulum clock

The pendulum clock stopped at 6.38.37 a.m.
37 "
10 "
(watch time)
at 7.42.0 a.m. the lamp was still slightly oscillating.

I was sitting in the dormitory reading room, felt first slight trembling, looked immediately at my watch (Δπ = -90 sec.) marked the time 6.40.55 a.m. and then immediately ran to the observatory. On the way, I saw electric lamps (from the gallery of the dormitory office) swinging N-S. (The electric lamps in the dormitory room also were observed first to swing N-S, and then gradually to change to elliptic motion, the major axis of which is in the direction E-W. On another dormitory building which is in the direction N-S, the lamps were seen to swing in the direction E-W.

2nd) by cone & on the gravel.
(1891-10-28) morning
2nd shock in the morning
time lost
registered only by the 2 Cones on the surface
& on the gravel.

第1/4ut.
No one could tell distinctly what was the principal
direction of motion. (such a direction in fact
does not exist.). Neither people felt
distinctly any vertical motion, though the
diagrams show a considerable amount of vert. mot.,
perhaps because this was very long in period,
The direction in which suspended lamps, etc.
swing continually changes as is well known. Thus
Mr. Kishinouye observed that the lamps in
my dormitory room first moved in E.W. direction,
then in elliptic orbits of continually changing azimuth,
then in N.S. direction, finally changing in NW-SE.
at Hongo
In this large earthquake, as well as in the subsequent
minor shocks, the record was not obtained
from pit, the machines having been started by the
small shock of the preceding evening.
The N.S. component pointer of the Surface Ewing machine
& the vertical got off the glass plate after about
35 sec. from the start. And the glass plate

(3rd) (1891. 10. 28) morning 3rd shock in the morning.
At 7.32(?).30. Only by Drum.
Clock:
Chron.

a small shock. Registered by the Drum machine
on the surface alone. The cones failed.

Stopped after the weight of the clock work has run down
its whole length, but the motion continued a long time
after that, & the pointer (E.W.) traced large displacements
at the place where the mast glass plate stopped
over & over again.
The vert. comp. pointer of the Drum machine also went
off, but its two horiz. comp. pointer did not go
off (except at one part, after which, however,
the pointer again returned on the drum) the Drum,
the poles having been brought against the sides of
the brackets, which did not allow the pointers
to go off the drum. Similar thing happened
with the instrument on the gravel.
In the pit, the N.S. comp. pointer went off the
glass plate, but the E.W. pointer did not; we got
only a record of the max. range of motion
in the pit.

6th. (1897-10-8) morning. 6th shock in the morning.
by cone & in the gravel
(clock stands again.)

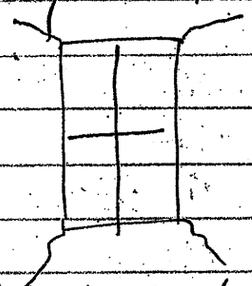
~~E.T. 7.9.55 a.m.~~ corrected time
~~clock 7.1.0~~ 8.6.56 a.m.
~~chron. 0.56.7~~

A very small tremor, only registered by the cone-machines on the surface & the gravel.

At Hongo, the 強震計 did not record it, as the shock was not able to let fall the ball; but the estimates of the max. range were given by the statical trace of the pointer. (Same thing happened with respect to the 強震計 at Hitotsubashi.)

The balls of the 三斗 強震計 at Hongo did not fall, none of them.

(At Hongo) the masonry walls of the dormitory was slightly cracked at the corners of the windows.



The cracks exist not only in the superficial mortar, but also in the stone masonry.

Prof. Milne observed that the lamps in his house all oscillated suspended (his house = N.W. direction) in N.S direction when he observed them immediately after the start of the shock. He felt, while he was steadily observing the seismograph at his house, a kind of dizziness of

(1891-10-8) 5th in the morning.

~~E.T. 9.45.52 a.m.~~
~~clock 9.45.0~~ corrected time
~~chron. 5.29.19~~ 10.39.13 a.m.

~~E.T. 10.20.0~~
~~clock 10.24.0~~ corrected time
~~chron. 3.25.18~~ 10.39.20 a.m.

An extremely slow shock, I did not feel it though I was sitting in the observatory.
By watch 10.40.35 a.m.

All machines successful except in the pit.

the head. Mrs Milne said that she felt as if she were sea-sicked.

Prof. Milne observed that in the rectangular pit near the Engineering College water was thrown into wave motion, which slowly moved in N.S direction, and rose about 3 feet against the N.S walls. This took place in the latter period of the motion.

Prof. Tanakadate said that the water in the pond in Botanical Garden was somewhat made turbid near its margin by the falling of mud & pebbles.

(1891-10-28) 6th a.m. 6th morning

~~10.32.31 a.m.~~ corrected time 11.29.48 a.m.

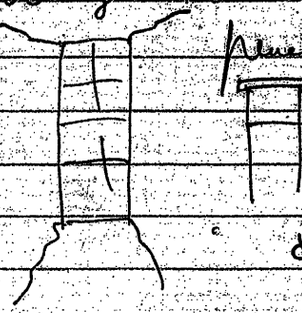
~~4.26.24~~

~~11.27.31~~ Corrected time, 11.30.50 a.m.

6th shock in the morning.
A very small shock. I did not feel it.
All machines successful except by the pit.

At Hitotsubeshi, the N.S. comp. pendulum went off the recording plate.

The Lecture Hall at Hitotsubashi. — Its walls were damaged at the corners of the windows, the cracks penetrated into its substance.



The wooden lining over the window was in some instances torn from the masonry and was under to easily to fall down.

斗面屋根ノ牙ノ Mortar モツハゲ レタ.

(1891-10-28) 7th p.m.
7th shock of this day.
~~5.10.45 p.m.~~ corrected time 5.33.29 p.m.
~~clock 5.22.0~~
~~down 10.46.54~~
A small shock.
All machines successful.
I did not notice if hearing been realising.

Mr. Minoto & I rode in the Dormitory saw the trees to oscillate distinctly.
Mr. Minoto was leaning against the wall of the 2nd story of the dormitory (west in the Director's W.), and felt himself to be alternately pressed against the wall & rebounded from it, just as in a ship on the sea.

(1892-1-17)
Clock, 3,—,57 a.m. (minute hand died not write)
(clock 7.9.0
chron. 11.53.4.
(upstairs of the Dormitory)
I was awaken from sleep, I felt shake undulation of the bed. The windows of the room much rattled
The diagram shews some trace of vertical movement But it is probable that such movement was not distinctly felt by many people Prof. Milne said that he felt none of the vert. movement. (Jan. 27)

(1892-1-17)
11.35.30 p.m. (Astr. Obs.)
a shock undoubtedly severe. Some people got out of rooms.
Duration of the shock as I distinctly felt was about 30 sec.

(1891-1-26) morning
clock 7.39.0 a.m.
clock 7.56.0
chron 1.51.0

a small shock felt on upstairs of the dormitory chiefly as gentle horizontal undulations.
Professor Milne says he felt (on ground floor) as a vertical shock distinctly, & saw electric lamps oscillating vertically.

It may be remarked that the nature of motion will be very differently felt by people according to their situations. For instance, as above mentioned, might be felt differently on ground floor & on upstairs.

(1892-1-28) night

(about 11½ p.m.)

clock 10.55.42 p.m.

clock 7.58.0

chron. 0.51.25

As felt on upstairs the motion was only weak horizontal pendulations. Duration as felt was about 20 sec. Windows rattled, awakened from sleep.

SEISMOLOGICAL OBSERVATORY, IMPERIAL UNIVERSITY,
TOKYO, JAPAN.

earthquake of (1892-1-31) (Hongo.)

Time of occurrence (by earthquake Automatic clock), 10.23.14.5 a.m.
(by my watch, i.e., when I felt it) 10.23.13.5 a.m.

Horizontal Motion. Duration 50 sec.
This begins with tremors which lasted 8 sec. After this, comes suddenly the following maximum motion:—

(range = 1.2 mm period = 0.53 sec.
  V = 7.1 A = 84.

This is toward E 20° N. The motion which follows this initial displacement seems to be merely the consequence of a series of small waves whose average period is of first 0.32 sec.

Vert. Mot. Duration 50 sec.
There is no distinct "tremor stage" but the whole motion consists of extremely minute vibrations which gradually passes into slow undulations (as also the case with the horizontal component.)

(Max. V. Am. = 0.16 mm period = 0.24 sec.
  V = 2.1 A = 55.

This takes place 8 sec. after the start, i.e. simultaneously with the max. Hor. mot. The average period of the vert. mot. in (its earlier stages) 0.13 sec.

1892-1-31) morning

clock 9.51.2 a.m. corrected time (clock)
clock. 9.56.0 10.23.14.5 a.m.
chron. 3.1.25.5

watch 10.47.48 a.m. corrected time (watch)
watch 10 55.0 10.23.13.5 a.m.
chron 3.3.38.5

A considerable shock felt rather severely (the suspended Electric lamps in the Dormitory Study Rooms rocked about, though they did not oscillated through any considerable arcs.

People in the Science College (ground floor) said that they felt shocks as if coming from beneath. Those in the Dormitory (ground floor) were not able to perceive exactly what was the nature of the shock. Of course people will feel shock very differently in loose wooden houses from solid brick houses.

1892-2-2 night

8.55.3 p.m.

(clock 8.40.0 a.m. Correction (ch. − t_c)

chron 2.49.40

I did not feel it.

25-2-3 about 8 p.m.

6.14.57 p.m.

Clock 6.25.0 p.m.

Chron. 11.35.45

(A small shock, but of comparatively long duration was scarcely felt on the windows slightly rattled.
I was sitting very quietly in the dormitory, & counted the duration as 30 sec
Suspended electric lamps slightly moved.)

1892-2-14

In the previous night, there was a feeble shaking. I was aroused from sleep, & felt my bed-stead swinging probably in NS direction (in its shorter direction), Windows & glasses rattled. I estimated the duration to be some 15 sec.

None of the machines started. (battery was wrong)

(1892-2-18)
A small shock which was felt only as a faint sigh flow.
(?) 10.30 p.m. (by watch)
(watch 1.5.0
Chronometer. 5.33.6
No machine started. (battery was wrong)

(1892-2-20)
During the previous night, there was felt a very small shock. I was awaken from sleep.
I estimated the durate to be about 15 sec.

(1892-2-21) early morning.
8.54.59
(clock 7.57.8
chron. 0.20.47
I was awaken from sleep. I felt as gentle undulations. The bed stead seemed to rock. The window panes slightly rattled. Was rather long in durate. I estimated the duration to be about 20 sec.

chron. 1.35.31
clock 8.35.0
(1892-3-8)
7.32.43 p.m.

11.30.30 p.m. (1891-1-17)

daylight drum paper. 994

(1892-2-27) Contact Pacific into H.E. for
5.32.41 p.m.
clock 9.5.0
chron. 1.32.27

(1892-2-29) aftershock?
4.13.40 no distinct record.
clock 5.15.0
chron 9.49.8.5
7

(1892-3-22)
3-
was not felt.

1892-2-12 4.

O

12日24年前二十三分二十八秒ニ

1892-3-31

At about 9 p.m. there was a small shock felt at Hanges, but no visible diagram. time lost, glass wiped off. I was at Akasaka, didn't feel it.

1892-4-2 (in the previous night)

(long) { clock. 11.26.33 p.m.
clock 8.6.0 a.m.
diff. 1.32.60

(round) clock. 0.13.38 a.m. (better.)
clock 7.13.0 a.m.
diff. 1.34.25

In the previous night, there was a small shock. I was awaken from sleep, and felt gentle shakings of, which lasted about 26 sec. (in my country)

pit machine failed

1892-4-3 early morning
underground failed - Dive lost.

[dwatt counted by me = 30 sec ?
counter-att. rattling if unknown, proposed + having

1892-4-12
8.12.42 a.m.
(pit one of 74 = P.17 by escaping of contact
(4.12.0 clock
(8.36.14 chron.

1892-4-19.

long clock 3.49.53 a.m.

(clock 8.28.0
(chron 1.9.21

2nd (⑧.4.5.35 a.m. (?)
(clock 8.47.0
(~~but~~ chron. 1.13.57

a small and gentle shock.
(The shaking continued for about 30 sec, i.e as felt and counted by me in bed. I felt the rocking of the bed stead chiefly in NS direction.)
~~pit~~ failed.

1892-4-19 early morning.

下駄 (6.55.3 a.m.
(clock 7.32.0
(chron. 11.49.15

足袋 (6.55.50
(clock. 7.36.0
(chron. 11.51.22

(pit failed)
Mr. Hiki said he felt the shock as a sudden thrust. I was walking and failed to perceive it.

1892-4-22 early morning

Exact { 1.36.35 a.m. (n 40m ?)
clock 7.45.0
chron 11.52.365

Perhaps { 1.26.48 a.m
clock 7.36.0
chron. 11.54.29

a shock pretty severely ~~shake~~ felt windows considerably rattled. I thought vertical movements were felt. (I estimated the duration of the shock as felt by me = 30 sec.)

'92-4-24 early morning / Brauer の一撞にハヤリ
左62/2ハヤイ

1892-4-30
6.0.11 a.m.
{ clock 6.11.0
chron. 10.29.42
only the cone machine started.
very feable shock, just feelable. I felt in the bed as slight trembling. Windows did not rattle.
Time by my watch 5.59.50 a.m.
watch 9.8.0
chron 10.26.57
Duration estimated by sense = 15 sec.

1892-5-9 evening.

watch, 7.50.13 p.m.

(watch 7.59.0
chron. 0.21.15
(corrected time.

A single sudden jerk, felt as if the house was suddenly struck by a blow. Noise of the machinery stopped.

1892-5-11 morning.

clock 7.0.0
(clock 7.38.0
(chron. 11.48.6

A small shock distinctly felt.
(I was walking, and thought I felt a small jerk.)

1891-5-12.

R. 2.15.36
clock 2.18.0
chron. 6.37.44

Only the p.m. observed.
a transit ? the.

1892-5-18 evening.

E { 7.40.0 p.m.
clock 7.47.0
chron. 0.9.8

R { 7.40.45 p.m.
clock 7.50.8
chron 0.10.51

(I was = the observatory)
The mud clock first went off. I didn't then feel any movement at all; 23 sec. later, the pendulum clock went down, and then we felt a slight shock of rather sluggish nature, i.e. the house received a sudden I felt as if jerking

1892-5-20 mornings

[illegible] 7.16.58 a.m.

R (clock 8.27.0
chron. 0.49.11

Only the pit clock fell down
Spy pack remained not stars
I did not feel the movement
Chino said he felt as Hitotsubashi
the shock diminished

1892-5-21 ~~night~~ (in previous night
— 49.6 chron lost

R (clock 17.51.0
chron. 0.13.48
a tremor ? only the pit machine stop

1892 – 5 – 21 Morning

9.34.44(8) (by Second hand watch) clock 9.44.2
Sun's 2.3.16

Watch 9.21.20 A.m.
Watch 9.35.07
Sun's 1.58.26

Only the surface was touched.
I dipped the cup once and a half
through water resting quietly on the
observatory (watch time) Clock 9h. 47m. 48s = 9h. 49m. 17s.)

1892 – 5 – 21 Afternoon

9.50.55 a.m.
Clock 9.54.0
Sun's 2.17.27.5
as Crum? Wet full vessel
Only surface contacted.

(1892 – 5 – 21 A.M.
9.50.55 a.m.
Watch 10.1.4
Sun's 2.24.57
As Prof. Crum)

1892-5-24 9 p.m.

~~9.11.~~

9.3.17

clock 9.19.0

chron. 1.41.9

only surface machine started, I felt no movements though I was sitting in the observatory. The tromometer moved much.

1892-5-31 night

watch 8.47.38 p.m. (Ende)

watch 8.48.0 Anfang

chron. 1.12.42

Only surface machine started I did not feel any movement though I was sitting perfectly quiet in the observatory

1892-6-3 4 a.m.

watch 4.22.22 a.m. (4.28.5)
watch 4.18.0
chron. 8.53.49

clock (3.2.0 ?)
3.9.0 (4.23.~)
chron. 9.15.2

This was felt as a sudden jerking, and immediately pass over, was sufficiently powerful to wake from sleep.

1892-6-3 morning

watch 7.8.38 a.m.
watch 7.18.0
chron. 11.03.44 (7.9.22)

clock 5.43.6
-15
5.43.45

a large shock, motion chiefly E-W.
clock stopped 15 sec. after the start
(plumb clock 11 NS)

The suspended lamp in the observatory swung through a distance of 4 cm. (range) in nearly E-W direction (or rather ESE-WNW)
The pointer of the seismograph was still moving slowly till 7.18½ (by watch)
Trees oscillated considerably
Telegraph wires also oscillated
In the dominion, 甲乙丙丁ヵ半八ヵ所ニテ午前七時一五分ニ震ヲ感ジ(前ト同ジ)

1892-6-8 morning.

watch 9.1.21 a.m.
watch 9.4.0
chron. 1 87.5

clock 9.2.46 a.m.
clock 9.6.0
chron. 1.32.6

I noticed a slight movement as if the room was gently struck by a blow (I was sitting quietly at the observatory). Noticed the time by the watch. Four second later, the machine started (clock time). Only a murmuring sound.

1891-6-15
clock 0.44.47 p.m.
~~clock~~ 0.50.0 p.m.
chron. 3.18.13

only a tremor. I did not feel, though was sitting quite.

1892-6-19
(7.35.48 p.m.
clock 7.52.6 a.m.
chron. 0.21.53

a tremor? only the cone machine started

1892-6-28 night

11.37.37 p.m.
clock 8.44.0
chron. 1.17.15

a tremor ? but the connection not felt at Hotchkiss.

1892-6-30

1.21.50 p.m.
clock 1.25.0
chron. 6.9.4

a tremor

1892-6-30

watch 6.12.16 p.m.
watch 6.18.0.
chron. 10.50.32

clock 6.0.50 p.m.
clock 6.8.0
chron 10.57.56

I just noticed a ~~ear~~ distant rumbling sound about 3 sec: later I felt one or two small horizontal tremors. The Cone did not shake.

1892-7-3

1·59·55 a.m
clock 8·54·0 a.m.
diff. 1·53·35 a.m.

a reason? Only the pit clock started.

1892-7-25 p.m

6·50·43 p.m
clock 6·52·0 a.m.
diff. 11·20·25

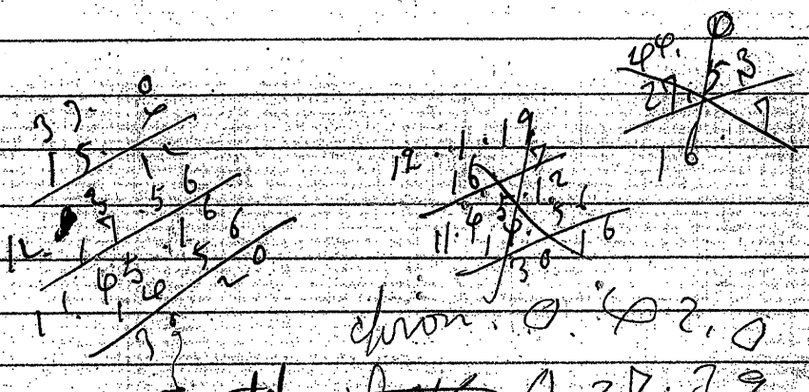
1892-7-27 11.9 a.m.
a moderate shock

1892-8-3 p.m.
10.55.53 a.m. a (tremor?)
(moderate)

1892-9-13 11½ p.m.
a pretty severe shock. (Diagram 二ヨリテ
方ノ有様ニ大変ナ方ヘ方ノ正方カラ十カ八分) I
thought the bedstead moved chiefly in a
N&W—S&E direction (longer axis // to N&W
but failed.

~~11.27.53 p.m.~~
clock 11.44.0 corrected time
chron 0.1.19 11.30.16 p.m.

~~11.15.4~~ corrected time
moved ~~11.37.0~~ clock 11.30.20 p.m.
chron. 0.7.12



1892—10—6

	0.40.7 a.m.
clock	8.56.0 a.m.
chron	9.27.32

a small shock. I did not notice it. — Ku
(keeps only one station).

1892—10—7 early morning

	10.9.56 a.m.
clock	8.25.0
chron	8.59.40

	0.11.0 a.m.
clock	8.31.0
chron	9.4.17

a small shock (I did not feel it (in bed))

(1892-10-8) 1h p.m.

A. 1.35.13 p.m.
clock 1.38.0 p.m.
chron. 1.58.43

B. from 1.19.4 p.m.
clock 1.25.0 p.m.
chron. 2.1.48

Only a sharp jerking both machines stopped.

(1892-10-14) about 8 p.m.
a slight trembling felt at Hongo, but failed. (M.T.) distinctly (=)
not felt at Iidabashi
(Mr. Hayashi felt it at Azabu)

(1892-10-19) about 0.30.0 p.m.
a very small shock

(1892-10-21) 7¾ p.m.
only Seikei — not strong.

7.57.36 p.m.
clock 7.57.0
chron. 8.19.55

a very small shock. I thought there were slight tremblings.

(1892-10-22) 8 p.m.
a small shock, but not felt by others.
18.7.5 p.m.
clock 9.10.0 p.m.
chron. 9.38.17 p. (measurements)

(1892-10-25) 10 p.m.
The coin did not start, though everything was in good order (probably the points got somewhat rusted).
Pit started
☆ 8½ ☆
10.0.21 p.m.
clock 10.10.0 p.m.
chron. 10.37.51

a very feeble shock which in my estimate lasted 30 sec. The lamps did not visibly oscillate. I felt the sensation of small sluggish movements with a few rather sharp movements at intervals.

○ (1892-10-27) p.m.
3.1.46 p.m. by watch
(watch 3.48.0 p.m.
chron. 4.9.21
Only a sudden jerk. Machine did not start.

(1892-11-3) 1½ p.m.
1.31.0 p.m. (watch)
(clock 5.5.0 p.m.
chron. 5.27.23
a very small shock
Only the surface constants (I was walking & did not notice it.)

○ (1892-11-5)
1.49.6 a.m.
(clock 9.36.0
chron. 9.57.16
Only surface constants
(I did not feel it in sleep)

○ (1892-11-9) 0.9 a.m.
both machines started.
☆ 0.16.12 a.m. (I did not feel it in sleep
(clock 8.23.0
(chron 8.42.3
☆ 12.49.41
clock 7.39.0
chron 8.02.25

(1892-11-16)
E 4.6.45 p.m.
clock 4.10.0 p.m.
chron. 4.30.49

A 4.48.17 p.m.
clock 4.53.0 p.m.
chron. 4.52.22

a small shock.
not felt strongly I was sitting in the observatory

(1892-11-21)
10.31.36 p.m. E
clock 10.45.0 p.m.
chron. 11.12.43

10.54.52 p.m. A
clock 11.11.0 p.m.
chron 11.15.18

a pretty strong shock, felt a jerk from beneath. Suspended lamps slightly moved. I could not feel what was the close of the shock.

O (1892-11-28) 0.35.37 a.m.
clock 9.9.30 a.m. E
chron 9.34.38

0.51.56 a.m.
clock 9.31.0
chron 9.35.36

I did not feel it. not felt

1892-12-6 4½ p.m.
(clock, ~~3.5~~ 4.24.54 p.m.
watch 4.29.30 p.m.
chron. 4.46.26.
a weak horizontal shock.

(Very slight shock felt.)

(1892-12-9) 8 a.m.
7.29.57 a.m.
clock 7.39.0
chron 8.68.3
a prolonged shock, which was felt as a
quick horizontal shaking, which lasted some
5 sec. It was preceded by a rumbling sound.
Suspended electric lamps oscillated a
little.

1892-12-9) 10 a.m.
a slight but prolonged shock
10.10.12
clock 10.15.0
chron. 11.6.30
(corrected time,
10.46.12 a.m.
) did not feel it, though was on the
qui vive — the observatory
the suspended lamps in the observatory
were set into slight swings.

(1892-12-11) about 1 3/5 a.m.
0.56.8 a.m.
clock 7.46.0 a.m.
chron. 9.43.30.
(corrected time
1.36.30
a gentle oscillatory shock apparently
did not feel it.

(1892-12-24) a ¼ p.m.
1.56.51
clock 2.0.0
chron. 2.28.17
a tremor.
did not feel it

$7.9 \sin 120° \cdot \frac{W_H}{2.91} - 2.09 \sin 45° \cdot \frac{W_H}{2.91}$

$7.9 \sin 50° - 2.07 \sin 53° =$

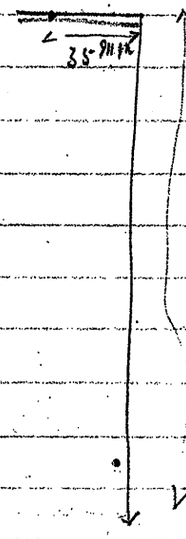
$7.9 \sin 80° + 2.09 \cos 74° =$

$7.9 \sin 30° - 2.09 \cos 21° =$

廿六年六月廿日

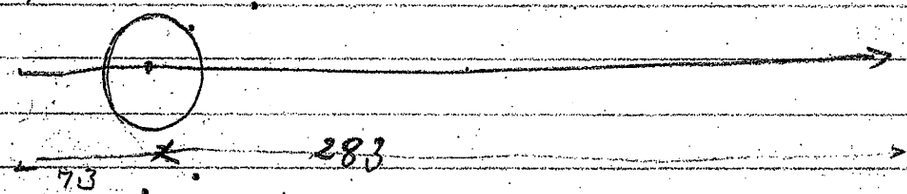
Multiplying ratio

上下動



$\frac{245}{35} = 7$

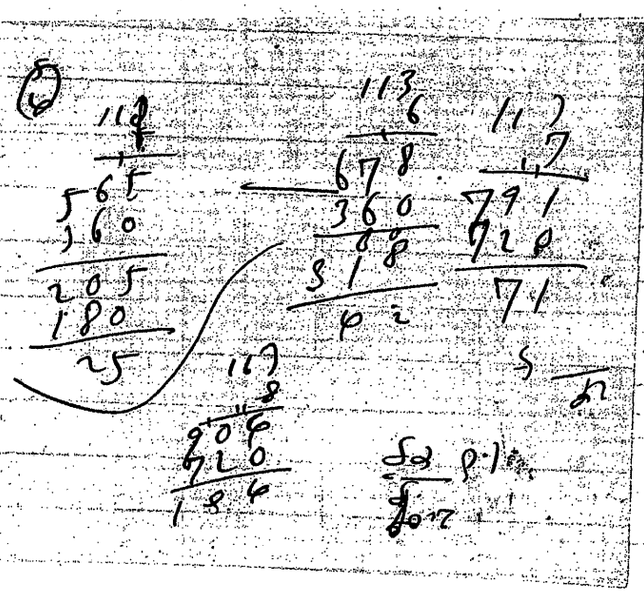
橫動



$\frac{283}{78} = 4$ nearly

故ニ中等，陪大ノ五ツ

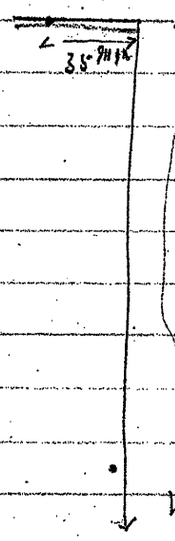
若シ夫 283 ハ (78×4) = 292 ニ近サルヘカラズ



廿六年六月廿日

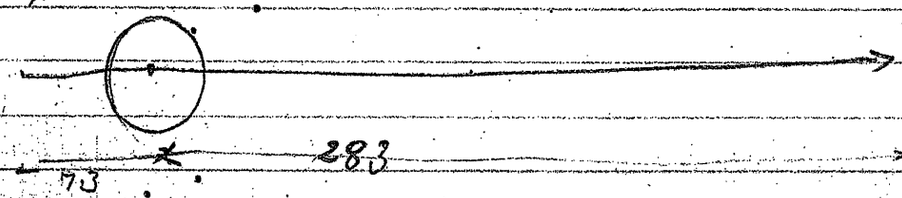
Multiplying ratio

上下動



$\frac{245}{35} = 7$

橫動



$\frac{283}{73} = 4$ nearly

故ニ安全率ノ倍大ナル 4 ヲ採用ス

然レドモ 283 ハ (73×4) = 292 ニ近カルベカラズ

(1891-10-24.) Experiments (Surface cure)

Natural period of the Test Machine 1.6;
Stops after one half-oscillation (in seconds)
1.6 sec. 1.1 sec. 1.8 sec. 1.65 sec.
1.5 sec. according as the arc of
displacement is greater or smaller.

S.W. Hemicrania. Natural period; —
also stops after one half-oscillation
1.8 sec., 1.6 sec., 2.3 sec., according
(to the magnitude of the arc.
(in semi-vibrations).

N.S. Hemicrania, Natural period; —
The cure is more stable, and makes
fewer numbers of rapidly decreasing oscillations; —
In one series; 2.3 sec, 1.4 sec, 1.2 sec,
1.0 sec, 0.8 sec,
In another 2.4 sec, 2. , 1. ; 1. , .6.
In another 1.8 , 1 , .9
" " 2. , 1.4,
2.5 , 1.4 , 1.4

S.W. compt. Level changing.
(I). Letter ~~turned clockwise~~, compt.
↑

Western & new turned Counterclockwise
(I), through π, — displ. of the pointer (A) 69 cm.
(II), clockwise π, " (B) 29 cm.
(III), from the two centers of the plate.
Counter π, " 45 cm. ↓
= the same direction, π continued,
101 cm. ↓

(IV) ~~Py~~ 72.
(The cure adjusted to Level,
Counter π, 88 cm ↓
Clock π, , 108 in opposite ↑ direction.

(V) first put at a perfect level
π clock, (prism level,) 54 cm. ↑
in opposite direction (returned to Hemicrania)
Yes) π Counter, ↓ 50. cm.
continued in the same direction, π counter, 105 cm.
(VI) π counter, 78 ↓ ; π clock, ↑ 88 ; π clock ↑ 74
convulsive

(VI) π counter, ↓ 120; π clock, ↑ 160.
(VII) π clock, ↑ 57 cm. ; π count ↓ 53 ; π Count, ↓ 100
(VIII) π clock, 110 cm ; π Count ↓ 105, π count ↓ 105.
(IX) : π clock, 92 cm ; π Count. ↓ 116, π count ↓ 118

(E.W. compA. [incr. set), West screw moved.
(2). the pointer first set at 0. level,
(I). π clock. ↑ 110; π crnut. ↓ 90 cm.; π crnut ↓ 135.
(II). +π ↑ 80, −π ↓ 100; −π ↓ 115.
(III) +π ↑ 92, −π ↓ 85; −π ↓ 115.
(IV). −π ↓ 118; +π ↑ 105; +π ↑ 110.
~~(V). +π ↑ 150; π ↑~~
(V) +π ↑ 100. −π ↓ 90; −π ↓ 105
(VI). −π ↓ 118; +π ↑ 102; +π ↑ 88
(VII) −π ↓ 105; +π ↑ 105; +π ↑ 120

π clock (+); π crnut, (−).

(E.W. compA. (East screw moved))
(1). +π ↓ 90 cm; −π ↑ 80; −π ↑ 135.
(2) +π ↓ 103; −π ↑ 97; −π ↑ 120.
(3) +π ↓ 108; −π ↑ 84; −π ↑ 118.

(11). −π ↑ 115; +π ↓ 107; +π ↓ 78

(E.W. compA. West screw moved.
(1). +π/2 ↑ 57; +π/2 ↑ 50; −π/2 ↓ 40; −π/2 ↓ 43
−π/2 ↓ 55; −π/2 ↓ 68.

(2) −π/2 ↓ 61; −π/2 ↓ 61; +π/2 ↑ 46, +π/2 ↑ 54.
+π/2 ↑ 38; +π/2 ↑ 68.

E.W, compA: East screw moved.
(1). +π/2 ↓ 42; +π/2 ↓ 51; −π/2 ↑ 40; −π/2 ↑ 58
−π/2 ↑ 39; −π/2 ↑ 93.

(2). −π/2 ↑ 83; −π/2 ↑ 95; +π/2 ↓ 5; +π/2 ↓ 78
+π/2 ↓ 56; +π/2 ↓ 56; +π/2 ↓ 46.

Circ medic.

Ds crumpt: N. screw moved

11) $+\frac{\pi}{2}$, ← 33; $+\frac{\pi}{2}$, ← 27; $-\frac{\pi}{2}$, → 11; $-\frac{\pi}{2}$, → 22;
$-\frac{\pi}{2}$, → 35; $-\frac{\pi}{2}$, → 13

12) $-\frac{\pi}{2}$, → 15; $-\frac{\pi}{2}$, → 27; $+\frac{\pi}{2}$ ← 25; $+\frac{\pi}{2}$, ← 36;
$+\frac{\pi}{2}$, ← 55; $+\frac{\pi}{2}$, ← 12.

Screw of ζ W. crumpt: points :—
ζ screw.

W. screw

cylinder.

ζ W. material (wood) 157 mm set
clamps after 10 m 2 semi-automatic

Tentative: points. dead beat.

ζ W. crumpt: | pu— $+\frac{\pi}{2}$ ↓ 25; $+\frac{\pi}{2}$ ↓ 16;
$+\frac{\pi}{2}$ ↓ 48; $-\frac{\pi}{2}$ ↑ 27; $-\frac{\pi}{2}$ ↑ 48;
$-\frac{\pi}{2}$ ↑ 19; $-\frac{\pi}{2}$ ↑ 16; $-\frac{\pi}{2}$ ↑ 19;
$-\frac{\pi}{2}$ ↑ 32;

ζ W. screw — 10 threads = 1.5 mm

109 mm brackets