[2011-07-09.23:06 Sat] [23:42]
[**Einstein's effective use of synchronized space-filling small clocks**]
In Einstein's 1905 "On the Electromagnetics of
Moving Bodies" as reprinted in "The Principle
of Relativity" (Dover, paperback reprint of 1952
replica of 1923 translation, SBN 486-60081-5),
his page 42 description of clocks at the
ends of a bar moving length-
wise, with the bar-end clocks synchronized to
clocks in the stationary frame, unavoidably
implies a concept of a fine-grained version
of his section 1 definition of simultaneity (p. 38).
With fine-grained simultaneity (FGS?), Einstein's
p. 42 operation of having the end clocks
"synchronize with he clocks of the stationary
system" is replace by contact-event reading of
the stationary system clocks as the bar moves
through the stationary, fine-grained, space-filling
system of synchronized clocks, with sufficiently
fine-grained clocks the usual ambiguity of light
travel times is replaced by well-defined and
arbitrarily fine-grained specific events in space-
time. Each such event can furthermore be recorded
and labeled by where (xyz) and when (t) it
took place, and such recordings can become parts
of the causal histories of both the stationary
system and of the moving bar, since each
such event is shared by both frames.

Fine-grained simultaneity is not necessarily implied
for the moving bar, for which only the end clocks
are defined -- and even those are really stationary readings.
[23:40]

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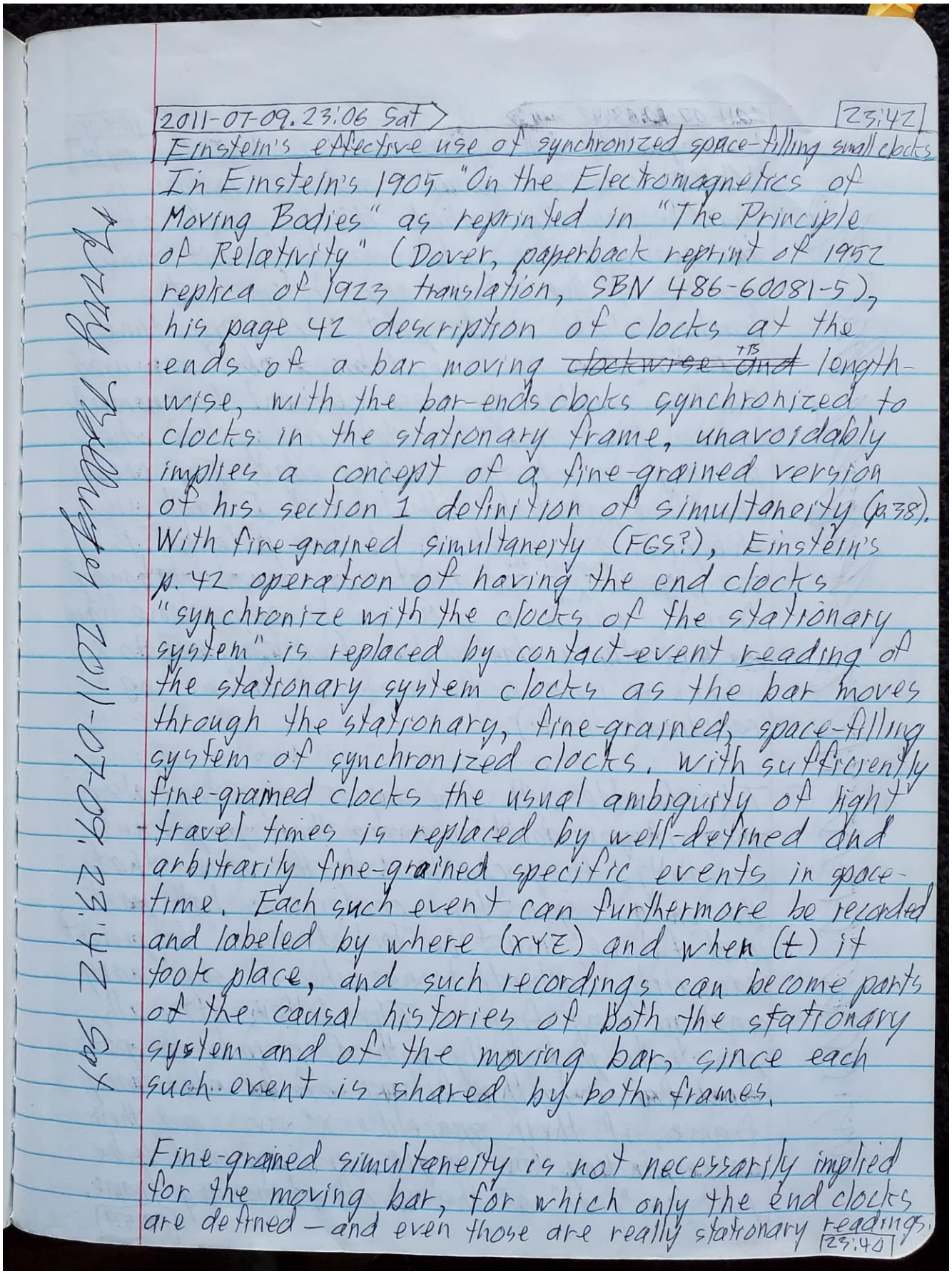

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2011-07-09.23:06 Sat > [23:42]

Einstein's effective use of synchronized space-filling small clocks

In Einstein's 1905 "On the Electromagnetics of Moving Bodies" as reprinted in "The Principle of Relativity" (Dover, paperback reprint of 1952 replica of 1923 translation, SBN 486-60081-5), his page 42 description of clocks at the ends of a bar moving ~~clockwise~~ TTS ~~and~~ length-wise, with the bar-ends clocks synchronized to clocks in the stationary frame, unavoidably implies a concept of a fine-grained version of his section 1 definition of simultaneity (p.38). With fine-grained simultaneity (FGS?), Einstein's p.42 operation of having the end clocks "synchronize with the clocks of the stationary system" is replaced by contact-event reading of the stationary system clocks as the bar moves through the stationary, fine-grained, space-filling system of synchronized clocks. With sufficiently fine-grained clocks the usual ambiguity of light travel times is replaced by well-defined and arbitrarily fine-grained specific events in space-time. Each such event can furthermore be recorded and labeled by where (xyz) and when (t) it took place, and such recordings can become parts of the causal histories of both the stationary system and of the moving bar, since each such event is shared by both frames.

Fine-grained simultaneity is not necessarily implied for the moving bar, for which only the end clocks are defined – and even those are really stationary readings. [23:40]