

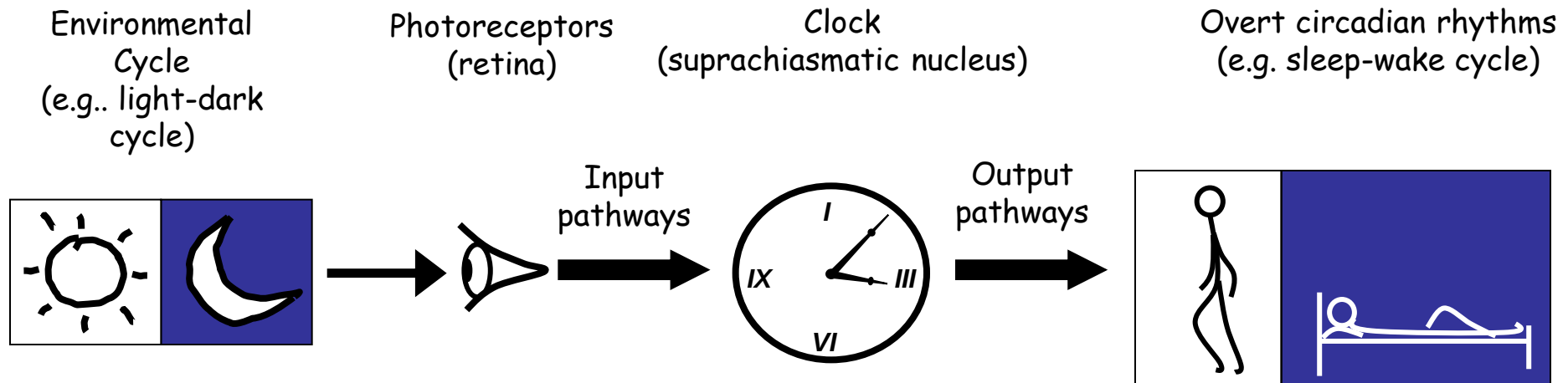
Access to Electric Light Is Associated with Shorter Sleep Duration in Toba Communities of The Argentinean Chaco



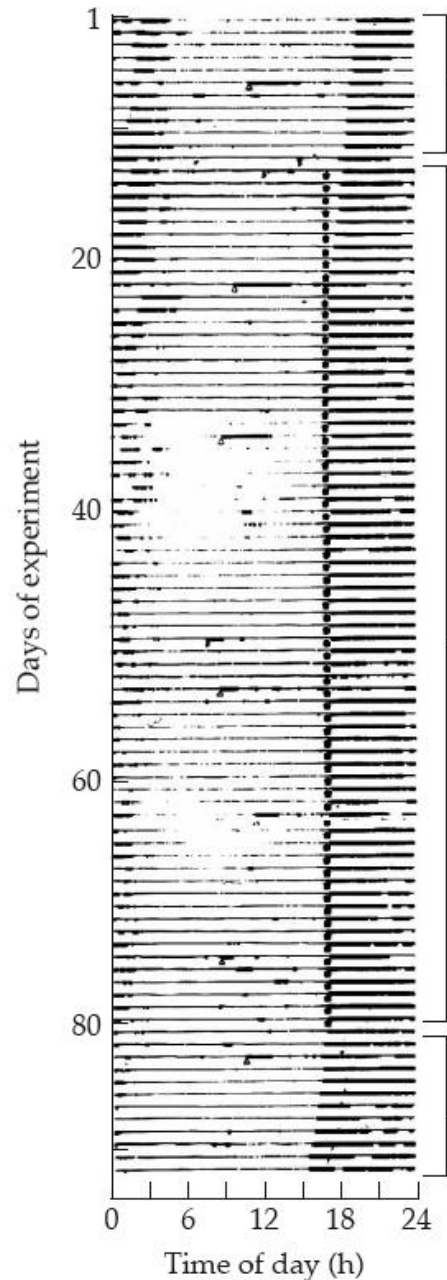
Horacio O. de la Iglesia
Eduardo Fernández-Duque
Norberto Lanza
Diego A. Golombek
Jeanne F. Duffy
Charles D. Czeisler and
Claudia R. Valeggia



Components of Mammalian Circadian System



(A)



The circadian system is highly sensitive to light resetting

Flying squirrels can be entrained by **one second** of light per day

one second!

The human circadian system can be reset by artificial light

NATURE · VOL 379 · 8 FEBRUARY 1996

Dose–response relationships for resetting of human circadian clock by light

**Diane B. Boivin^{*}, Jeanne F. Duffy^{*},
Richard E. Kronauer^{*†} & Charles A. Czeisler^{*‡}**

NeuroReport 9, 779–782 (1998)

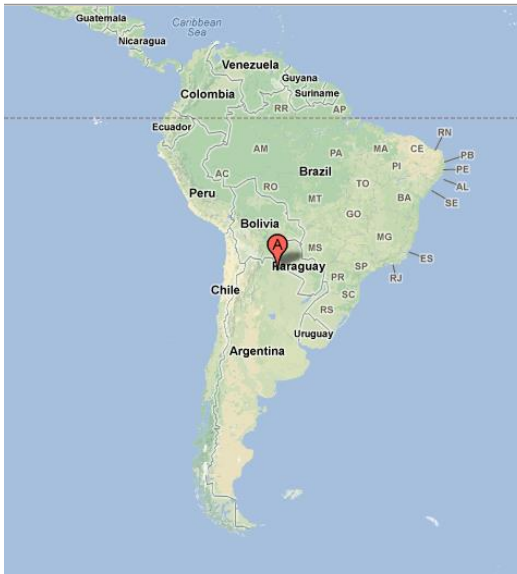
Resetting of circadian melatonin and cortisol rhythms in humans by ordinary room light

**Diane B. Boivin¹
and Charles A. Czeisler^{CA}**



Could our ancestral sleep timing
have changed by the access to
artificial light, particularly
electric light?

The Toba

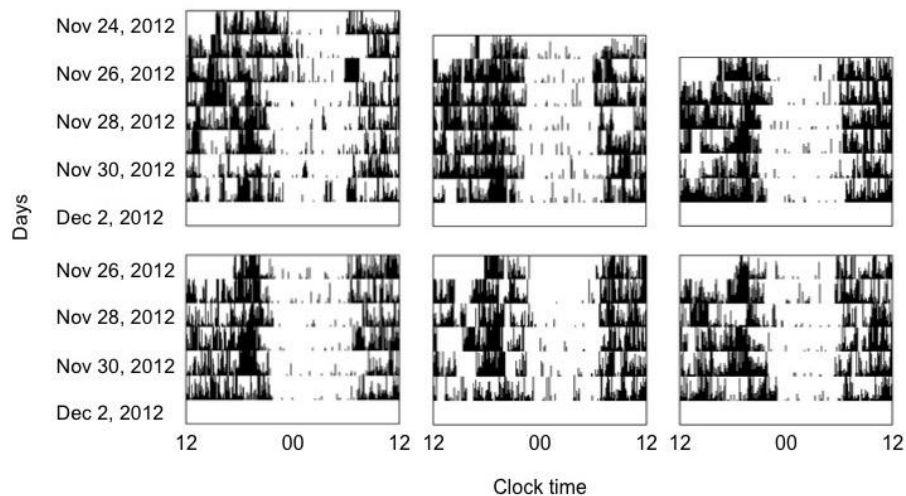
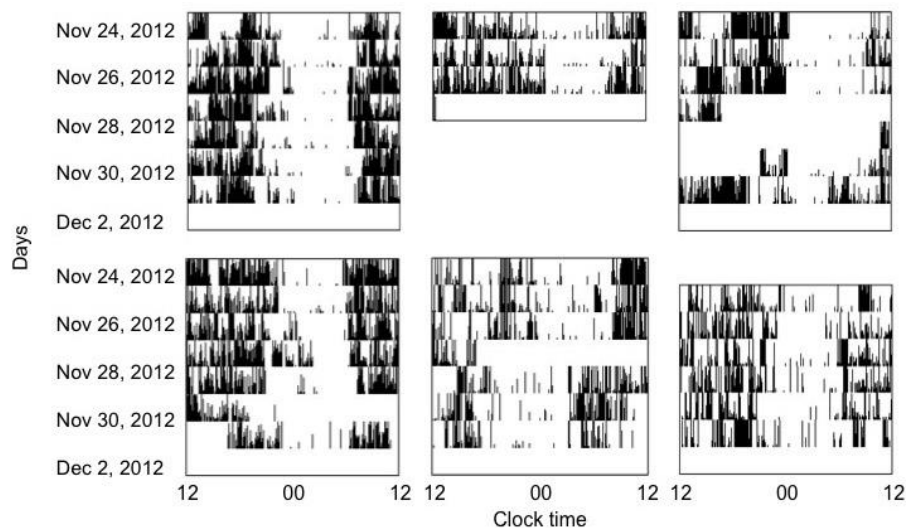
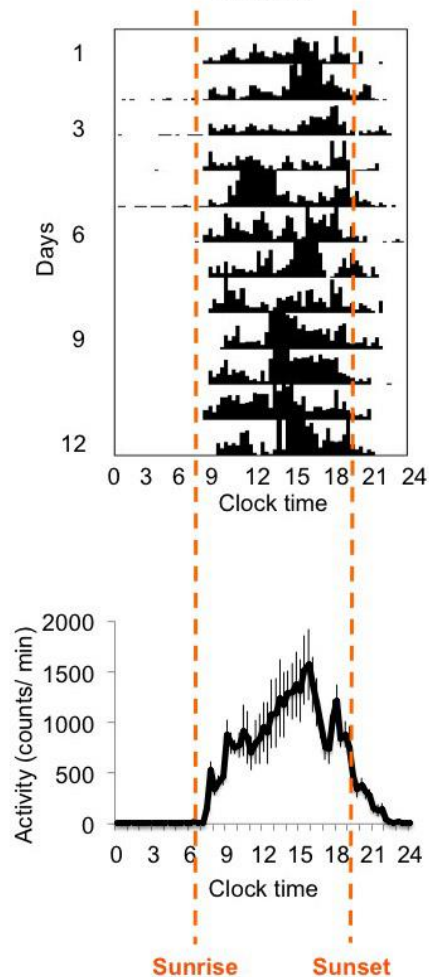
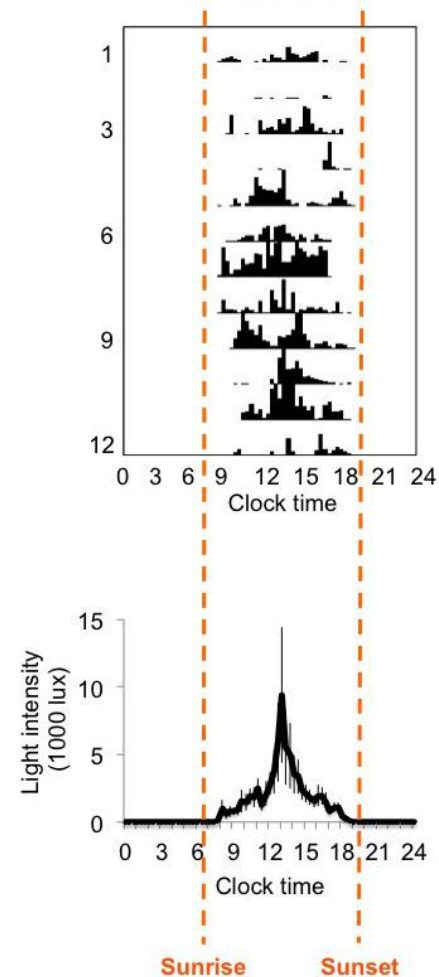


Latitude: 23° 47min
Longitude: 61° 48min

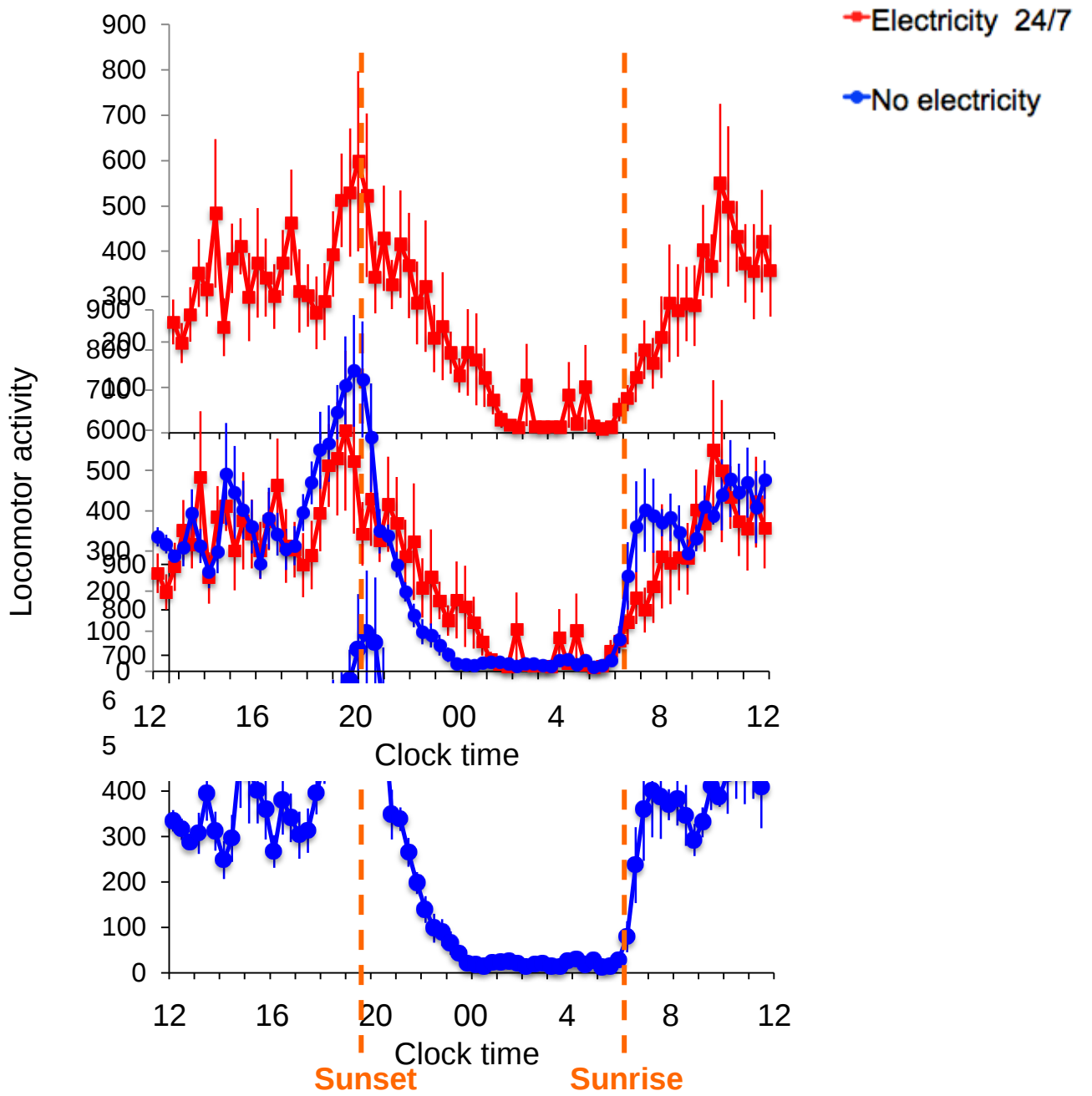


Activity data loggers

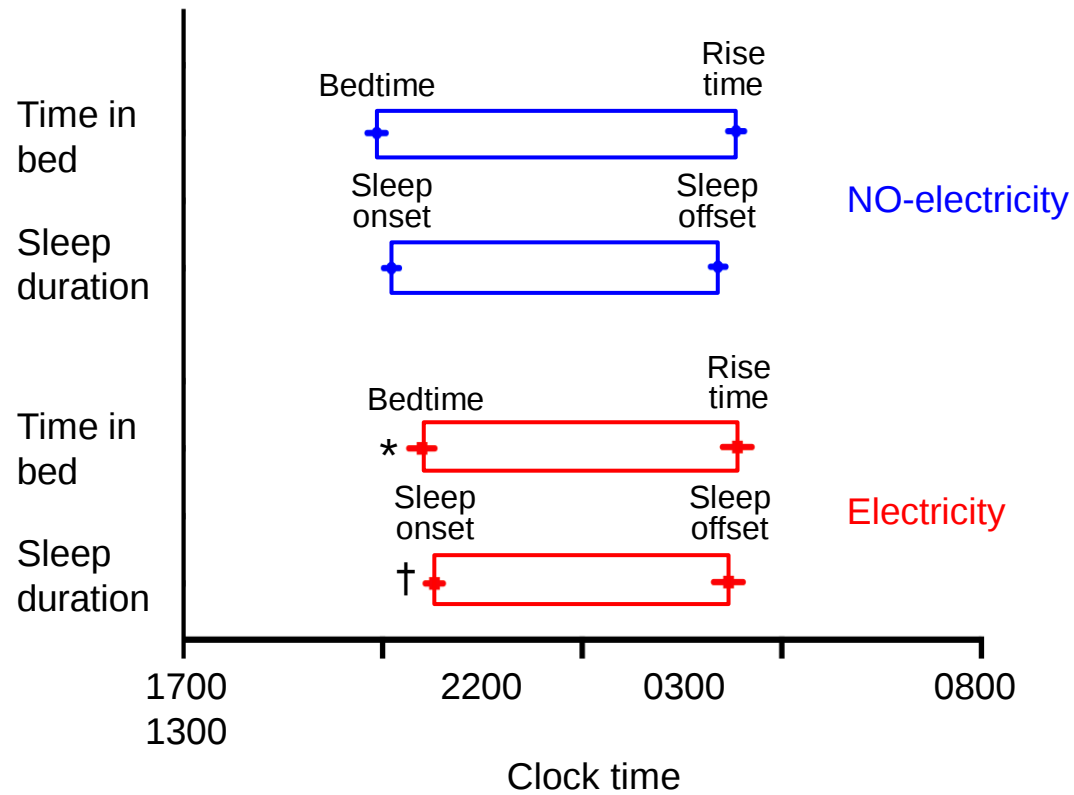


A**NO-electricity****Electricity****B****Activity****Light exposure**

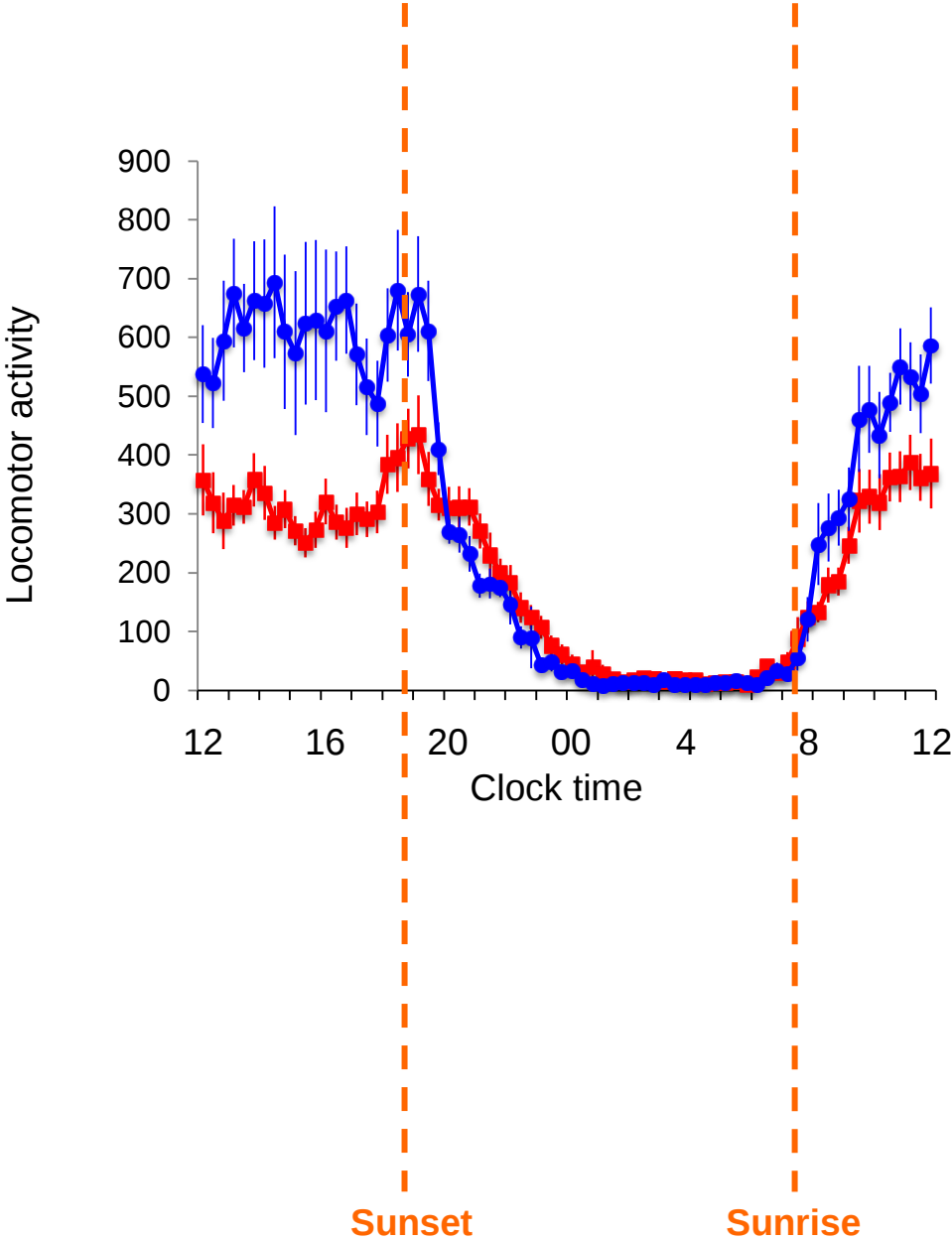
November (summer)



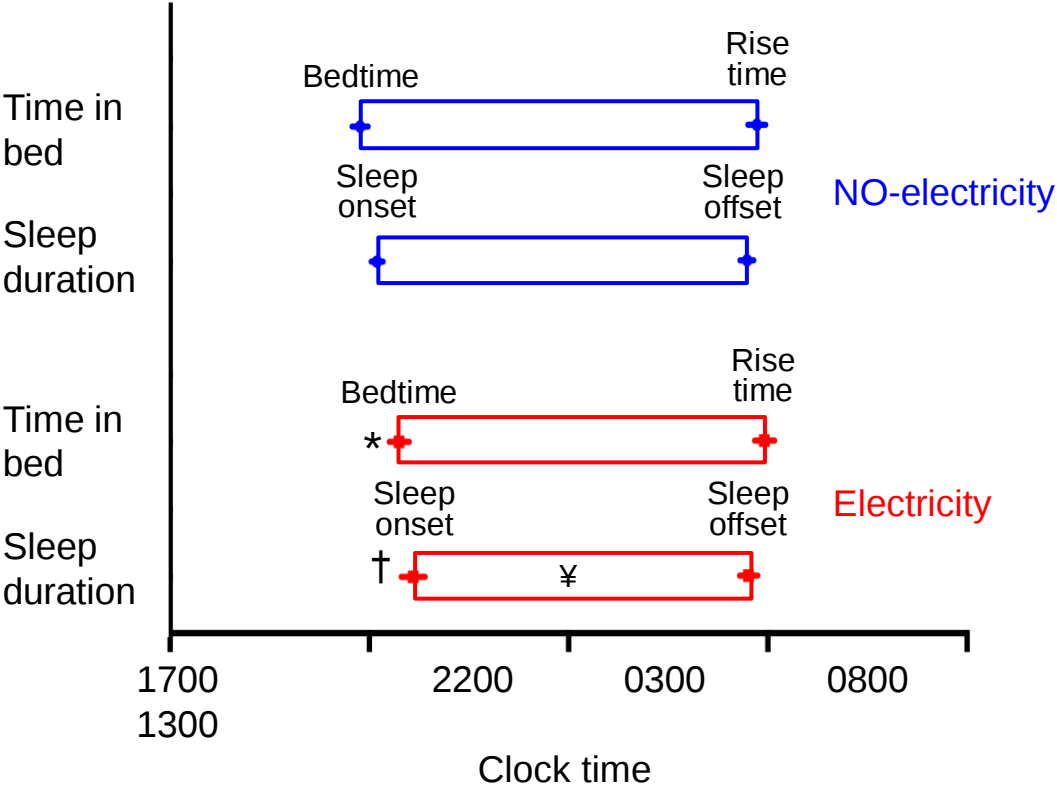
November (summer)



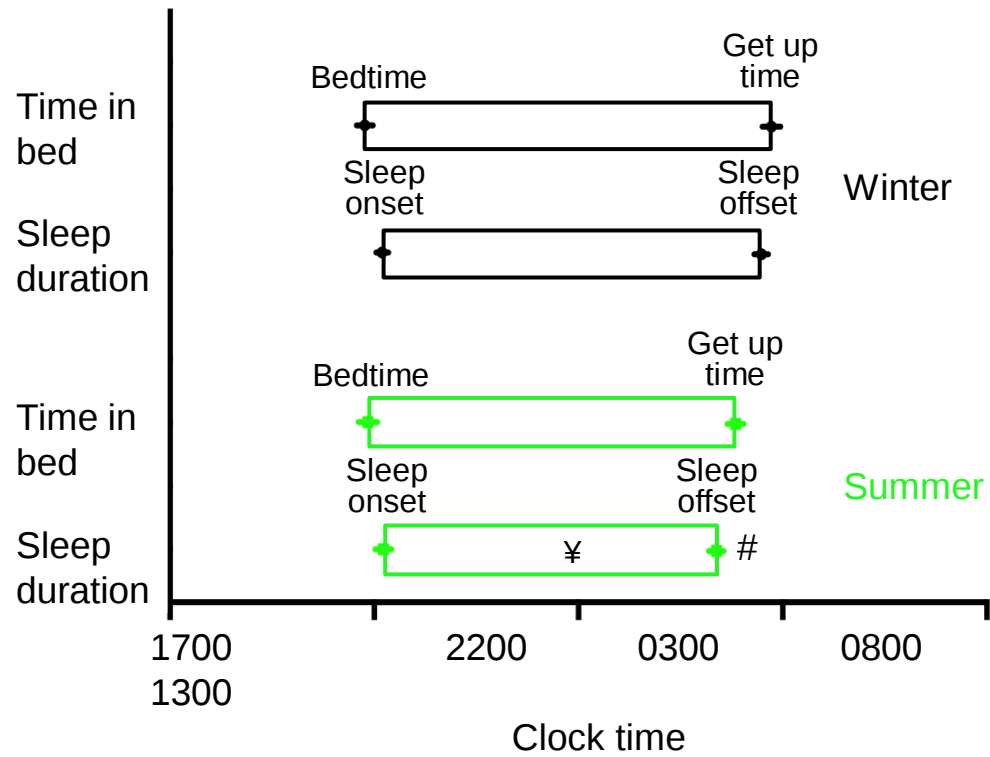
August (winter)



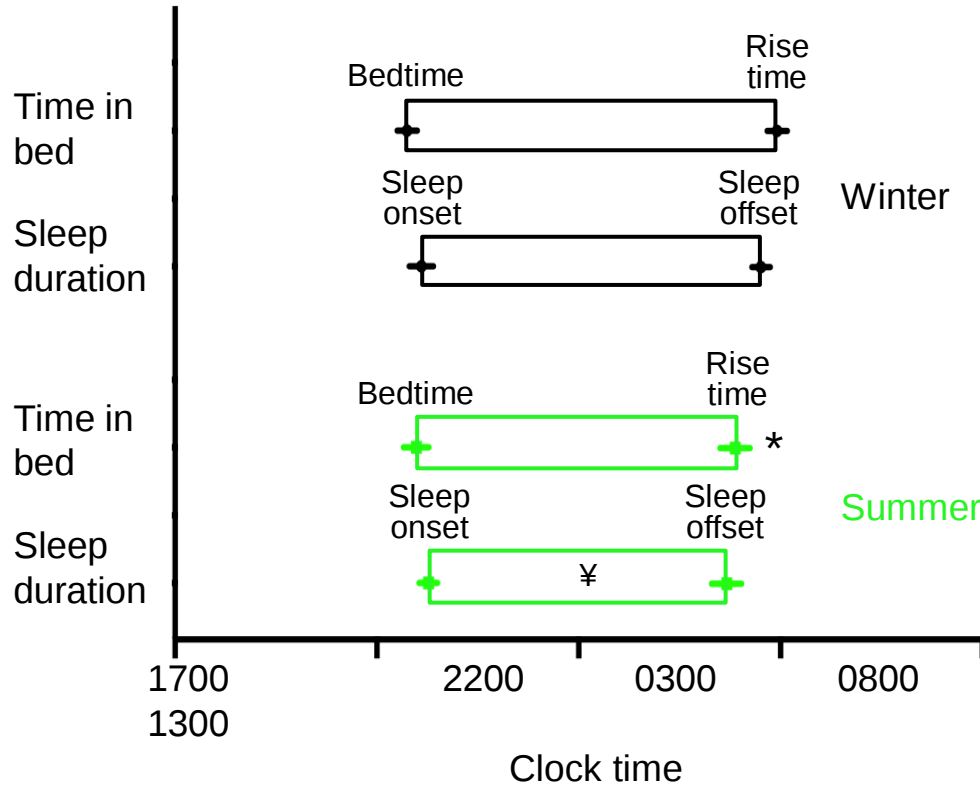
August (winter)



NO-electricity



Electricity





Acknowledgments

**The Toba communities of Sombrero Negro and Barrio Qompi.
Thank you for your friendship!**

