Conclusions

“You shall no longer take things at second or third hand....
.....nor look through the eyes of the dead.....
nor feed on the spectres in books,
You shall not look through my eyes either,
nor take things from me,
You shall listen to all sides and filter them from yourself”

*Walt Whitman in ‘Leaves of Grass’*
1. **Dorsal Raphe inactivation**

1.1. MUA rhythm of SCN showed a phase advance and reduced level of firing after Dorsal Raphe inactivation;

1.2. DR inactivation induced a reduction in the levels of glutamate and SP. These effects, unexpected of 5-HT depletion (due to DR inactivation), is similar to that induced by NPY. This preferential activation of NPY neurons (of IGL), probably due to their increased sensitivity to 5-HT (and to its depletion) during day, compared to SCN, could be important in the clock's learning ability.

2. **REM sleep deprivation**

2.1. REM sleep deprivation induced an insignificant phase advance in glutamate rhythm and a significant advance in SP and VIP rhythms, besides causing a decrease in their mesor;

2.2. REM sleep deprivation induced a general phase delay in the rhythms of the monoamine neurotransmitters and GABA in SCN, pineal and dorsal raphe, except for the phase advanced dopamine rhythm of SCN.

These observations agree, in general, with the phase advanced theory of depression and substantiate the role of REM sleep deprivation as an antidepressant mechanism. They also suggest that REM sleep modulates the ontogenetic memory of circadian phase of the SCN clock.