

## ***A new cross-over from MacTaggart A-series to B-series***

### *Abstract*

*An attempt is made to find sources of new parameters whereby an essentially B-series model of A-series matters can be more accurately obtained. These matters will, it is hoped, allow specific physical parameters to be applied to a study of human consciousness. To do this, the experiment of Libet (1985) has had to be re-examined.*

### *Introduction*

A new - quite possibly the first - clear cross-over from MacTaggart A-series to B-series is being considered. This may give some new parameters to work with in the studies of consciousness.

The large amount of dreamwork available today claims to refer mainly to effects in the part of the mind considered during dreams (Yates, 2009a etc) and dream results have traditionally seemed inchoate, often contradictory and hard to fathom. Nonetheless they are observable phenomena and should therefore be regarded as such. Stickgold and others have found correlations between dreams and waking states so a full description of "consciousness" should involve them.

In the present note, we go on to consider what could be regarded as more tangible or concrete results, namely regarding the Libet experiment or so-called "Libet half-second" matter.

Work relating to the Libet (1985) experiment has often traditionally been regarded as relating directly to the 'conscious person', such as he may be. This is because in this experiment, individuals have to determine or estimate mentally when they decided on a particular task. The recent work of Banks (2008), though not necessarily being used exactly in the way Banks (2009) intended, can help to show how these results might actually be used. However we care to look at it, these results are interesting in my opinion.

First a brief survey of some aspects of the Libet experiment is perhaps due, as any parameters referring directly to the mind may be of use in these lucubrations (Yates, 2009).

### *Brief survey of some aspects of the Libet experiment*

In the important blog "Conscious Entities" (2009) the question has been posed "Libet was wrong?" and that blog suggests that in some respects Libet may have been wrong over the "Libet half-second" matter. Largely it is suggested and explained briefly but fully, that the work of Trevena, mentioned in this blog (Yates, 2009) and referred to in "Conscious Entities" (2009) is significant in that regard. In effect the EMG measurements are just manifestations of neural activity and provide no totally complete neural markers. But in considering Trevena, the free will enthusiasts are trying to recover the free will concept within the B-series. It seems to me that to try to recover the free will concept inside a block time model is a far fetched idea.

The block time model was developed on the basis of the calculus of Newton and Leibniz who both seemed to believe (or to pretend to believe) in some sort of all-powerful God, and whilst their beliefs ran in somewhat different directions, most of modern physics (including general relativity and quantum mechanics) seem to include an essential ingredient which gives us this block time model (however varied and tortured), without the possibility of free will in the sense

accepted in what is now termed 'folk psychology' and is the subject of (often very desultory) surveys by the X-phi community. Block time is more like a map of a country showing say "past" as the south and "future" as the north with effectively only one way traffic from South to North. As Feynman (1970) for example illustrated, there may well be nothing wrong with that one way street. Nonetheless - even if it is not a bug - the one way street is only a B-series feature. It is not necessarily an A-series feature, in fact it probably isn't. And that is independent of whether most proposed B-series time travel supposed thought experiments - of which by now there are many, usually involving wormholes and the like - actually work in practice.

Anyway the Trevena tests should have been done long ago. For the moment we can possibly just assume from them that EMG evidence for an earlier unconscious intention is not supplied in enough detail to make totally adequate assumptions from.

Now referring to Bank's work. Banks has of course provided us with a detailed book (Pockett, 2006) which contains much work on the human aspect of the matter. The more recent work (Banks, 2008, 2009) implies considerable variations in the 'decision time'  $W$ .

In private communication with us Banks mentioned the following "Meanwhile, it's not the case that  $W$  is always about -200 ms. The values in the literature range from about -100 ms to -1.42 seconds by Matsushashi & Hallett, 2008. Soon, et al (Soon, C.S., Brass, M., Heinze, H., & Haynes, J. 2008. Unconscious determinants of free decisions in the human brain. *Nature Neuroscience*, 11, 543-545) found the RP to begin very early (up to 7 seconds before the response), and the estimated  $W$  in their study to be about -600 ms. My article with Isham makes a qualitative point that should not be confused in any way with the precise number of milliseconds  $W$  is shifted by the deceptive auditory cue. The point is that  $W$  is affected by an event that comes after the response. This finding is evidence that the  $W$  people report is a retrospective inference from their observation of when they respond. I am writing up a more elaborated theory of the response and the estimate of  $W$  that I can send when it is ready. The point is that the action being judged for  $W$  in the Libet paradigm is at the level of intention-in-action (in Searle's terms), and it has been recognized at least since Lashley that we have no conscious access to our behavior at this level."

Now it remains to be seen that  $W$  is actually obtained from 'retrospective inference' within the B-series. If Banks is correct as I assume *pro tem*, it is very likely to be considered as such..

I would have expected on the face of it that  $W$  should be about equal to the human reaction time in the B-series if decisions were intended to be followed immediately by keypresses. In the Libet experiment when actually carried out in the way that it usually is, the subject seems to be rather dragooned into pressing the key right way, and this is almost an experimenter's command. The whole matter needs to be a lot more thought out, "First awareness of a wish to act" are the specific words used by Libet in his 1985 experiment as apparently part of a definition of  $W$ , which places  $W$  clearly as a marker which should at the very least be within the bailiwick of any consciousness theory and more specifically could be an actual measurement of an A-series result. (One is reminded that the A-series does have 'actual' past, present, and future by definition and may not be one to one mappable to a B-series time model).

### *Conclusion*

The variations in  $W$  and also in any timings concerning the keypress we hope to be able to investigate for a number of subjects over a period of time, also using various audiovisual distractions, possibly including some of a so-called 'subliminal' nature, bearing in mind such

matters as the work of Phil Merikle and of Nilli Lavie. We also do not know that the B-series is not fundamentally flawed *per se*. So a good A-series model (even in crude B-series representation) may also be better than a simple traditional B-series model, though there are no current hopes in that regard.

We also hope that Professor Banks may be able to describe his experiments and his own views in detail at our conference next year, as he has kindly agreed to do.

### *References*

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