## A DISCUSSION OF LATHAM'S CONCEPTS OF TIME-BASE AND INSISTANCE

The inferences Latham has drawn from his idiom and
encapsulated in a theory of time-base and insistance extend
beyond the field of art into science and philosophy.

The verbally formulated time-base theory is a development
from what Latham terms a pre-verbal (or sometimes graphic)
formulation which is embodied in a series of his works
dating from 1954. The pre-verbal formulation may sometimes
succeed on its own in conveying aspects of time-base theory,
or it may serve as an aid to an understanding of the verbal
formulation which is the subject of this essay.

The Time-Base Theorem receives its first formulation at
Section 2 of Time-Base and Determination in Events (TBDE):
(any) STRUCTURE as a function of TIME-BASE and INSISTANCE.
The 'as' instead of 'is' is a device which Latham frequently
uses. Here it gives the theorem the grammatical status of
an incomplete sentence, as might be appropriate to describe
an image, as a painting often does, without making an
assertion. The theorem may perhaps be recast into the form
of a sentence without too much violation to its meaning,
either as an invitation: look on any structure as a function
of time-base and insistance, or as an assertion; any structure
can be seen as a function of time-base and insistance.

The assertion chosen would probably be preferred by Latham to
the more direct 'Any structure is a function of time-base and
insistance', as he has urged that questions be asked in the
two basic forms: 'What can be said to be going on?' and 'What
can be said to have gone on?' These also employ 'can be said
to be' instead of 'is' suggesting perhaps a plurality of
possible ways of describing a phenomenon, or a lack of
permanence about the statement made. It would be interesting
to know whether Latham believes a statement containing 'is'
instead of 'can be said to be' is ever legitimate or is only
legitimate in time-based statements, but further discussion
of this issue will have to be postponed.

### The Basic Time-Based Concepts

Though the theorem begins 'any structure', Latham intends
this to apply only to structure in events, events constituting
for him the fundamental category of existence. Events are
usually picked out in ordinary language by use of the gerund,
e.g. 'the storming of the Bastille'. But it is unlikely that
everything recognised as an event by ordinary language users
would count as an event in Latham's sense. In TBDE he
distinguishes category 1 events which are the fundamental

structural and motivational elements of which the universe
is composed, from category 2 events which are the composite
non-isolatable events that are usually more immediately
perceived.  It is the category 1 events that have time-base
and insistance,and it is likely that Latham also used the
term 'event' to mean 'category 1 event'.  Though it may
sometimes be possible to refer to events (i.e. category
1 events) in ordinary language, lack of familiarity with them
may have left the language insufficiently rich to describe or
name some of them, so that an enlargement of the vocabulary
will be necessary.

As events are particulars (i.e. unique) it makes no sense
to talk about repetition of events.  Yet events are often
very similar or identical in all respects other than location
in space and time.  To make sense of the notion of a repetition
of an event, the term 'event score' is introduced.  This means
roughly the same as 'event type' but is preferred for its
analogy with musical score suggesting that the score has a
real existence from which the individual events which are its
manifestations are derived.  Rather than that it is an
abstraction from observed similarities between events.  Event
scores exist outside space and time.

The Time-Base of an event is its duration.  The term 'time-
base' is chosen in preference to 'duration' because it is also
(and more fundamentally) applicable to event scores which do
not have duration in the same sense as events, and because in
the case of events which recur immediately they have been
completed, the time-base will also be the frequency of recurrence.

Insistance is introduced in TBDE as 'the accounting factor used
to describe sequential occurrences of an event'.  This suggests
that it is a fundamental feature of events that drives the
event to recur.  But there are also two other senses in which
insistance is used:  as that which drives an event to complete
itself, and as that which drives an event to occur (i.e. an
event score to manifest itself).  Insistance may be thought of
as a continuous variable attaching to events or event scores
(depending on the sense of 'insistance' intended) ranging from
the minimum zero, to the maximum, one (say).  The term
'insistant' and 'non-insistant' may also be used as adjectives
attaching to events (or event scores).

The difference between occurrence and recurrence (or
sequential occurrence as in the original definition) can be
brought out by considering the difference between two consecutive
footsteps and two footsteps taken by different people living in
different centuries.  All of these may be identified as events
deriving from a common score yet in the case of consecutive
footsteps there is something about the first step that prompts
the second, which is indicative of insistance based on recurrence.
The steps of the two different men separated by centuries cannot
be seen as being one a recurrence of the other but can be seen
as events deriving from a particular score that have a strong
tendency to crop up.  This tendency could be described as an
insistance based on occurrence.

Insistance based on occurrence can be seen as the tendency
of an event score to manifest itself and is thus clearly a
property of event scores and not a property of events. A
definition of this sort of insistance could be given in terms
of density of occurrence, something like number of occurrences
per unit volume of space and time. Whether this would be the
number of actual occurrences, or the number of occurrences in a
neutral context would be a question for further consideration.

In order to spell out the notion of insistance based on recurrence,
some vague specification of 'recurrence' is provisionally required.
As suggested by the footstep illustration, for one event to be a
recurrence of another, more is required than merely that they have
the same score. Most likely the further condition would be some
spatio-temporal relation such as that the second event be spatially
located near the first event, and begin near the end of the first
event. The temporal relation may be specified so as to include
both the beginning of the second event immediately after the
finishing of the first event, and the beginning of the second
event after a gap equal to the time-base of the event. Latham
includes both these types amongst his examples of recurrent
events (e.g. least conscious event for the first type, least
event for the second type).

In standard situation I note 2, Latham suggests that different
events having the same score may have different insistances
depending on the context in which they appear. This indicates
either that all events of a given score would have the same
insistance in a neutral context, if such an idea could be spelled
out, or that the insistance of an event is not fixed by its score
and context. In the first case insistance could be regarded as
a property of events or as a property of event scores. In the
second case it would have to be a property of events only. This
applies both to insistance based on recurrence and to insistance
based on completion, shortly to be introduced.

After further restricting the notion of recurrence such that a
particular event can have no more than one recurrence, a
definition of insistance based on recurrence might be given in
terms of probability of occurrence of an event, either in general
or in a neutral context.

Insistance based on completion may be seen as the tendency of an
event to complete itself. It may be a property of both events
and event scores, or just a property of events. And it may be
defined in terms of probability of completion of an event, either
in general, or in a neutral context.

It may be conjectured whether insistance based on completion may
diverge from insistance based on recurrence. Recurrence is more
likely with short time-based events and it may be that all events
may be divided into two classes consisting of those which must
complete and may recur, and those which may complete and cannot
recur. If such were the case, then events would have either
the one type of insistance or the other, and there could be no
question of divergence. More likely there would be a large
class of events which do not always complete themselves and do
sometimes recur to which both types of insistance would therefore
be applicable. If so, the conjecture remains open for
investigation.

An explanation of the success or failure of an event to
complete itself or recur will contain a specification of
the insistance based on occurrence, the insistance based
on recurrence or completion (if this is a property of
event scores), and the context.

## Time Base as Conceptual Scheme

In order for time-base to become established as a conceptual
scheme it is necessary that people be able to use simple
sentences containing time-based concepts and that there be
a fair degree of consensus of opinion as to the appropriate-
ness of certain statements in a given situation.  A
preliminary requirement for this is that two people be able
to establish when they have the same event before the mind so
that they may refer to it by means of a demonstrative, name,
or description.  A simple type of sentence can then be con-
structed by saying of a particular event, that it belongs to
a certain score, has a certain time-base or insistance etc.
These  will be particular statements for which there must be
methods of verification and falsification.  More complex
examples of particular statements should also be given.  As
an exercise in learning time-based language, a list of time-
based statements could be compiled  with some discussion of
their acceptability.  One cannot talk about the insistance
or time-base of an event in progress without an idea of what
a completion of the event would be, i.e. an idea of the score
from which it derives.  Event scores would have to be picked
out by predicates and in order to teach the use of such
predicates it would be necessary to point to various
regularities among events.

The proposed relation between events and event scores closely
resembles that proposed by Plato as holding between physical
objects or properties and the Forms.  The Form of the Good
plays a similar role to the score for the Whole Event, and
the scores serve as formal and final causes of the events
just as the Forms served as formal and final causes of physical
objects.  One of the difficulties Plato faced with his
theory of the Forms was in justifying the assignment of a
Form to each physical object and in justifying the implication
of a unique correct classification of objects into types in the
face of an apparent plurality of ways of doing so.  A similar
difficulty faces the time-based concepts of event and event
score.  There must be a certain regularity among events in
order that they be classifiable under the headings of certain
event scores, and there must be a unique correct
classification.

So in order for a time-based conceptual scheme to become
established, people need to learn the new vocabulary, and
then acquire an understanding of the conditions under
which the various time-based statements are accepted or
rejected.

## Time Base as Theory

A conceptual scheme is developed into a theory when various
general statements made in the conceptual scheme are
selected as theorems of the theory.  The Time Base Theorem
is not a theorem in this sense, but rather an assertion (in
English) that 'time-base' and 'insistance' are fundamental
concepts.  The general statements selected as theorems
would say something about all entities of a certain class,
e.g. all events of a certain score, time-base or insistance.
In order to test such general statements it would be
necessary to test the particular statements that constitute
confirming or falsifying instances of it, e.g. statements
that a particular event with a certain score, time-base or
insistance has the property in question.

The question of the compatibility of time base with the
orthodox scientific picture depends on the way that events
are grouped under event scores, and on the explanatory role
of insistance.  If virtually every event has its own score,
or insistance is definied only as a property of events, not
of event scores, and is determined retrospectively by looking
to see whether the event did complete or recur, then time-base
would be compatible with orthodox science but it would then
play a vacuous role, adding nothing to the orthodox position.

What might Latham regard as theorems?  Standard situation I
note 2 suggests as one example, that the insistance of an
event will vary with the time-base of the events of which it
forms a part.  This involves particular statements of a
further type - that one event is part of another.  The type
of variation alluded to in this theorem would be a matter for
investigation.  Another example of a theorem might be that
the insistance of an event varies in relation to its own time
base.  And a further example is suggested in TBDE 4.13: 'There
seems to be a tendency like gravitation for some event
(complexes) to occupy the same space at the same time.
Informational implosions making for stars, conurbations and
sexual orgy alike.'

So in order for time base to become established as a theory,
some explicit presentation of theorems is necessary, with
some support for these theorems.  The support will involve
the testing of particular statements that constitute confir-
mations or falsifications of the general statements.

## The Time-Based Spectrum

The next development to be considered is the time-base spectrum. Latham divides the range of possible time-bases into 36 bands, so that every event may be represented as falling within one of these bands. According to Latham there is a minimum time-base and a basic type of event with this time-base known as Least Event (LE). The time base of LE is provisionally given, as $10^{-23}$ seconds, the time it takes light to cross the diameter of a classical electron. Band 1 contains events with a time-bases of between one and roughly fifteen times that of LE. Band 2 contains events with time-bases of between fifteen and fifteen squared times that of LE, and so on. Band 36 would then contain events of time bases between $15^{35}$ and $15^{36} \times 10^{-23}$ seconds, which works out at between $5 \times 10^{10}$ years and $75 \times 10^{10}$ years. This compares with current estimates of the age of the universe of $2 \times 10^{10}$ years, and of the earth, $4 \times 10^{9}$ years.

## The Lower End

Latham indicates how simple compounds of LE can constitute more complex events. Habit A is a simple recurrent LE, Habit B is an alternating recurrent LE. Habit C is a compound formed from a Habit A and a Habit B. To provide empirical support for this part of the system it would be necessary to match some time-based theoretical descriptions with physicists' observations. The suggestion that Habit C indicates something commonly associated with a hydrogen nucleus, Habit B bearing the same relation to an electron, and Habit A to a photon seems to leave no room for variants of the habits to accommodate observations usually described in terms of excitation and ionisation of the atom, or differing isotopes of the atom, or the mass ratio of proton and electron. Furthermore, this matching would leave no more basic apparatus to accommodate the variety of observations concerning phenomena at the subatomic level.

Latham also produces an argument to show that spatial and temporal extension may be derived from a more primitive extension. This is a move towards minimum arbitrariness, reducing the number of primitives of the system, aiming perhaps to show why the universe is constructed the way that it is, and why an empty universe containing no form of extension is an impossibility. The primitive extension is that of the least event, hence it would seem less question-begging to rename this lease extension. According to Latham, universes consisting just of two LE's would be indistinguishable, but universes consisting of three LE's are of two types corresponding to what will become, on addition of further LEs, either a Habit A (traversing event) or a Habit B (alternating event). Latham claims that it is only when a universe contains a Habit A and Habit B together that spatial extension can be distinguished from temporal extension.

In Latham's diagrammatic representation of Habits A and B,
the LE is represented by a typed circle. As the circles
are arranged along a line, there is a linear dimension in
the diagram representing a second form of extension. And
as the circles are to be thought of as coming down in a
temporal sequence, there is a temporal dimension implicit
in the diagram representing a third form of extension. There
are thus three dimensions involved in the diagrams which
could be taken to represent three different dimensions occurr-
ing in nature, unless there is some duplication. There seems
to be no obstacle to regarding either the second or the third
type of extension as a duplication of the primitive extension
of the LE. The second and third types of extension must
however be regarded as distinct in order that Habits A and B
may be distinguished, because on the third occurrence of LE
in Habit B, the direction of advance in the second dimension
reverses while there is no change in direction of advance in
the third dimension. Thus Habit B is a manifestation in at
least two dimensions.

However Latham envisages deriving spatial and temporal
extension from a Habit A and a Habit B together, it will
involve at least two primitive types of extension and hence
will not be a derivation from the extension of the LE alone.
As the second type of extension is represented spatially and
the third type temporally this suggests that the second type
of extension could be spatial and the third type temporal. It
is unlikely that the reverse could be considered as it is
difficult to see how a temporal succession of circles could
be used to represent a three dimensional spatial extension.
Should these two primitive forms of extension be regarded
as spatial and temporal it is likely that the LE would be
regarded as having a further type of extension introducing
some substance into the universe rather than being a mere
spatio-temporal interval.

It should be clear, therefore, that spatial and temporal
extension could be introduced as primitives of the system and
are neither derivable from nor distinguishable by means of
the primitive extension. Latham attaches great importance
to this derivation. Admittedly the system loses some of its
a priori appeal through the introduction of extra primitive
terms, though this will not affect its empirical success.
It would be expected in any case that further primitive terms
would need to be introduced to account for observations
usually made in terms of concepts such as mass and charge.
The original primitive extension would play some role,
perhaps similar to that of action in conventional physics.

## The Upper End

The greatest time-base is represented at the opposite end
of the spectrum, and its value is left open as the duration
of the Whole Event is speculative.  If the Whole Event has
an infinite time-base then further bands could be added
indefinitely or Band 36 could contain all events with time-
bases above a certain value.  More likely Latham would expect
the greatest time-base of an event to be finite.  In TBDE he
suggests that the extreme point on the time-base spectrum
represents the time-base of a longest duration recurrent event.
There is, of course, little to guide speculation as to whether
the longest duration event is finite, or recurs, or what its
insistance might be.

Latham's comment on Blake's poem suggests the intelligibility
of the idea of the Whole Event suddenly ceasing through
deficiency of insistance.  In TBDE 4.10 he writes, "The Solar
system may go sterile.  It seems to be dependent on a major
act of choosing."  This suggests the similar idea of a long
time-based event failing to recur through lack of insistance.
The passage also indicates Latham's clearly indeterministic
views and the enormous power and importance he attaches to
human activity.  In TBDE 4.3. we have: "the human organism
seen relative to history and geological contexts appears as
of two kinds, (a) a rampant, virulent infestation that is
blind, aimless and self-defeating; (b) the auto-recurrent
provision of the solar system."

If the Whole Event is viewed as a temporal manifestation from
an atemporal score then this gives the impression that the
Whole Event is determined by its score.  How is this to be
reconciled with Latham's indeterminism?  One way would be to
allow for a certain leeway in the way a score can be
manifested:  events of a given score would not differe solely
in virtue of their place in space and time but there may also
be slight differences in other respects.  This view is
supported by TBDE 4.10: "The event All of Time does not remain
precisely similar to itself".  But it is difficult to see the
great variety of possible universes that an indeterminist
accepts as all belonging to a single score.  The concept of
score would lose its meaning.  Another form of reconciliation
would be to deny that the Whole Event has a score.  The Whole
Event would not then count as an event in Latham's sense (i.e.
a Category 1 event), and the event of greatest time-base
would form part of the Whole Event but would not constitute
that Whole Event.

## The Time-Based View of a person

It is proposed that a time-based spectrograph of a person can be provided exhibiting the relations of the person to various events. This would be a rectangular strip divided into 36 bands like the time-base roller with various lines at key positions on the spectrum filled in with varying intensities. A spectrographic analysis of the person could be provided from the lines on the spectrograph indicating that the person bears some relation to an event of that particular time-base. The strength or intensity of the line would represent the number of events of that time-base related to the person, or the insistance of the respective event(s). Cf. spectroscopic analysis of light in terms of its component frequencies. Strength of line represents intensity of component.

An obvious question arises as to the relation of the person to the events featured on the spectrograph. One choice would be the relation of containment. Each of these is shorter than or equal in duration to the body event, and a part of the body event. Thus the spectrograph could exhibit the components of the body event.

However, the relation of the person to external events is a more interesting topic for a spectrograph. Here the relation could be containment the other way round. The spectrograph could record all the events that the person is a part of. But this would suggest that all such events be equal in duration to or longer than the body event. Perhaps the spectrograph should record all the events that any action of the person's is a part of. This is a possibility but it doesn't isolate the interests of the person, which is what the spectrograph was originally suggested for. Perhaps the events exhibited should be those advanced or forwarded by actions of the agent. Such a spectrograph could be for an agent at a particular moment in time or over a period of time, or over the whole life-time of the agent. Latham's phrase 'is informed by' might be thought a candidate for the relation between person and events in the spectrograph. However, this is also used to indicate the relation between an event and its score, so further clarification of this is necessary.

The concept of a spectrograph of a person, therefore, requires an account of the relation of the person to the events exhibited. In order for it to have any practical value it must be possible for people to learn to judge whether or not a person bears this relation to a given event. Such judgements provide a further class of particular statements belonging to the time-based conceptual scheme.

9.

Latham has perhaps made most progress towards giving examples of time-based statements and teaching their use with statements which assign certain activities, types of activity, or utterance to a band on the spectrum. Some demonstration of this was given in the performance Government of the 1st and 13th Chair. As examples of statements involving types of activity one might offer 'purely sensual/sexual activity is band 19 activity', or 'religious conversion is band 35 activity'. And as corresponding examples of statements involving activities, 'our activity of the last hour was band 19 activity', or 'my vision was band 35 activity'. A certain sort of activity or particular activity may be described in a rough way in ordinary language and intuitively assigned to a band. In order for these to be regarded as precise time-based statements they should be recast so as to assert that an event or type of event has a time-base within a certain range. The idea that utterances made in ordinary language may be assigned to a particular band seems less fruitful. Some utterances may be strongly suggestive of a particular event or event score, but most will not be classifiable in this way.

From the spectrograph of a person the concept of centre of gravitas (CoG) of a person can be derived. This is a sort of weighted average of the events featured. Exactly how the averaging is done can be left open. The CoG can presumably apply to a person at a point in time, or over a period in time, or over a whole life-time. The CoG would indicate the time-base at which the agent's prime interest lay as well perhaps as his insistance in general.

From spectrographs and CoG, different types of person would be distinguishable. A time-based definition of Incidental Person (I.P.) could be offered in terms of a characteristic spectrograph. An I.P. would certainly have a longer time-based CoG than most people, and this would probably give him greater insistance. In reply to a question concerning the I.P., Latham writes, "Fortunately, with the experience of a new CoG outside the social norm with its language and mores one picks up the appropriate amount of insistance - which gives off whatever one needs, energy, ingenuity, competences which one didn't realise previously."

Ethics and Decision

How does time-base theory impinge on decision making? One way a person may be influenced in the choice of his actions by time-base theory is through a shifting of his interests due to the adoption of a new conceptual scheme. Similarly a decision-making body may alter its priorities after adopting time-base theory. Would any systematic shifting of values be expected, or would the advent of time-based thinking be expected to have a random effect on interests and priorities?

Latham would probably anticipate a shift of interest in the direction of longer time-based events. Yet he would not claim any simple correlation between objective value and time-base, such as for example that value increases with time-base. If there is any objective value it would attach to an equilibrium of events of all time-bases. Perhaps Latham would maintain that some less general judgements concerning objective value could be made, e.g. that events advancing the Whole Event have greater value than those which do not. If so, there would be certain situations in which an individual or committee faced with a choice between two actions would be able to determine the best course of action. This is not to say that a decision procedure would be available in all situations in which the time-based facts were known, but just that there may be some situations in which time-base theory would dictate a decision. However, since Latham has not indicated any examples of particular or general statements which may be offered as judgments of objective value it is likelier that he takes the role of time-base in ethics to be purely a shifting of interests, leaving intrapersonal and interpersonal conflicts to be resolved in the usual way.

Does time-base theory dissolve the dualism between self-interest and morality? If objective value is not a part of the system, then this dualism does dissolve. All interests a person has come under the single heading of his interests, whether of himself or for events quite distant from himself both spatially and temporally. With objective value the dualism remains: A person finding himself in one of those situations in which time-base theory dictates a course of action would not of necessity form an intention to perform that action. The dualistic conflict between what he most wants to do and what time-base theory indicates is best will remain.

An activity will only be regarded as irrational if it is thought that it cannot serve self-interest or that it contributes in some special way to a decrease in objective value. A system which dispenses with the concepts of self interest and objective value will not class any activities as irrational as ends. Activity often described as 'terrorist' for example would not be thought to indicate the adoption of an irrational end. Activities may, though, be classed as irrational as means to certain specified ends.

11.

The concept of sectional interest is not really a time-based concept.  It means the interest in the preservation of some group, organism, or organisation as an end-in-itself without regard to the effects such an organisation has on the environment as a whole.  A sectionally interested person would be regarded in time-based terms as one whose spectrograph reveals no relation of advancement towards any events beyond a certain (relatively low, e.g. 5-year) time-base. A non-sectionally interested person would be interested in advancing some organisations but always as part of his advancing of some longer time-based event.

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July 1980