

If Watson and Crick had not discovered the nature of DNA one can be virtually certain that other scientists would eventually have determined it.

With art - whether painting, music or literature - it is quite different.

If Shakespeare had not written Hamlet, no other playwright would have done so.

... the city which is composed of middle-class citizens is necessarily best constituted in respect of the elements of which we say the fabric of the state naturally consists. And this is the class of citizens which is most secure in a state, for they do not, like the poor, covet their neighbours' goods; nor do others covet theirs, as the poor covet the goods of the rich; and as they neither plot against others, nor are themselves plotted against those states are likely to be well-administered, in which the middle class is large, and stronger if possible than both the other classes, or at any rate than either singly; for the addition of the middle class . . . prevents either of the extremes from being dominant . . . large states are less liable to faction than small ones, because in them the middle class is large;; whereas in small states it is easy to divide all the citizens, into two classes . . . And democracies are safer and more permanent than oligarchies, because they have a middle class which is more numerous and has a greater share in the government

Aristotle

Epistemology

“Epistemology is one of the core areas of philosophy. It is concerned with the nature, sources and limits of knowledge. There is a vast array of views about those topics, but one virtually universal presupposition is that knowledge is true belief, but not mere true belief. For example, lucky guesses or true beliefs resulting from wishful thinking are not knowledge. Thus, a central question in epistemology is: what must be added to true beliefs to convert them into knowledge?”

Ontology

“The word ‘ontology’ is used to refer to philosophical investigation of existence, or being. Such investigation may be directed towards the concept of being, asking what ‘being’ means, or what it is for something to exist; it may also (or instead) be concerned with the question ‘what exists?’, or ‘what general sorts of thing are there?’ “

“Statements are:

◆ analytically true

or

**◆ empirically
disconfirmable**

or

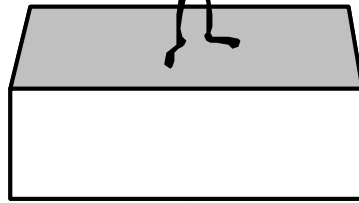
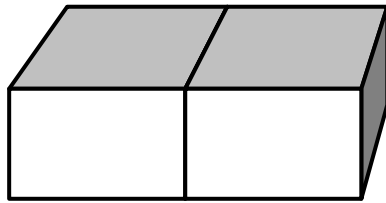
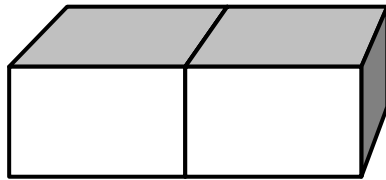
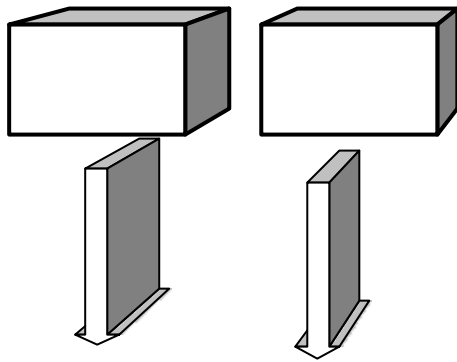
◆ meaningless”

Gallileo Gallilei and the falling cannon-balls

The text-books say:
classic experimental
disconfirmation
(leaning tower of Pisa .)

BUT

it was primarily a thought
experiment ...



*Aristotle says that a hundred-pound ball
falling from a height of one hundred cubits
hits the ground before
a one-pound ball has fallen one cubit.
I say they arrive at the same time.
You find, on making the test, that the larger
ball beats the smaller one by two inches.
Now, behind those two inches you want to
hide Aristotle's ninety-nine cubits and,
speaking only of my tiny error,
remain silent about his enormous mistake.*

Galileo Galilei c1612

①

A ➤ B ➤ C

②

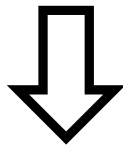
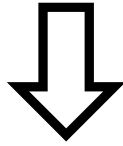
B ➤ C ➤ A

③

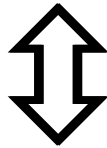
C ➤ A ➤ B

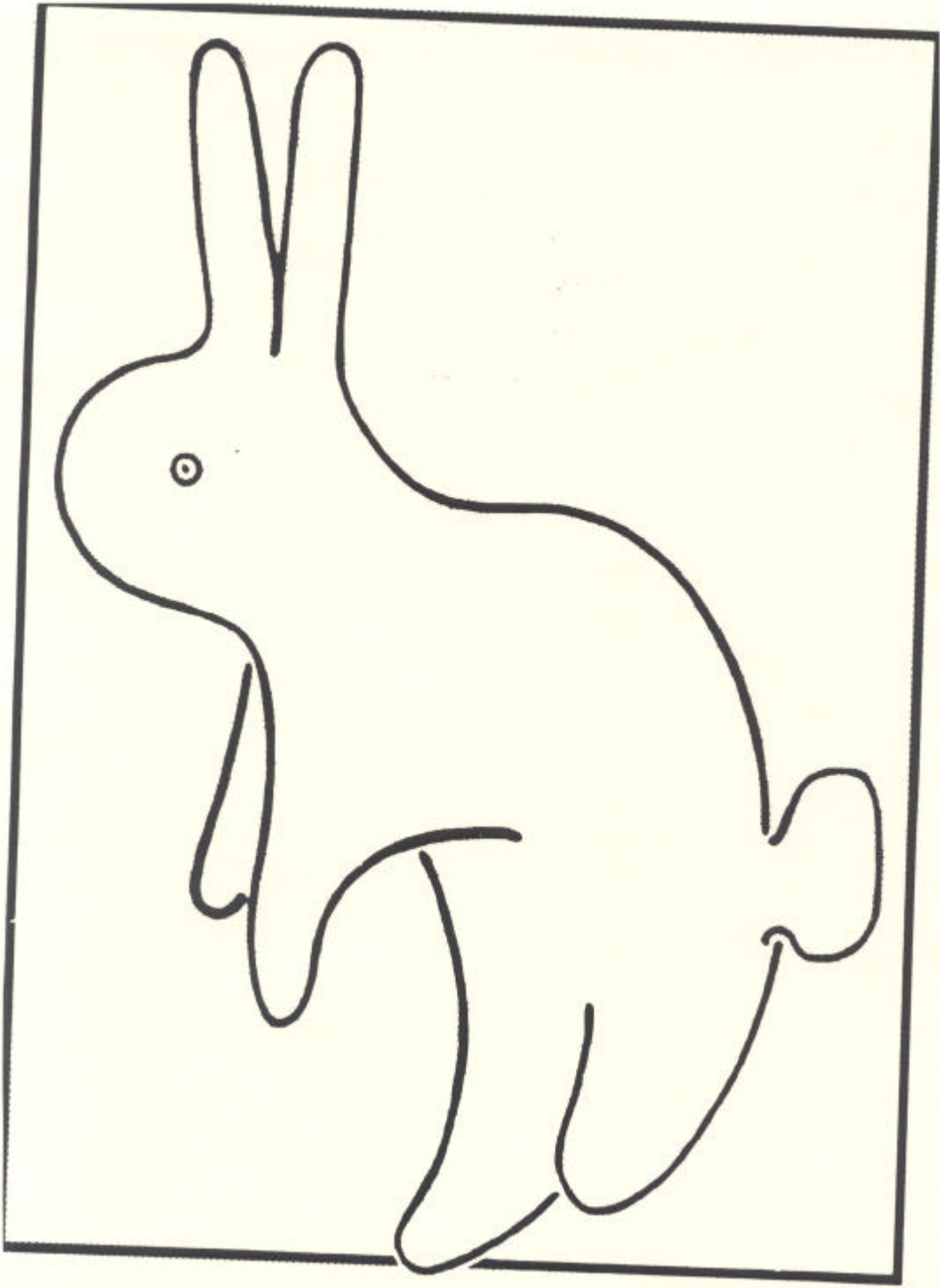
'Burning is
the
release
of
phlogiston'

Premises



Detailed predictive
statements







“Individuals producing in a society,
and hence the socially determined production of
individuals,
is of course the point of departure.
The solitary and isolated hunter or fisherman,
who serves Adam Smith and Ricardo as a
starting point,
is one of the unimaginative fantasies of
eighteenth-century romances *à la* Robinson
Crusoe;

...

They saw this individual not as an historical
result,
but as the starting-point of history;
not as something evolving in the course of
history,
but posited by nature,
because
for them this individual was in conformity with
nature,
in keeping with their idea of human nature.
This delusion
has been characteristic of every new epoch
hitherto.”

The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions readjustments in the interior of the field. Truth values have to be redistributed over some of our statements. Reevaluation of some statements entails reevaluation of others, because of their logical interconnections -the logical laws being in turn simply certain further statements of the system, certain further elements of the field. Having reevaluated one statement we must reevaluate some others, which may be statements logically connected with the first or may be the statements of logical connections themselves. But the total field is so underdetermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to reevaluate in the light of any single contrary experience. No particular experiences are linked with any particular statements in the interior of the field, except indirectly through considerations of equilibrium affecting the field as a whole.

If this view is right, it is misleading to speak of the empirical content of an individual statement - especially if it is a statement at all remote from the experiential periphery of the field.

Quine 42-3

... one of the things a scientific community acquires with a paradigm is a criterion for choosing problems that ... can be assumed to have solutions.

To a great extent these are the only problems that the community will admit as scientific or encourage its members to undertake.

Other problems, including many that had previously been standard, are rejected as metaphysical, as the concern of another discipline, or sometimes as just too problematic to be worth the time.

A paradigm can ... even insulate the community from those socially important problems that are not reducible to the puzzle form, because they cannot be stated in terms of the conceptual and instrumental tools the paradigm supplies. Such problems can be a distraction, a lesson brilliantly illustrated by several facets of seventeenth-century Baconianism and by some of the contemporary social sciences.

One of the reasons why normal science seems to progress so rapidly is that its practitioners concentrate on problems that only their own lack of ingenuity should keep them from solving.

Kuhn T S The Structure of Scientific Revolutions p37 (1962 1st ed, quote from 2nd ed 1970)

‘recall

Humphrey Lyttleton’s
rejoinder

when someone asked him
where jazz was going:

*“If I knew where
jazz was going
I’d be there
already.”*

(Winch, 1958:93-4)

“It is not true that to understand the concepts of a society (in the way its members do) is to understand the society. Concepts are as liable to mask reality as reveal it, and masking some of it may be part of their function.”

E Gellner

I consider extremely fruitful this idea that social life should be explained, not by the notions of those who participate in it, but by more profound causes which are unperceived by consciousness, and I think also that these causes are to be sought mainly in the manner according to which the associated individuals are grouped. Only in this way, it seems, can history become a science, and sociology itself exist.

Durkheim

Interpretation, in the sense relevant to hermeneutics [Dilthey, Gadamer, Habermas], is an attempt to make clear, to make sense of an object of study. The object must, therefore, be a text, or text-analogue . . .

Charles Taylor

The very terms in which the future will have to be characterised if we are to understand it properly are not all available to us at present.....

We see the rise of Puritanism, for instance, as a shift in mans stance to the sacred .it would be unthinkable that a medieval Catholic could have the conception ...

*such radically unpredictable events
as the culture of youth today, the
Puritan rebellion of the sixteenth and
seventeenth centuries, the development
of Soviet society, and so forth....*

*Human science looks backward. It
is inescapably historical.*

