

IV

The Natural Philosophy of Heraclitus

(a) *The great account*

When, in his lectures on the history of philosophy, Hegel came to Heraclitus, he was moved to an extravagant effusion: ‘Here we see land! There is no proposition of Heraclitus which I have not adopted in my logic.’ A prominent opponent of Hegelianism is no less effusive: Heraclitus’ fragments, far from adumbrating teutonic dialectics, reveal ‘a thinker of unsurpassed power and originality’, a Greek Wittgenstein.¹ The truth is that Heraclitus attracts exegetes as an empty jam-pot wasp; and each new wasp discerns traces of his own favourite flavour.

The existence of such diverse interpretations of Heraclitus’ philosophy will sow the seeds of despair in the mind of any honest scholar; and that luxuriant plant receives nourishment from a consideration of the history and nature of Heraclitus’ text. We do possess over a hundred fragments from Heraclitus’ pen; but many of them have reached us through the labours of two early Christian fathers: Clement of Alexandria saw Heraclitus as a pagan prophet of the Last Judgment; and Hippolytus of Rome made him, for polemical purposes, the spiritual father of Noetus’ Monarchian heresy. Moreover, Heraclitus had earned the dubious benefits of popularity even before his Christian renaissance; for Cleanthes the Stoic had attempted to give a stamp of authority to the teachings of his master Zeno by deriving them from the ancient doctrines of Heraclitus (Diogenes Laertius, IX. 16=22 A 1).²

We see Heraclitus reflected in the distorting glasses of patristic piety and Stoic special pleading. And in their pristine state his doctrines were not easy reading: according to an old fable, ‘Euripides gave Socrates a copy of Heraclitus’ book and asked him what he thought of it; Socrates replied: “What I understand is good; and I think that what I don’t understand is good too—but it would take a Delian diver to get to the bottom of it”’ (Diogenes Laertius, II.22= A 4).³ Theophrastus tartly observed that ‘from impulsiveness, some of what he wrote was half-completed, and the rest inconsistent’ (Diogenes Laertius, IX.6=A 1). Heraclitus the Obscure, the Riddler, the oracular prophet, stands dark and majestic in the early history of philosophy. He set out to imitate ‘the king whose is the oracle at Delphi’, who, in Heraclitus’ own words, ‘neither states nor conceals, but gives signs’ (B 93=14 M;⁴ cf. Lucian, C 5).⁵

Interpretation may thus appear a Herculean task. Yet the filth of the Heraclitean stables has perhaps been exaggerated. First, the textual tradition is not irremediably contaminated: Stoic and Christian accretions are readily recognized and readily removed; and we have enough of Heraclitus’ own words to reconstruct his thought without continual reliance on the doxography. Moreover, the obscurity of Heraclitus’ writings is customarily misrepresented. He is, like all the Presocratics, given to a vexatious vagueness; he frequently propounds paradoxes; and he has a mild penchant for puns. But puns are harmless and paradox is not always obscure. The fragmentary

state of Heraclitus' surviving words often makes his sense opaque; but I do not find his style particularly 'oracular'; he does not present his thoughts in 'riddles' (though he once quotes an old chestnut); and if he sometimes produces similes and analogies, it is gratuitous to suppose that his every remark must be construed unliterally, as the surface sign of an underlying profundity. At all events, I shall proceed on the assumption that Heraclitus usually means what he says. I do not share Nietzsche's view that 'probably no man has ever written as clearly and as lucidly' as Heraclitus; but it will, I hope, emerge that what he says is not always bible black.

We have, moreover, a clear starting point. Fragment **B 1=1 M** is twice said to come from the beginning of Heraclitus' book,⁶ and we have no good reason to doubt the testimony (Aristotle, *Rhet* 1407b16 = **A 4**; Sextus, **A 16**). The fragment reads:

And of this account (*logos*) which is the case always men prove to be uncomprehending, both before they hear it and once they have heard it. For although everything comes about in accordance with this account (*logos*), they are like inexperienced men when they experience both the words and the deeds of the sort which I recount by dividing up each thing in accordance with its nature (*phusis*) and saying how it is; but other men do not notice what they do when they are awake, just as they are oblivious of things when asleep (**33**).

Aristotle pointed out the syntactical ambiguity of Heraclitus' first sentence, an ambiguity which I imagine to have been deliberate and which is preserved in the translation by the clumsy placing of 'always'; and scholars since Aristotle have devoted much labour and ingenuity to the explication of the fragment. I shall only touch on one exegetical point before stating what I take to be the chief contentions of the passage.

Most scholars have found in '*logos*' a technical term, and they have striven to discover a metaphysical sense for it.⁷ Their strivings are vain: a *logos* or 'account' is what a man *legei* or says. We may suppose that our fragment was preceded, in antique fashion, by a title-sentence of the form: 'Heraclitus of Ephesus says (*legei*) thus: ...'.⁸ The noun *logos* picks up, in an ordinary and metaphysically unexciting way, the verb *legei*; it is wasted labour to seek Heraclitus' secret in the sense of *logos*.

It does not, of course, follow from this that Heraclitus had no 'metaphysical' theory to propound, no 'Logos-doctrine', as the commentators have it. On the contrary, **33** makes it clear that his 'account' must include or embody something like a general 'law of nature': 'everything happens' in accordance with the account. Thus Heraclitus' first claim is that he can offer a general account of the world, and that he can do this by explaining what is the *phusis* or essential nature of each thing. Second, he maintains that most men are woefully ignorant of this account: they are 'like the deaf (**B 34= 2 M**); they live in a dream world (**B 89=24 M**) 'as if they had a private understanding' of how things are (**B 2=23 M**).⁹ Third, he says that most men do not even know what they are doing or how to act.

Of these three claims this chapter will investigate the first: later chapters will deal with Heraclitus' second claim and the epistemology which underlies it, and with his third claim and the rudimentary ethical theory it suggests. There is, I think, something to be said for the view that this ethical theory was the summit of Heraclitus' thought;

but modern discussions inevitably and reasonably spend many more words on the metaphysical foothills.

‘Everything happens’ in accordance with Heraclitus’ account: the account is ‘common to everything’ (**B 114=23 M**; cf. **B 80=28 M**); and it is analogous to, or identical with, the single divine law which ‘nourishes’ all human laws (**B 114**).¹⁰ Alas, we do not possess (and perhaps Heraclitus never gave) a single luminous statement of this law: four muddy fragments contain the nearest we can get to a general account.

Conjunctions are wholes and non-wholes: what is converging, what is diverging; what is consonant, what is dissonant: from everything one, and from one thing everything (**34: B 10=25 M**).¹¹

Listening not to me but to my account it is wise to agree that everything is one (**35: B 50=26 M**).¹²

They do not understand how what is diverging is converging with itself: there is a back-stretched connexion, as of a bow and of a lyre (**36:B51=27 M**).¹³

One should know that war is common, and justice strife; and that everything comes about in accordance with strife and what must be (**37: B 80=28 M**).

These four fragments have suggested three abstract theses. First, there is the notorious Theory of Flux: all the furniture of the world is in constant, if imperceptible, change; the cosmos is a battleground, and its pacific façade hides the endless victories and defeats of an interminable internecine strife. Second, there is the Unity of Opposites: behind the coherent surface of things there is a tension of incompatibles; every object, however firm and enduring, is subject to contrary strains, and is constituted by opposing features. Third, there is a doctrine of Monism: in some fashion the diversity of appearances is underpinned or colligated by some single thing or stuff; at bottom, all is one.

Monism appears to be explicitly asserted in **35**, and to be implicit in **34**. The Unity of Opposites has been found in **36**, and also in **34**. Flux allegedly flows from **37**, and perhaps from **36** and **34**. The four fragments, taken alone, are difficult; and all the interpretations I have indicated have been disputed. Nevertheless, I think that all three theses can be ascribed to Heraclitus; and that together they form a metaphysical system.

(b) *Nature’s bonfire*

The abstract monism of **35** is given a fiery and substantial nature by other fragments:

This world neither any god nor man made, but it always was and is and will be, an ever-living fire, kindling in measures and being extinguished in measures (**38: B 30=51 M**).

Everything is an exchange for fire, and fire for everything—as goods for gold, and gold for goods (**39: B 90=54 M**).

Fire is the prime stuff of the world. The thesis has a traditional Milesian ring; and on his monism Heraclitus constructed, perhaps not in conscientious detail, a physical science of a standard Milesian type. He also advanced an idiosyncratic theory of man and of the human soul; and the fragments contain the remnants of an unusual theology. Heraclitus attacked the empty polymathy of his predecessors (see below, p. 146); but there is evidence enough that he was a polymath himself; and he takes his place on the board of Ionian scientists—a rebel, perhaps, but not a revolutionary. The details of Heraclitus' science are as controversial as anything in his thought; and I shall not attempt to expound them. Instead, I shall look more generally at the nature and grounds of Heraclitus' monism.

'From everything one, and from one thing everything' (34): it is fire, as 38 makes clear, which is the one stuff from which everything comes; and B 31=53 M elaborates on the bald hypothesis:

Turnings of fire: first, sea; and of sea, half earth and half burning (*prêstêr*).... Sea is dispersed and is measured in the same proportion as there was before (40).¹⁴

Fire turns into water; and water eventually reverts to fire, the proportions remaining constant.

The Stoics, some of whom claimed Heraclitus as their ancestor, subscribed to a doctrine of *ekpurôsis* or cosmic conflagration, according to which the whole universe is periodically consumed by fire to rise again, phoenix-like, from its own ashes (see *SVF* II 596–632). The doxographers ascribe such an *ekpurôsis* to Heraclitus (e.g., Clement, *ad B 31*; Simplicius, *A 10*): some scholars accept the ascription, others deny it; and there is large controversy. I incline to agree that Aristotle and the Peripatetics made the ascription; and that nothing in the secondary sources stands against it. Yet 38 says flatly that 'this world...always was and is and will be': that is a brusque rejection both of cosmogony and of cosmophthory—'this world (*kosmos*)' did not begin and will not end. And that, as far as I can see, is incompatible with a doctrine of *ekpurôsis*.¹⁵ The doxography, even if Aristotle is its patron, must yield to the evidence of the fragments.

The point is worth stressing: 38 does not merely rule out *ekpurôsis*; it rules out any form of cosmic disintegration, and equally any form of cosmogony. Heraclitus surely knew of the Milesian cosmogonists: why, we may wonder, did he reject their enterprise? and why, for that matter, had the Milesians imagined a beginning to the world, and supposed that one of the tasks of a natural scientist was to supply an account of the world's birth-pangs? Our texts give us no answers. Perhaps the Milesians simply did not entertain the possibility that the present cosmos was sempiternal: their mythological predecessors had fabled a genealogical account of the world's origins, and they conceived it their duty to replace genealogy by science. Every thinker has some unquestioned starting points, and the necessity of cosmogony was perhaps such a starting point for the Milesians.

However that may be, no analogous explanation is available for Heraclitus' case: his rejection of cosmogony was no tacit assumption but a self-conscious piece of polemic; and he must surely have expected a request to explain and justify his innovatory suggestion. He may have preserved a discreet silence (I have already commented upon

the curious lack of critical concern among the Presocratics: above, pp. 50–2); but that is an unflattering and an implausible guess. The Atomists, and later Aristotle, rejected cosmogony; but we cannot project Aristotle’s highly Aristotelian arguments back on to Heraclitus, and we do not really know how the Atomists argued (below, pp. 430–1). Speculation may invent a variety of reasons to support Heraclitus’ stand: I leave the reader to exercise his own fancy here.

The monistic formula, ‘Everything is from X ’, can be read cosmogonically. So read, it implies that at some time all things were X . That reading, I have just argued, is not possible for Heraclitus; but the formula admits a different interpretation, on which it implies only that everything at some time was X . On the first, cosmogonical, reading, at some time everything was X ; on the second reading, everything was, at some time, X . The notation of quantificational logic brings out the distinction clearly. ‘ $(\exists x) \phi x$ ’ means ‘Something is ϕ ’, ‘ $(\forall x) \phi x$ ’ means ‘Everything is ϕ ’. Let the variable x range over physical objects, and let the variable t range over times or instants. Then the cosmogonical interpretation of monism can be expressed by:

(1) $(\exists t) (\forall x) (x \text{ is } X \text{ at } t)$ —‘At some time every physical object is X ’. And the second reading of monism is given by:

(2) $(\forall x) (\exists t) (x \text{ is } X \text{ at } t)$ —‘Every physical object is at some time X ’.

Here (1) entails (2); but (2) does not entail (1). It seems to me that the analogy Heraclitus draws in **39** fits well with (2) and ill with (1); and that this makes it probable that Heraclitus had (2) fairly clearly in mind.

According to Simplicius,

Heraclitus...made fire the principle, and derives the things that exist from fire by condensation and rarefaction, and resolves them again into fire, taking this as the single underlying nature; for Heraclitus says that everything is an exchange for fire (**41: A 5**).

Fire on this view is the ‘material principle’ of everything. The view is ubiquitous in the doxography; and it is found in Aristotle (*Met* 984a7=18 A 7).

Simplicius adverts to **39**; and scholars have been quick to point out that the fragment does not require an Aristotelian interpretation. Nor do the two main fragments on fire, **38** and **40**, embody an Aristotelian view; and the assertion in **38** that fire is ‘extinguished in measures’ has been taken to imply that fire does not, like a substrate, persist through its ‘turnings’. Thus in Heraclitus’ world things were made from, but are not made of, fire.¹⁶

Three frail reasons stand against this conclusion. First, Simplicius’ reference to condensation and rarefaction supports an Aristotelian interpretation. (But Simplicius may only be reporting a Peripatetic conjecture, or making a conjecture of his own.) Second, ‘everything is one’ (**35**); and we may say, without abuse of language, that ‘everything is fire’ only if we mean that everything actually *is*, at bottom, fire. (But Hippolytus, who quotes **35**, suggests a different interpretation of the phrase.) Third, the sort of inference required to reach the Aristotelian view from a thesis like (2) is, as I shall shortly show, characteristically Heraclitean. (But need Heraclitus have made the

inference here?) I incline to accept the Aristotelian interpretation; but the evidence is thin, and I put no weight on the matter.

How, then, did Heraclitus argue for his monism? Some scholars would say that this question was misconceived: Heraclitus' statements are oracular, and their production has little to do with argument; 'his conclusions are based on intuition rather than on observation and analysis of data'; or again: 'the content of [Heraclitus'] very general formula seems to have been filled in by a coherent chain of statements linked together not by logical argument but by interlocking ideas and verbal echoes, with an elaborate use of imagery, word-play and enigma'.¹⁷ And those scholars who do perceive argument in Heraclitus regard his chief logical tool as analogy; and they talk of a 'thought pattern' rather than of ratiocination in any inferential sense.¹⁸ Who, in any case, would expect a quick flame from hydropical Heraclitus?

There are certainly analogical statements in Heraclitus; but their number has been overestimated, and where they do occur they seem, to me at least, more a stylistic device than an argumentative mode. Again, there is certainly imagery and word-play in the fragments; but this too is a stylistic embellishment rather than a substitute for logical procedure. The fragments, I think, are consistent with, and indeed positively suggest, the view that Heraclitus, like any good Presocratic, was ready to support his statements by argument and evidence. I hope to make this claim plausible when I turn to Flux and Unity: for Monism the fragments are less helpful.

We might, indeed, imagine (consistently with the hypothesis of a rational Heraclitus) that his monism was an unargued postulate: like the Milesians, Heraclitus saw it as scientifically virtuous to construct his system on the simplest foundations; and like them again, he saw that monism provided the greatest degree of simplicity. Many scholars do not like unargued postulates; and of those, some have taken Heraclitus' monism as an inference from the Unity thesis. Heraclitus, they imagine, offered an *a fortiori* argument: 'If opposites form a unity, then everything forms a unity; hence everything is one.' There is a temptation to see just such an argument in **34**, where the last clauses present Monism, and the first clauses expound the Unity thesis. But the reconstruction is implausible; for the inference it offers Heraclitus is gross: from Unity there is no reasonable path to Monism.

There is, in any case, a better line of reasoning which we can ascribe to Heraclitus. We may suppose, first, that he posited a monistic theory to explain the generation of things; second, that he picked on fire as his fundamental material on the basis of observations of the same vague and general sort which influenced Anaximenes; third, that he understood his fiery monism as a special, cosmic, case of the Theory of Flux; and fourth, that he applied the general argument from Flux to Unity which I shall shortly expound, in order to derive an Aristotelian monism. This reconstruction is wholly speculative: it has the twin merits of ascribing arguments to Heraclitus which we have some reason to think him capable of using, and of placing the three main components of his account of the world in some sort of logical relation to one another.

(c) *All things are a flowing*

Panta rhei, 'Everything flows', is the most familiar of Heraclitus' sayings; yet few modern scholars think he said it, and many think he never had a Theory of Flux at all.¹⁹

That view is perverse. It is true that the particular phrase '*panta rhei*' first occurs in Simplicius (40 (c⁶) M); but the Theory itself is ascribed to Heraclitus by a horde of authorities.²⁰ Plato is explicit enough:

Heraclitus, I think, says that everything moves (*panta chôrei*) and nothing rests (42: *Cratylus* 402A=A 6).

And there is earlier evidence yet: the Hippocratic treatise *de victu* is a silly farrago of ill-digested Presocratic opinions: one particularly Heraclitean chapter of the work, §5, opens with the phrase *chôrei panta*. The treatise probably dates from about 400 BC; and it thus contains a pre-Platonic reference to Heraclitean Flux.²¹ The doxography consistently ascribes Flux to Heraclitus; and here, at least, we can trace it beyond the Peripatetic writers.

The doxographers are, I think, supported by the fragments themselves: Heraclitus' remarks on the rule of War and Strife (especially 37) strongly suggest a dynamic and changing world of the sort envisaged by the Theory of Flux. And several fragments, which I shall shortly consider, offer what are reasonably taken as arguments for, or at least illustrations of, the Theory.

In sum, I think that Flux is Heraclitean; indeed I am disposed to take Plato's *panta chôrei* as an actual quotation from Heraclitus: there is as much reason for accepting this as there is for accepting many of the lines which orthodoxy prints as *ipsissima verba*.²²

Some of those scholars who accept the Theory as Heraclitean are inclined to see nothing very original in it: the Milesians, after all, had held a similar view. The Milesians, like all observant men before Parmenides, had indeed noticed that things change: the world is patently not a static *tableau*. Yet it is far from a patent truth that *everything* changes, still less that everything *always* changes; and the Milesians, like ordinary men before Heraclitus, seem to have thought that within the changing world there was room for a number of stable and relatively permanent objects: the stars do not change in their courses, and the earth does not move from its place. There is no reason to deny Heraclitus the novelty of generalizing the natural view of a changing world to the more pugnacious thesis that everything changes; whether there was more to his innovation than such a generalization remains to be seen.

Discussion must start from the notorious 'river fragment' which has been associated with the Theory of Flux at least since Plato's time. The *Fragmente der Vorsokratiker* presents us with not one but three quotations:

On those who step into the same rivers, different and different waters flow (43: B 12=40 M).

We both step and do not step into the same rivers; we both are and are not (44: B 49a=40 (c²) M).

It is not possible to step into the same river twice (**45: B 91= 40 (C³) M**).

These three passages have sustained a massive commentary.²³ Are all three fragments genuine? Are two genuine and the third a paraphrase? Is one genuine, the other two paraphrases? Are all paraphrases of some single, lost, original? What, if anything, did Heraclitus actually say about rivers? and what did he mean?

Those controversial, and perhaps unanswerable, questions have, I think, acted as a smoke-screen: behind them the chief, and answerable, question has sailed on unheeded. That question is: What doctrine might the river fragments, whatever their original form, suggest, or seem to support? The common core of the fragments is the observation, trite and true, that rivers, on which common parlance and the nomenclature of the geographers impose a permanence and stability, are all the while changing in at least one essential respect: the waters of which they are constituted are never the same from one instant to the next. Plainly, this observation exemplifies, and therefore in some measure supports, the Theory of Flux. The superficial stability of rivers masks a continuous and essential change: things look, but are not, the same. We need not take Heraclitus' river allegorically, as Plato apparently did; but once we have granted Heraclitus a Theory of Flux, it is silly not to take his river to exemplify it. The obvious and the natural message of rivers is this: stability may cover constant change. That message can hardly have been misunderstood by a proponent of Flux.²⁴

A less celebrated fragment offers a second piece of evidence:

The barley drink disintegrates if it is not stirred (**46: B 125=31 M**).

Here the moral is less impressively instanced but more easily drawn: cocktails must be shaken or stirred; a glass of stuff whose contents are not continuously changing cannot be a cocktail but will disintegrate into separate layers of barley, honey and wine. Change is essential to the identity and existence of the drink (cf. Themistius, **A 3b**).

A further fragment makes the same point in more general terms:

Cold things grow warm; warm grows cold; wet grows dry; parched grows moist (**47: B 126=42 M**).

A farmer looking at his land will refer to the fields and the soil which he cultivates; his way of thinking and speaking assumes a constancy and stability in nature. Yet momentary reflexion is enough to remind him that the fundamental properties of his farmland, on which its appearance and its powers depend, are changing from day to day and hour to hour. Or again, a man's body is constantly changing its temperature and humidity, as he breathes and digests: the surface stability of the human shape hides a hubbub of operations without which men would soon cease to be.

Fire, like water, evidently flows; and **38** indicates that Heraclitus saw Flux on a cosmic scale: 'This world...[is] an ever-living fire, kindling in measures and being extinguished in measures.' Similarly, **40** presumably points to certain familiar but grand meteorological changes: the sea is always losing its substance, parts being drawn up in vapour by the sun, parts being filtered out as silt and adding to the land. Such

observable changes indicate that the world as a whole, though apparently divided with some permanence into the great and stable *masse-of* fire, water and earth, is subject to a continuous transformation: even at a cosmic level, reality is essentially changing.

Other fragments can more doubtfully be adduced as pointing to the same conclusion (see, e.g., **B 67=77 M**; **B 36=66 M**); and one crucial remnant, which I shall discuss in the next section, makes the connexion between Flux and Unity (**B 88=41 M**). But the fragments I have already quoted appear to me sufficient to establish a certain rationality to Heraclitus' procedure: the Theory of Flux was no *a priori* intuition or piece of fanciful imagery; it was a general thesis about the nature of reality, founded upon and supported by a series of empirical observations.

The same fragments give us a clearer view of the nature of the Theory, and enable us to scotch two popular interpretations whose intrinsic absurdity may partly account for the reluctance some scholars feel at ascribing the Theory to Heraclitus.

The first interpretation pictures Heraclitus as an early Wittgensteinian who 'visualized the world...not as the sum-total of all *things*, but rather as the totality of events, or changes, or facts'. 'Heraclitus' problem' was 'the *problem of change*—the general problem: *How is change possible? How can a thing change without losing its identity—in which case it would no longer be that thing which has changed?*' And Heraclitus' answer was that there are no changing things, but only changes: since nothing changes, the 'problem of change' is dissolved. For 'to Heraclitus the truth is to have grasped the essential being of nature, i.e. to have represented it as implicitly infinite, as process in itself'.²⁵

That diverting interpretation does at least take Heraclitus' Theory as a serious philosophical proposition; but it is a fantasy, and a confusion. First, I protest against the widely accepted *dictum* that 'if you want to explain Heraclitus you must first show where his problem lay'.²⁶ Heraclitus, like his predecessors, did not focus his attention on some one 'problem': he wanted to give a general account of nature or the world. (Moreover, we are in no position to identify any 'problem' he found independently of his 'answers'.) Second, there is no evidence that Heraclitus posed 'the general problem of change': change for him was in particular cases a datum, and in general a theory; it was not a 'problem'. Third, the Theory of Flux does not imply the Wittgensteinian thesis that 'the world is the totality of facts, not of things'. Nor does it imply the different theory that the world is the totality of changes. Rather, it suggests that the world is a mass of things—stuffs and substances—which are subject to constant change. And such a suggestion does not approach, let alone dissolve, the 'general problem of change'.

The second interpretation of the Theory of Flux comes from Plato's *Theaetetus* (179D-183B): it takes the Theory to assert that all things are at every moment changing in every respect. Aristotle gives the following report:

Again, seeing that the whole of nature is in motion, and that nothing is true of what is changing, they supposed that it is not possible to speak truly of what is changing in absolutely all respects. For from this belief flowered the most extreme opinion of those I have mentioned—that of those who say they 'Heraclitize', and such as was held by Cratylus, who in the end thought one should say nothing and only moved his finger,

and reproached Heraclitus for saying that you cannot step into the same river twice—for he himself thought you could not do so even once (48: *Met* 1010a7–15=65 A 4).

The surviving evidence on Cratylus the Heraclitean is sparse and puzzling: our two chief sources, the *Metaphysics* and Plato's *Cratylus*, are not easily harmonized; nor, for that matter, are they easily interpreted. I assume that the *Metaphysics* is reliable; and that the main burden of Cratylus' argument is this: 'If the water in the pot is changing temperature, you cannot truly ascribe any temperature to it; if the door is being painted, you cannot truly ascribe a colour to it; and in general, if a is changing in respect of some continuum of qualities S , then you cannot ascribe any position on S to a . But everything is always changing in every respect; hence you can say nothing truly about anything.'

The argument assumes the strong version of Flux found in the *Theaetetus*. Plato argues that Flux of that strength is incoherent. To state the theory, it is necessary to refer to subjects of change, to identify objects, or at least areas of space, that are undergoing change; but reference and identification require a certain minimal stability in the object referred to or identified: I cannot refer to a unless I can truly assign *some* property to it. The extreme Cratylan theory of Flux thus denies one of its own presuppositions: if the theory is true, it cannot even be stated. Hence it is necessarily false. Cratylus' own argument is an adumbration of Plato's. For, according to Cratylus, Flux implies that nothing can truly be said of any object. Cratylus inferred that one can refer, or point, to objects (if that is why he 'moved his finger') but that one can predicate nothing of them; Plato inferred that one could not even refer to objects, since reference implies predication.

There are interesting hares trembling here for pursuit; but I shall not chase them. For there is no reason at all to ascribe a strong Cratylan Flux to Heraclitus. Cratylus did not sit at Heraclitus' feet, nor did he parrot Heraclitean doctrine: his theory is explicitly presented as a development, not a restatement, of Heraclitean Flux. Cratylus is described as a Heraclitean, and that is intelligible enough: his doctrine, that everything is always flowing in *all* respects, is evidently a child of Heraclitus' doctrine, that everything is always flowing in *some* respects.

(d) *A world of contradictions*

According to Aristotle, 'Heraclitus' account says that everything is and is not' (*Met* 1012a24); at least, this was a view of Heraclitus current in Aristotle's day, even if Aristotle himself, for philosophical reasons, was sometimes reluctant to accept it (cf. *Met* 1005b24–5= A 7). The context of Aristotle's remark allows us to give it a fairly precise interpretation: 'Take anything you like, there is some property which it both has and lacks'; in symbols:

$$(1) (\forall x)(\exists \phi)(\phi x \text{ \& not- } \phi x).$$

Aristotle does not mean that Heraclitus propounded (1) in so many words; and of the fragments only 44 (above, p. 66) explicitly states a case of (1), and that is of dubious authenticity. On the other hand, the fragments do make frequent play with 'opposites'

or contrary predicates; and if we jib at (1) we might allow Heraclitus the view that ‘opposites belong to the same thing’ (Sextus, *Pyrr Hyp* I.210; cf. II.63). Thus, letting ‘ ϕ ’ mark a predicate contrary to ‘ ϕ ’, we can state the Heraclitean thesis as follows:

$$(2a) (\forall x) (\exists \phi) (\phi x \ \& \ \phi' x).$$

In Aristotle’s view (1) follows at once from (2a) (cf. *Met* 1011b15–22), and that will explain his ascription of (1) to Heraclitus.

Heraclitus did not, of course, say anything quite like (2a): that formula uses the artifices of a later logical notation. Hippolytus, who reports **35**, says that by ‘all things are one’ Heraclitus meant ‘all opposites are one’. If he is right we possess, perhaps, one part of Heraclitus’ own formulation of the Unity thesis. In modern notation, that amounts not to (2a) but to:

$$(2b) (\forall \phi) (\exists x) (\phi x \ \& \ \phi' x).$$

We may conclude that the Unity of Opposites is properly expressed by the conjunction of (2a) and (2b): every pair of contraries is somewhere coinstantiated; and every object coinstantiates at least one pair of contraries:

$$(2) (\forall \phi) (\exists x) (\phi x \ \& \ \phi' x) \ \& \ (\forall x) (\exists \phi) (\phi x \ \& \ \phi' x).$$

Many scholars will object to this interpretation of the Unity of Opposites: it ascribes an anachronistically precise thesis to Heraclitus, and thereby makes his view absurdly and trivially false. I shall say something about the absurdity of Heraclitus’ thesis later; here I want to answer the charge of anachronism.

The charge is in effect twofold. First, Heraclitus did not use the categories of formal logic which (2) foists upon him; in particular, the subject-predicate structure of (2) has metaphysical implications which are quite alien to Heraclitus’ thought. One part of this criticism is misguided: it is true that (2) states matters with greater precision than any sentence Heraclitus used; but to make a fairly precise statement of a philosopher’s loosely expressed thought is not to misrepresent him; rather, it is a necessary preliminary to any adequate interpretation. Another part of the criticism is less clearly erroneous: perhaps (2) is precise in the wrong way? perhaps a different formulation of the Unity Thesis is possible? It is easy to invent other formulations; the only one which has any interest, or any plausibility as an interpretation, is:

$$(3) (\forall \phi) (\phi = \phi').$$

White is black; heaviness is lightness; and the light is darkness itself: contrary properties are strictly identical with one another.²⁷

Now some of Heraclitus’ fragments do suggest something like (3); but others are much more naturally taken to illustrate (2). And those which suggest (3) can be treated, without great strain, as rhetorical essays at (2). Again, (3), together with the harmless assumption that all the opposites are instantiated, entails (2); and on any interpretation what is most puzzling about Heraclitus’ thesis is his apparent ‘violation of the Law of Contradiction’, which is most clearly brought out in (2). Finally, I cannot really believe that Heraclitus subscribed to (3): can anyone have seriously supposed that, say, being wet and being dry was one and the same thing? It is one thing to persuade oneself that one and the same thing is both wet and dry; another to imagine that there is no difference between being wet and being dry.

Thus in answer to the first charge, I say first that the precision of (2) is entirely proper, and indeed necessary; and second, that (2) is probably precise in the right way.

Now for the second charge: (2) comes from Aristotle; but Aristotle may have got Heraclitus wrong. In particular, Aristotle may have taken Heraclitus' utterances too literally: by his assertions of 'unity' Heraclitus only means that things 'are "one"...in that they all have a common component...and because they all connect up with one another *because of this common structure*'.²⁸ Heraclitus observed that things, even opposites, are connected in far more complex and manifold ways than we incline to imagine; and he expressed this interesting but logically innocuous observation with rhetorical exaggeration. 'All things,' he said, 'are one'; but he meant: 'All things are interconnected'.

Can Heraclitus have meant that? It is small beer; indeed the thesis that 'all things are interconnected' is almost certainly a truism. Heraclitus saw himself as a vendor of novelty and paradox; he can hardly have intended to peddle such dullard truths as that. In any case, there are fragments in which Heraclitus clearly commits himself to instances of (2); and there are explicit statements to the effect that 'X and Y are one'. We can take these as heightened tropes if we choose; but such a choice ignores the obvious sense of Heraclitus' remarks. Moreover, the mild interpretation confuses the grounds of Heraclitus' Unity Thesis with the Thesis itself: it is true, I think, that Heraclitus argues for this Thesis from various observations about 'common structures' and the like. But if the Unity Thesis is supported by such facts, it follows, not that the Thesis is constituted by those facts, but rather that the Thesis is *not* constituted by them.²⁹

The Unity Thesis, if it is expressed by (2), is bizarre and outrageous: it will constitute the core of Heraclitus' idiosyncratic 'account' of the way things are. The ancient critics concurred in this judgment: of the thesis that 'everything in the world is by nature pretty well opposite', Philo asked (*quis rer div her*, 43, 214),

Is it not this which the Greeks say that their great and celebrated Heraclitus set up as the high-point of his philosophy and paraded as a new discovery? (49: Diels-Kranz, I.491. 39–42).

What could have impelled Heraclitus to so strange a view? Part of the answer is, I think, given in **B 88=41 M**:

[i] The same thing is living and dead, and what is awake and what sleeps, and young and old; [ii] for these, having changed about, are those; and those, having changed about, these (50).

The fragment is textually controversial; and the illustrative examples it adduces are somewhat obscure in themselves—how does youth follow age or life death?³⁰ But the obscure story offers a plain moral: sentence [i] states three instances of the Unity Thesis and sentence [ii] grounds these instances, as its introductory particle shows, on the Theory of Flux.

Roughly speaking, Heraclitus argues thus: 'Being awake and being asleep succeed one another; therefore, the same things are awake and asleep.' It is plausible to find a similar argument in at least one other fragment:

Hesiod is a teacher of most men: they are convinced that he knew most things—he who did not know day and night (for they are one) (**51: B 57=43 M**: cf. Hesiod, *Theogony* 123).

Thus: ‘Night and day are mutually successive; hence the same thing is both night and day’. Text **46**, quoted in illustration of the Theory of Flux, may well have continued by inferring a case of the Unity Thesis; and the wretchedly difficult **B 58=46 M** perhaps contained a further argument of this sort.

But do such things deserve the name of argument? They are, at least when soberly expressed, palpably and scandalously invalid. How can Heraclitus have come to accept them? At least three explanations offer themselves. First, the Greeks were, as we are, prone to say that X and y form a unity, or ‘are one’, if they are in some way continuous (*sunechê*s). Heraclitus observed the continuity of night and day; he perhaps expressed this by saying to himself that night and day ‘are one’, and then inferred that night and day are identical. So understood, his argument commits a ‘fallacy of equivocation’: ‘... are one’ means both ‘...form a unity’ and ‘...are identical’; and Heraclitus’ argument moves silently from the first sense to the second.³¹

Again, the succession of X and Y can be expressed by ‘ X is *ek* Y ’; and from ‘ X is *ek* Y ’, in a different sense of ‘*ek*’, the Greeks were often prepared to infer ‘ X is Y ’ (see above, p. 42). Perhaps, then, Heraclitus expressed the succession of day and night by means of the phrase ‘day is *ek* night’; and then, improperly interpreting ‘*ek*’, inferred the identity of day and night.

The third path of fallacy follows a different route. Flux—the change from one property to its contrary—can be expressed schematically by the following formula:

$$(4) \phi_x \text{ at } t_1 \ \& \ \phi' x \text{ at } t_2.$$

Heraclitus’ inference, then, passes in effect from (4) to:

$$(5) \phi_x \ \& \ \phi' x.$$

The fallacy lies in dropping the temporal qualifiers, ‘at t_i ’, or in passing from ‘ P at t_i ’ to ‘ P ’ without qualification. The Aristotelian Greek for ‘ P without qualification’ is ‘ P *haplôs*’; and in the *Sophistici Elenchi* Aristotle warns against the fallacy of ‘dropping the qualification’ or of inferring P *haplôs* from some modified version of P (166b37–167a20; for an explanation of *haplôs*, see *Top* 115b29–35).

It is not anachronistic to suppose that Heraclitus fell for a fallacy of this sort: Aristotle makes it clear that such fallacies were still rife, and still perplexing, a century and a half after Heraclitus’ day.³² In many cases, of course, qualifiers can be validly dropped: ‘Brutus stabbed Caesar’ certainly follows from ‘Brutus stabbed Caesar with a dagger’; and that may have encouraged a certain insouciance towards adverbial modifiers in general. Moreover, temporal indications are often concealed in ordinary discourse: watching the barber we may chronicle the change in his victim by the successive utterances ‘He’s hairy’, ‘He’s bald’. Time is marked only by the present tense; and the logic of conjunction may seduce us to the conclusion: ‘He’s hairy and he’s bald’.

That there is an inference in **50**, and that the inference is fallacious, are certainties. It is less clear how the fallacy is to be diagnosed. If I guess that the third diagnosis is Heraclitean, that is because there is some evidence that fallacies of that sort marred other bits of his reasoning. For the Unity of Opposites did not rest simply on inference

from the Theory of Flux: it was also supported, as Flux itself was, by a collection of particular cases. And in some at least of these cases the fallacy of the dropped qualification is again visible.

Some twenty fragments in all may plausibly be construed as illustrating the Unity of Opposites. Most of them are controversial; many of them are too vague or too obscure to be worth adducing; and one of the most celebrated is no more than a pun.³³ Of the remainder, one group can be collected about **B 61=35 M**:

Sea is purest and foulest water: for fish it is drinkable and salutary; for men it is undrinkable and lethal (**52**).

There are similar ‘relativist’ observations in **B 13=36 M**, on the pleasures of the pig (cf. Democritus, **68 B 147**); in **B 9=37 M**, on the values of the donkey; and in **B 4=38 M**, on the eating habits of oxen.

Observations of a generally relativistic type are common enough outside Heraclitus: the Sicilian comedian Epicharmus, who will take the stage in later chapters, provides an example:

It is no wonder that we talk like this
and please ourselves, and seem to one another
to be so fair; for to a dog a bitch
seems the most fair—and to a bull a cow,
to an ass an ass, and to a pig a pig (**53:23 B 5**).

Epicharmus propounded relativism to raise a laugh: Heraclitus’ aim is philosophical; for from relativistic observations he could infer cases of the Unity thesis.

In **52** the inference is explicit; it proceeds from:

(6) Seawater is good for fish and bad for men
to:

(7) Seawater is good and bad.

The argument is closely parallel to that from (4) to (5): the omission of two qualifying phrases—‘for fish’, ‘for men’—allows a common truth to yield a paradoxical conclusion. Here at least it is clear that Heraclitus committed the fallacy of the dropped qualification; and it is reasonable to imagine that the collection of propositions of which (7) is my exemplar were all derived by way of that fallacy, and then advanced in support of the Unity Thesis.³⁴

Another type of argument lies behind **B 26=48 M**. The text of this fragment is hopelessly corrupt; but its shell in all probability reads:

Man...while living touches death...and while waking touches sleep (**54**).

The metaphor of touching is susceptible to more than one interpretation. A plausible construe glosses ‘touch’ by ‘resemble’³⁵ and ascribes to Heraclitus the following argument: ‘There is no clear distinction between such opposites as life and death: we

cannot say of a sleeping man that he is alive (for he exhibits few of the features of vivacity), nor yet can we say that he is dead (for sleepers and corpses are in many ways distinct). Thus life and death are strictly indistinguishable, and one and the same man is both alive and dead.' This type of argument is surprisingly popular: we are all familiar with the ploy forbidding us to say that a is ϕ rather than non- ϕ , on the grounds that there are numerous cases in which we are unwilling or unable to predicate either ϕ or non- ϕ . The argument is silly, and its invalidity is patent once it is stated; yet I think Heraclitus may have fallen for it.

Here, finally, are a few more illustrations of Heraclitean Unity. In **B 60=33 M**:

The road there and back is one and the same (55).

Heraclitus observes correctly that we apply the predicates 'going to Thebes' and 'coming from Thebes' to a single subject; and he surely thinks he is providing us with a clear exemplification of (2).³⁶ **B 103 =34 M** reads:

Beginning and end on a circle are common (56).

One and the same point is describable both as the first point and as the last point of the circle's circumference. According to **B 59=32 M**:

The path of the carding roller is straight and curved (57),

as it rolls over the wool. **B 15=50 M** is often read as an attack on popular mystery religions:

If they did not make a procession to Dionysus and sing a hymn to the organs of shame, they would act most shamefully (58).

But I suspect that the phallic hymns are adduced primarily to illustrate the Unity of Opposites: they are reverent (for failure to sing them would be a shameful act); and they are also shameful (for they are paeans to the penis).³⁷

The Unity of Opposites thus has twofold support: first, it is inferred from the Theory of Flux and thus has whatever support that Theory lays claim to; second, it rests upon a wide variety of observations, some of them direct instantiations of the Unity thesis, others requiring a small argumentative step to bring out their significance. Even at his most paradoxical, Heraclitus remained a rational thinker: his extraordinary thesis of Unity, no less than his traditional monism, was based on evidence and arguments.

(e) *Sage Heraclitus?*

Empirical observation and bold generalization led Heraclitus to the Theory of Flux: that all things constantly change is a well confirmed scientific hypothesis. Change is between Opposites; and the logic of change seemed to draw Heraclitus irresistibly to the

Unity of Opposites: opposites are coinstantiated. Common observation, supported by a further application of the fallacy of the dropped qualification, confirmed the thesis of Unity. The commonplaces of Milesian science gave reason for accepting a Monism: everything was made from, and is made of, one stuff. The continuous cosmic changes provide a grand illustration of Flux; and the inference from Flux to Unity permits the Aristotelian conclusion that fire is the material substrate of the universe.

Of the three interlocking theories which constitute Heraclitus' account of nature, Monism is the least important. The Theory of Flux is a bold development of earlier speculation. The Unity of Opposites is an extraordinary innovation. Monism on the Milesian model is tacked on to these theories to show how Heraclitus can provide any enlightenment which his predecessors could provide, and provide it on a sounder and deeper basis. At all events, it is Flux and Unity which will seem most original and most shocking to modern readers.

And yet both these theories seem idiotic in themselves, and rest upon idiotic arguments; they are not worth a moment's attention from a rational man. Large objections are immediately to hand, and appear to destroy the whole Heraclitean account with ease and finality.

Flux and Unity are open to obvious empirical objections. Some things, no doubt, are in a state of Flux; and some things, perhaps, own perplexingly contrary properties; yet it is evident to the most cursory glance that not all things are in a state of Flux, and that not all things are bound to contrariety: a few careless observations have encouraged Heraclitus to propound a theory which our whole waking life constantly disproves.

Heraclitus anticipated this elementary objection:

Nature likes to hide itself (**59: B 123=8 M**).

The unevident connexion is stronger than the evident (**60: B 54=9M**).

He illustrated his claim by a little parable:

Men are deceived with regard to knowledge of what is evident, like Homer who was the wisest of all the Greeks. For he was deceived by some boys who were killing lice and said: 'What we saw and caught, we are leaving behind, what we neither saw nor caught, we are taking with us' (**61: B 56=21 M**).

The parable and the Heraclitean claim supply two important glosses on the Theory of Flux and the Unity of Opposites.

First, Heraclitus maintains that scientific truths are not all patent to casual observation: the truth is often hidden, and the fact that common experience suggests stability and coherence rather than flux and contrariety indicates not the falsity of Heraclitus' account but the superficiality of common experience. According to Aristotle, 'some say that it is not the case that some of the things that exist are changing and others not, but that everything always changes although this escapes our perception' (*Phys* 253b9–11). Aristotle does not name Heraclitus; but it seems certain that he had Heraclitus in mind.

The second point embellishes the first. Heraclitus is interested in the 'nature' or *phusis* of things: this emerges both from 59 and also from the various examples of Flux and Unity which have survived; and it was plainly stated at the very beginning of Heraclitus' work: he is concerned to 'divide up each thing in accordance with its nature, and say how it is' (33). But what is a thing's 'nature'? According to an ancient doctrine, things—or rather sorts of thing—have a 'real essence'. Locke explains the notion thus: 'By this *real Essence*, I mean, that real constitution of any Thing, which is the foundation of all those Properties, that are combined in, and are constantly found to coexist with the *nominal Essence* [i.e., with the complex *idea* the word stands for]; that particular constitution, which every Thing has within it self, without any relation to any thing without it' (*Essay* III. vi. 6). The real essence of a sort is given by its fundamental constitution, by those features or that structure which explains the remaining properties of items of the sort and without which nothing is an item of that sort.

Real essences have been much derided, but to my mind derision is wrong-headed: one main task of many sciences is to isolate the fundamental structure or features of a thing or stuff (its atomic or its genetic structure) in order to explain its remaining powers and qualities. The theory of real essence is an attempt to describe that scientific enterprise; and Heraclitus' 'nature', I suggest, is an attempt to get at real essence: a thing's 'nature' determines 'how it is'; it is customarily 'hidden' and its discovery requires a penetrating mind; it is 'stronger' than any superficial properties in that it explains and supports those properties.

Heraclitus is thus offering a large scientific theory, comparable to the atomist hypothesis: Flux and Opposition are features in the nature of every sort of thing; they are essential to it and explanatory of its properties. The theory is in principle falsifiable, as atomism is; but it is not refuted by everyday observation, as atomism is not.

This conclusion is, I hope, enough to raise Heraclitus from the ranks of the mystery-mongers and to place him among the great philosopher-scientists; and that is what makes his account the completion and perfection of Milesian science. Flux and the Unity of Opposites are twin horses, bred and nourished on wholesome empirical food, possessed of a deep strength, and harnessed to the old monistic chariot which Heraclitus inherited from his predecessors.

So much for the objection that Heraclitus' theories are empirically absurd. A second objection is this: the theories of Flux and Unity are criminally vague; and the most charitable attitude to real essences hardly raises them to precise hypotheses. I doubt if any precise account will cohere with all the fragments; and to that extent the objection succeeds. Nevertheless, I am inclined to think that the following sketch is both moderately clear and roughly Heraclitean. 'All identifiable things have an identifiable constitutive stuff or amalgam of stuffs: rivers are made of water; fields, of earth; men, of flesh and blood; the universe itself, of earth, water and fire. These stuffs form the 'nature' of what they constitute, in that all the powers and properties of the things—'how the things are'—are determined by their stuffs. Rivers support boats because of the properties of water; the fertility of a field depends on its constitutive earth; the barley-drink revivifies in virtue of its ingredients; men owe the powers and capacities they exhibit to their fleshy make-up. (Ultimately, no doubt, all those properties will be shown to depend upon the intrinsic character of the ultimate constituent of the world, fire.) Observation supports the hypothesis that those constituent stuffs are in a constant

flux: they are always changing in one respect or another. And those changes are no chance contingencies. They are essential to the being of all that the stuffs constitute; for those things would cease to exist, and hence to exercise any of their powers, if their natures ceased to change: there is no river if the waters cease to flow; the barley-drink is destroyed as soon as its parts settle; men die when their temperature and humidity becomes constant and they are no longer being nourished; the world itself will fall apart if the cycle of stuffs ever ceases. The changes involved are of different sorts—qualitative, quantitative and locomotive. (No doubt some natures undergo more than one change of more than one sort.) But they all qualify as changes in virtue of one common feature: if a changes between t_1 and t_2 , then there is a pair of contrary predicates ϕ and ϕ' such that a is ϕ at t_1 and a is ϕ' at t_2 . From this feature of Flux a simple inference leads us to the Unity of Opposites, a thesis which in any case concords happily with experience.'

If such considerations give Heraclitus' theories a somewhat sharper definition, they are only the better prepared to be struck down by the third objection. That objection alleges logical inconsistency: Heraclitus' central contention, the Unity thesis, is inconsistent; it flagrantly violates the Law of Contradiction; hence it is false, necessarily false, and false in a trivial and tedious fashion. It is empty to praise for his scientific insight a thinker whose main and innovatory tenet is a straightforward self-contradiction.

It will not do to admit the charge and try to brazen it out.

Do I contradict myself?

Very well then, I contradict myself.

(I am large, I contain multitudes.)

No one is large enough for that: contradiction implies falsity; and that is that.

It will not do to suggest that 'we need not expect Heraclitus' thought to be by our standards completely logical and self-consistent',³⁸ and to intimate that by Heraclitean logic the Unity thesis is consistent. The standards of logic are not 'our' standards: they are the eternal standards of truth; and any statement which fails by those standards fails to be true whether its utterer spoke in knowledge or in ignorance of the standard he flouted.

It will not do to observe that Heraclitus never *clearly* violates the Law of Contradiction, and to insinuate that an obscurely stated inconsistency is only a peccadillo. On the contrary, that suggestion adds the vice of obscurity to the sin of inconsistency, and doubles the offence.

It will not do to argue that, as Heraclitus never used the term 'opposites', so he never regarded his thesis as concerned with opposites at all. The 'opposites' Heraclitus adverts to are patently contrary, and patently thought of as such; and the metaphors of war and strife which sound in the fragments are Heraclitus' way of speaking of opposition.

It will not do, finally, to interpret the Unity thesis as saying that *apparent* opposites are not in reality opposed. Some of Heraclitus' examples admittedly adduce properties whose opposition is only apparent; but others adduce plain contraries. And, again, Heraclitus clearly means to shock us: his warfare and strife are not shadows thrown

onto the world by the incapacity of the common mind to discern false from true opposition. War and strife—contrariety and opposition—are essential features of reality.

How, then, can we explain Heraclitus' adoption of a self-contradictory thesis? We might begin by asking why Aristotle found his thesis trivially inconsistent. The answer is straightforward: if ϕ and ϕ' are contrary predicates, then ' ϕ, x ' entails 'not- ϕ, x '; the entailment is a necessary (though not a sufficient) condition of contrariety—the logical notion of a contrary predicate is defined by way of the entailment. Given the entailment, ' ϕ, x & ϕ', x ' immediately and evidently yields the explicit contradiction ' ϕ, x & not- ϕ, x ', and the absurdity of Heraclitus' view is patent.

Now this logical notion of contrariety was certainly not available to Heraclitus: it is improbable that he even had a word for contrariety as such,³⁹ let alone excogitated an Aristotelian analysis of the concept. Rather, he was working with a fairly loose, intuitive notion of what 'opposites' were; he would, I imagine, have presented a list, not a definition, if asked to explain himself: wet, dry; up, down; straight, crooked; sweet, sour; hot, cold; male, female; and so on. The list would no doubt be long, and its items would, to our eyes, be logically diverse: some pairs seem logical contraries; some express physically incompatible properties; some are elliptically expressed relations between which no true incompatibility exists.

Heraclitus intended his list to present opposing pairs: each pair was locked in internecine strife, and their harmonious compresence is not a thing to be expected. Yet his list allowed him to see the opposition as, so to speak, a contingent one: some of the pairs in the list plainly do coexist, despite their opposition (they are not genuinely incompatible, as we should say); and that suggests that all the pairs may be found together. Moreover, the lack of an explicit definition of opposition meant that Aristotle's easy inference was never brought to Heraclitus' notice. The examples Heraclitus adduces do not shout incompatibility with a unanimous tongue; the metaphors of war and strife do not lead at once to thoughts of affirmation and contrary negation: with such resources, Heraclitus might well have failed to see the necessary falsity of his position. What is in fact an impossibility had in his eyes the status of a paradox; and the paradoxical is often true.

Some may wonder whether Heraclitus' thesis is properly denominated a Unity of Opposites if he had no clear, Aristotelian, notion of contrariety. There is something in that thought; but it cannot bring Heraclitus an eleventh hour reprieve. For if we refuse to introduce the notion of contrariety into our elucidation of Heraclitus, we leave him without a thesis at all. The Aristotelian notion is simply a precise formulation of the intuitive conception with which Heraclitus was working. Deny him the notion, and he has no thesis to propound; make the notion explicit, and his thesis lapses into inconsistency.

Heraclitus was indubitably a paradoxographer; and his account of the world is fundamentally inconsistent. That, however, does not make him a mystical figure, standing aloof from the young rationalism of Miletus; nor, I submit, does it make him a silly or a shallow philosopher. Evidence and argument are no strangers to the surviving

fragments, and their presence places Heraclitus firmly in the Ionian tradition. And he offered a philosophy of science which exhibits an admirable articulation, and foreshadows one of the most influential of Aristotle's doctrines, the doctrine of real essence. A certain conceptual inadequacy doomed his fine system to the fires of contradiction; but that is a fate which more than one great metaphysician has suffered.