

# The two philosophies: Atomism and pattern

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If were the traditional visitor from some distant nebula, returning home to report on my stay on the Earth, and preparing my notes for a book, *Homo, As I Saw Him*, I'd certainly include a chapter on *The Atomic Philosophy and the Pattern Philosophy—Two Contrasted Modes of Human Thought*. For apart from the intrinsic interest of the subject, I believe it's impossible to understand the present behaviour of man on this planet without considering the influence of these two ways of thinking. An American psychologist has called them two *culture patterns*, but that's a mistake, for the two methods are always mixed up, and every culture uses both, though the Atomic method has had much the greater influence in the West—at any rate until recently.

What are these two methods of thought? Well, they arise because of the immaturity of the human mind; it hasn't yet discovered a way of thinking about complex systems which gives proper weight both to the whole and to the parts. Our understanding being too limited to let us see the whole truth at one glance we have to begin somewhere. So we start either with the parts, that's Atomism, or with the complex changing situation as a whole, that's what, for lack of a better name, I call the Pattern philosophy. Atomism means trying to construct a picture of the universe out of separate bricks, and though the ordinary use of the term refers to the atomic theory of matter, I hope I shall be forgiven by the specialists for using the term here in a wider, philosophical sense, to describe any method of thought which reduces complex phenomena to the interplay of relatively unchanging separate parts, whether they be atoms, or human individuals, or anything else. It's useful to have a name for this, and it's already been called the atomic philosophy. The atomic theory of matter is then just one special application of this general method.

On the other hand the Pattern method is less well known, and less precise. It treats the existence of some kind of developing ordered system as the primary fact, such as equilibrium patterns in physics, the organism in biology, the mind as a single entity in psychology, the community in social thought, and the divine order in religion. The pattern method is dynamic and places the emphasis on the process of the whole system, but tends to neglect its inner structure.

These sharply contrasted methods find their clearest expression in science, for example in the mechanistic and vitalistic views of the organism, but they affect most fields of human thought and activity. The atomic method forms the basis of nearly all exact analysis, and is also evident in individualism; while the pattern method is closely associated with the æsthetic intuition, the historical method, and collectivist and totalitarian ideas.

You see I'm on dangerous ground, the treacherous bog which links exact thought and social doctrine. Yet I believe the time has come when we've got to understand how far any one method of thought can apply in all realms.

In the Middle Ages men were intensely occupied with allegory; they intuitively sensed a deep correspondence between different fields of experience. That phase passed; but now once again men's minds are concerned with the relations between different branches of knowledge. We're trying to understand the real meaning of the analogies between different fields, to substitute for the mediæval obsession with allegory, an objective analysis of the instruments by which we carry out our reasoning in the different realms of thought. That's a hard task, for the analysis of basic methods of thought

often touches sore spots at the focus of the human temperament and evokes emotions which render objective thought impossible.

This task is no less than the survey of those general methods of thought available to mankind at different periods in its history. Hegel was the first to venture on this dangerous ground, and he got bogged because he simplified the immensely complex process of history into the progress of one developing idea. Marx and Engels followed and successfully mapped out a considerable territory, but surely slipped into the quagmire when they treated one aspect of the culture pattern, the economic, as dominant to, and determining everything else. As though *Zeit-Geist* had only one face! The example of their disasters has intimidated most serious historians and philosophers ever since, and I know of no philosophy of the history of thought worthy of serious consideration. Neither Spengler nor Toynbee come to grips with the human transformation produced by science, which explodes every cyclic view of history.

If I dare to approach this treacherous subject on the air, it's because I'm not trying to follow Hegel, Marx, or Spengler through the jungle of history, with the hyænas of political emotion howling on every side, but propose to start on a much calmer track, from the side of exact science. There are dangers here too, even in choosing one's title. I've played for safety in calling the second method «the Philosophy of Pattern», because I wanted to avoid your being shocked, or perhaps seduced, by the syren appeal of some mystical or emotional Goddess: *Holism*, for example, sheer rapture for those desiring to escape the discipline of precise thought in a premature, pseudo-scientific gospel; or the *Gestalt Doctrine*, a tantalisingly vague theory, still rather suspect to the exact scientist—and yet I must confess that the call of this syren is uncannily like the authentic voice Truth. But Gestalt can't be mature Truth, for Truth dares to show herself in the full light of reason, while the Gestalt still hides her figure in the half-light of vague suggestions.

So now let's set out on our Pilgrim's Progress towards the Desired Country of insight into the balanced relation of part and whole. I've try to keep at bay that fiend called Irrelevant Prejudice, if you'll do your best to prevent Intellectual Vested Interest from getting between us.

We start on firm ground with a clear definition of these two great attitudes, and to fix the contrast in our minds I'll choose two symbols, two emblems to represent the contrasted methods.

Spill a box of matches on the floor. That untidy pile is the atomistic method. It starts with a chaos of separate units, and neglects order, pattern, and organisation. It postulates relatively permanent separate units as real and primary, and seeks to reduce all the complex processes of nature to the interplay of these units. The emphasis is on permanent parts, the total pattern and its development being regarded merely as secondary consequences of the unchanging properties of the parts.

Now take any blossoming plant—I used a carnation the other day—as the emblem of the developing pattern method. This treats the total form and its historical development as the primary fact. The existence of a complex ordered system undergoing a process of development is postulated by this method, and it ought to go on to account for the detailed structure of its systems, but it doesn't—or hasn't yet! While the atomic method emphasises unchanging parts and tends to neglect the historical changes of the pattern, the pattern

method reverses this, and concentrates on the total developing form, often treating the parts rather scornfully as «mere abstractions created by the analytical intellect».

Well, there they are: the matches and the carnation. The matches are made by man. That may be wrong, for we don't yet know if the units of atomic philosophy are in some sense mere intellectual constructions, or as real as anything else. But the flower is certainly not made by man, it is literally the incarnation, the expression in bodily form of the principle that nature generates stable developing patterns. Of course we could have gone further and had the principle made flesh in a developing human embryo, or a kitten, or a puppy. But the internal perfection of the growing plant is just what we need, animals are too fussy and won't stay put.

Notice that we mustn't call Atomism analytical, and the Pattern method synthetic. It's subtler than that. If you start with the bricks you are faced with a task of construction or synthesis: how to build an organised universe out of them. Similarly, if you start with organised systems, you should then try to account for their exact structure, though—as I say—the pattern thinkers have shirked that till now. Of course analytical science often starts its experiments by pulling things to bits, but the Atomic method, as a branch of theory, starts with the bits, and so is faced with a task of theoretical synthesis.

It's clear that both methods are concerned to explain the relations of parts to wholes; the difference between them is simply that one starts with the properties of the parts, the other with the properties of the whole. This suggests that there may exist an improved or more comprehensive method, still to be discovered, which will display the true relations of parts and wholes, without a false emphasis on either side.

For example: mechanism implies exact structure, without any total one-way tendency, while teology emphasises one-way tendency, unrelated to structure. Yet the real phenomenon in nature may be neither of these, but one-way tendency manifested in a developing structure. In other words it may be possible to retain the precision of atomic science, while recognising the historical or one-way character of the development of patterns.

This is no more than the hint of a possibility. Yet it's important that the Atomic and Pattern philosophies should not be regarded as incompatible alternatives. If that were so knowledge could never be unified; the mutual challenge of precise scientific specialisms and unifying dogmas could never be overcome, and the clash of individualism and collectivism never find its philosophical resolution. But if man can split the atom today, perhaps he can also unify the different methods used by his own mind.

To clinch the idea of a combination of the two methods into a balanced view of part and whole, listen to this from the great French mathematician, Henri Poincaré. He defines mathematical elegance as the property of «*elements so harmoniously arranged that the mind can without effort take in the whole without neglecting the details*». This remark of Poincaré's seems to me of great significance, for it defines exactly what is needed: an elegant method of thought, so adapted to the true form of nature that it helps us in all situations to see the whole without neglecting the parts. That's what we want: elegance, or rather a way of thinking that helps us to recognise the elegance in everything, the true correlation of whole and part. As usual the mathematicians are a step ahead! They might be put beside the poets as the poets as the «unacknowledged legislators of mankind». But so far they have been one-sided in their legislation. They have paid too much attention relatively to the mathematics of disordered parts, and little to the mathematics of developing order. In fact the field of ordered change has been almost entirely neglected by them, and left to vague, emotional and doctrinaire theories. Emotion and doctrine are right and true in their place, but so, by Socrates, is intellectual clarity! The aim, then, is mathematical elegance, methods that show the balanced correlation of whole and part; and it's half the battle to have one's aim clear.

But in the meantime we have to come to terms with the two methods, and understand them as best we can. Their contrast could hardly be greater. The Atomic method is as old as the search for precision in thought. It began with early Hindu views of the granular structure of matter, flourished in Democritus, was neglected for 1,500 years, re-appeared in Gassendi, Boyle, and Newton—Newton—who thought it «probable that God formed matter in solid, massy, hard, impenetrable moveable particles». The increasing precision and empirical success of physical atomism is seen in Dalton's chemical atoms, Thomson's electron, Plank's quantum of energy, and perhaps most strikingly of all in the recent direct observation of the actual tracks of ultimate particles.

A parallel tendency can be traced in English social ideas. Locke, Mill, and Hume have all been criticised as unduly «atomic» in their views, over-emphasising the individual and rather neglecting the community. *Laissez-faire* is a classic example of an atomic way of thinking, and other examples are those schools of psychology which stress separate sensations or faculties and tend to neglect any unifying principle in the mind. Whatever their limitations, all these atomic systems of thought share a certain degree of intellectual clarity and of quantitative precision, which has been entirely lacking so far in the pattern thinkers.

In this general category we must include those in any field who have been concerned with the tendency of the whole, rather than properties of the parts, and this covers all the mystical, emotional, intuitive, and historical thinkers. We must include the historical schools of thought from Vico, Hegel, and Marx, to Bergson, Spengler, and Toynbee, as well as the modern vitalistic, holistic, and gestalt schools. Here we find a strong and valid sense of unity, total form, and historical tendency, but no precision, little intellectual clarity, and no principles of reasoning which can be relied on to prevent some preconception or prejudice from dominating human minds. A partially valid intuition too easily becomes, in the hands of this school, a total dogma.

In the atomic method the human mind isolates permanent parts in order to achieve a stable basis for clear thought, and thereby to save itself from the tyranny of its own errors. Here we find precision, clarity, step-by-step advance but an essentially static analysis. On the other hand the pattern method recognises the fact of historical change, and by daring to postulate a unity within the complexity of process achieves a sense of direction, an *élan*, that makes a tremendous appeal to human nature. But since the true unity in process has not yet been discovered and rests in each theory on some arbitrary, dogmatic intuition, this *élan* is evoked at the cost of conflict with those whose impulses are guided by some other arbitrary principle. So while the objectivity of the atomic method is purchased at the price of its static quality, the dynamism of the pattern method is coupled with a dogmatism and lack of universality which leads to conflict.

The main achievements of the Western intellect derive from the atomic method, just as Eastern wisdom was based on the intuition of a unity in the pattern of process. Man, when most irritatingly male, is usually obsessed with an atomic argument; woman, when she seems most perversely female, is often relying on her subjective sense of the whole. Exact science has been created by atomic analysis, art is always created by the intuition of pattern. The atomic method serves the differentiation and self-interest of the individual, while the pattern method evokes his enthusiastic surrender to some over-riding principle.

These generalisations are, I believe, statements of objective fact. But if confusion is to be avoided two principles must be continually borne in mind:—

*First.* No person or community practises either method exclusively in every field of thought or activity. A man may impose a tyrannical unity in the home while fighting for individual freedom in society, and countless communists are tolerant parents. That's the value of this analysis; it throws a high light on what we call the inconsistencies of human nature, though

these are often merely the expression of an organic principle of compensation.

*Second.* Since both methods are necessary to exhaust the properties of the wholes and the parts in any field, it's absurd to regard them respectively as good and bad, or true and false. One may be more needed than the other in a particular field, or by a particular community at a given time, but mankind as a whole and science as whole need both—at least until they can be combined into one elegant mode of thought.

I believe that can be done. Not because every thesis and antithesis leads to a synthesis. That's not the case. The dialectical interaction of male and female does not produce an unsexed progeny—fortunately! But in this case the synthesis is necessary for the sake of order both in human affairs, and I believe it's possible, in our time. The atomic method in physics led to the atomic bomb. The moral equivalent to the atomic bomb, which the world so badly needs, is that elegant mode of thought which can overcome the clash of atomistic and pattern thought, and establish a new canon of ordered knowledge, and hence also of social standards.

Now, at the very moment of its greatest triumphs, the atomic method in physics has met a definitive challenge. The physical universe is now known to be formed, not of ultimate particles with unchanging properties, but of extended changing patterns, or wave-fields, which possess unique centres and so display an aspect of atomicity. Thus in physics itself atomism is undergoing a radical transformation, as though the localised persisting atoms and the changing extended patterns were fusing into a new and more comprehensive mode of description. On the other hand the pattern or gestalt methods in the other branches of knowledge have remained disappointingly vague, for

in no case has the exact structural law determining the process of any single pattern yet been defined, either in biology, in psychology, or in sociology. The next move is, therefore, to be expected from within physics, or from a deeper analysis going beneath what is called physics today.

It's much that the aim is clear: an elegant system of thought revealing the elegance of nature, the balance of whole and part, so that each can be recognised without neglecting the other. It's impossible to exaggerate what that would mean, for education, for research, for social theory, and ultimately, for political practice, indeed for human understanding and harmony in every field. Failing such a method of thought, no human weaknesses surprise or shock me, or shake my confidence in the potentialities of man, for man certainly isn't biologically mature until he's discovered that elegant system of thought. But can we achieve it? I believe we can, along a path which I can best describe in a concrete, if irreverent, manner. What we need is a union of Goethe and Russell. Bertrand Russell's life work has contributed profoundly to knowledge of structure, in the deepest sense. On the other hand Goethe's life work expressed an equally profound intuitive appreciation of the pattern-formative tendency in all aspects of nature. Russellian structural analysis applied to a theory of the development of Gestalt patterns, used to identify the principle of elegant balance which relates part and whole, in atoms, organisms, and healthy societies.

This implies a new kind of intellectual analysis: a process of analysis which brings out the organising relations of each system, and so makes clear in what respect it can be treated as a single whole. When this new mode of analysis has been established Schiller's remark that «we only know that which we analyse» will lose its sting.