Alfred North Whitehead --

Philosopher for the Muddleheaded

The moment I was born, I knew that William James was right. The world of the new-born baby is indeed "All one great blooming, buzzing confusion". I was alarmed and baffled by the tumult that raged around and inside me. Intuition told me, "Here's something that matters greatly." Had I possessed language, I would have demanded "What the devil's going on here?" That's the prime philosophical question, and I've been trying out different answers ever since.

I have come to believe that Alfred North Whitehead can tell me what it's all about. In my view the writings of Whitehead point at the most hopeful and all-embracing philosophy of all time. Whitehead aimed for nothing less than the refutation of gloomy scientific materialism. He hoped to reconstruct the moral universe without disrupting the beneficence of science. The structure he devised is not everything a devout religious believer would wish. Nor has his eloquence yet overswept Western culture and conquered it. Nonetheless, when they become better known, his insights will replace the nihilism, and correct the moral slackness of our times.

Once you have allowed Whitehead's powerful engine of hope to transform your attitude to life you will never again need to consult another philosopher. Those sinister philosophical miseries of the 20th century--you know who I mean: malignant Heidegger, disjointed Wittgenstein, cross-eyed Husserl, sour Sartre--you can consign their jeremiads to the fire. They failed to salute the quantum and relativistic earthquakes of our century and so they're dust, history, trash. Forget 'em.

In one of his many definitions Whitehead frames philosophy as a rational system. "Philosophy is the endeavor to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience--everything of which we are aware, which we enjoy, perceive, will or think--can be interpreted." And he adds, "The teleology of the universe is directed to the production of Beauty".

Whitehead says that the first thing you've got to understand is that science is deluded: the world isn't made of atoms, electrons, gravity, or whatever. There is only one kind of entity; and even that perishes as soon as it comes into being. That entity is an aesthetic moment of choice, of feeling.

There are no fundamental "things," or "objects" in the world of Whitehead. Whitehead's *ontology,* or parts-list of the universe, contains only processes.

Life, the Universe and Everything consists of myriads of little emotions. Only feelings exist; no particles exist; and all the feelings have the same form: that of the human mind. Atoms, electrons, bodies and brick walls arise later. He once remarked to a friend that Immanuel Kant had written his books in the wrong order: he should have started with his aesthetic Critique of Judgment. Whitehead follows his own advice. He founds his world on aesthetics, and treats physics as superstructure.

Whitehead's cosmos suggests a musical performance; a free-wheeling jazz festival; an ensemble of countless players, some good, some bad, all improvising as hard as they can go. They play, not for the glory of God, or to celebrate some spiritual ideal of Art; they play only because they enjoy it. Unfortunately the musicians don't always agree on which chords to strike, and they even disagree about what tunes they want to play. And so ugly fights frequently break out amongst the artists, and they smash their instruments over each others' heads. Often they smash each others' heads. But rising like a wraith among the screeches, squawks and thwacks, you will hear the cadences and counterpoint of supernal music, almost too lovely to bear. It is the proper task of the true philosopher to lead you to experience that intangible beauty, to

understand it, and to intensify it.

The adventurous savant

Whitehead lived the tranquil and cloistered life of a savant and sage. When he was teaching at Harvard during the 1920's--the age of The Great Gatsby, of jazz, of prohibition and Al Capone--he described himself as "a typical Victorian Englishman". And the few photographs we have of him confirm his self-image. His round face, heavy-lidded eyes, gold-rimmed glasses and wing collars suggest a country solicitor; a clergyman's son, perhaps; or a respectable English middle class murderer. When he was a young lecturer, his students at Cambridge called him "The Cherub".

He was born in Ramsgate, Kent, England in 1861. That year saw the death of Victoria's husband, Prince Albert; the American Civil War had moved into its second year; and England was still quivering under the first shock of Charles Darwin's Origin of Species.

Christianity and its role in the nation's affairs loomed large in his early life. Whitehead's father was an Anglican clergyman, and his brother Henry became Bishop of Madras. The Archbishop of Canterbury, Archibald Campbell Tait, often visited the Whitehead vicarage. "To have seen Tait," Whitehead wrote, "was worth shelves of volumes of medieval history. He was the last of a line of great English ecclesiastics that stretched from St. Augustine of Canterbury, through Anselm, Cranmer and Laud, to the days of Tait himself. For these men, the Church was the nation rising to the height of its civilization. They were men with vision--wide, subtle, magnificent. They failed."

Public school and Cambridge

His education adhered closely to the core of Western culture. In 1875, at the age of fourteen, he entered the great old English public school at Sherborne, in Dorsetshire, where he studied Herodotus, Xenophon, Thucydides, Sallust, Livy and Tacitus, interleaved with stretches of mathematics. He and his schoolmates read the Bible in Greek. "Nothing of importance could be presented in any other way", he remarked. "At school I never heard anyone reading it in English. It would suggest an uncultured, religious, state of mind. We were religious, but with that moderation natural to people who take their religion in Greek".

It sounds like the proper abstract education for a philosopher, but Whitehead also did well as the leading school jock. In the authoritative biography, Alfred North Whitehead: The Man and his Work, Victor Lowe tells how rugby football made an impact on Whitehead's philosophy. Contact sports knocked Bishop Berkeley's idealism out of him. According to Lowe, in 1934, when Whitehead was casting about for some paradigm of The Real, he mused to a friend, "Compulsion--symbolized by the traffic cop? No, this is still too intellectual. Being tackled at Rugby, there is The Real! Nobody who hasn't been knocked down has the slightest notion of what The Real is". Throughout his life he adhered to Dr. Johnson's kick-the-stone view of reality.

He passed his Cambridge scholarship exams so well that Trinity College offered him a shot at either mathematics or classics. Whitehead chose to aim his Cambridge career at the Mathematical Tripos. (The Tripos is the Cambridge final examination). His father seems to have tilted him in that direction: "Mathematics," declared the Vicar of Ramsgate, "now there's a discipline!"

Although his formal studies in math were stern, he enjoyed boundless intellectual freedom at Cambridge. "Looking backwards across more than half a century," he wrote, "the conversations have the appearance of a daily Platonic dialogue. That was the way Cambridge educated her sons. We discussed everything--politics, religion, philosophy, literature. It was a replica of the Platonic method. By 1885 I nearly knew by heart parts of Kant's Critique of Pure Reason".

In the math tripos, Whitehead won the high rank of Fourth 'Wrangler'. In 1884 he was invited to join the brilliant circle of "Apostles", a select discussion group that had boasted Tennyson amongst its numbers, and would soon

include Bertrand Russell. Half a century later, in the 1930's, the Apostles would be taken over by Kim Philby, Anthony Blunt and other Stalinist moles.

The earthquake of the Modern

Natural philosophy in the late 19th and early 20th centuries suffered the cataclysms that challenged him to develop his mature philosophy. Reflecting on his Cambridge years, he later told a Boston journalist "Who ever dreamed that the ideas and institutions which then looked so stable would be so impermanent? Yet, since the turn of the century I have lived to see every one of the basic assumptions of science and mathematics set aside. Why, some of the assumptions which we have seen upset had endured for more than twenty centuries. This experience has profoundly affected my thinking. To have supposed you had certitude once, and then to have had it blow up on your hands into inconceivable infinities has affected everything else in the universe for me." He didn't remark that his own work in mathematical logic contributed to the general destruction.

According to Russell, who was his most intimate friend for many years, "Whitehead was at all times deeply aware of the importance of religion. As a young man, he was all but converted to Roman Catholicism by the influence of Cardinal Newman". He never took that step, but would take a final bite at the Catholic apple after he had married Evelyn Wade, a high spirited, convent-educated daughter of an army officer. Whitehead family gossip reports that she once horsewhipped a man.

Whitehead proposed marriage to her in the smugglers' cave hidden beneath the garden of his father's Vicarage. His mother was concerned by Evelyn's convent schooling, but his father approved. He feared that Alfred's retiring nature would lead him to join a contemplative order, and he seems to have thought that Evelyn was the kind of lively wench his son needed. They were married in the summer of 1891. Whitehead wrote later, "Her vivid life has taught me that beauty, moral and aesthetic, is the aim of existence". He also said, "By myself I am only one more professor, but with Evelyn I am first-rate".

Under the spur of romance, Whitehead, now 30, buckled down to his first scholarly work: Treatise on Universal Algebra, the first volume of which appeared in 1898. The title itself suggests that Whitehead hoped for a universal, rational system that could unify all the sciences. The book foreshadows Whitehead's mature style as a philosopher: he specialized in the concatenation of obscure, abstract generalizations. One learned reviewer complained, "Mr. Whitehead should have illustrated his discussion more copiously with simple and concrete examples".

On his thirtieth birthday, Whitehead gave his wife a copy of Thomas a Kempis's Of the Imitation of Christ. The two together undertook a careful reading of the Fathers of the Church, histories of Councils (especially Paul Sarpi's History of the Council of Trent), Aquinas, Hooker and other divines. Six or seven years later, he made his decision: he did not move towards Rome, but, as he put it, "in the other direction". He renounced Christianity, signed on with the free-thinkers, and remained in their fold for a quarter-century.

The Whiteheads' marriage bound together two strong-willed souls. Whitehead himself was outwardly calm, although he was given to strange behaviour under stress. According to Bertrand Russell, "He used to frighten Mrs. Whitehead by mutterings in which he addressed injurious objurgations to himself. At times he would be completely silent for days, and Mrs. Whitehead was in perpetual fear that he would go mad". If Mrs. Whitehead failed to get her way in a marital clash, she would fall to her sofa with a pseudo-heart attack. Victor Lowe comments, "She was a sofa lady who always had just enough strength to be wonderful".

Principia Mathematica

Around 1900, Whitehead and Russell joined forces for their collaboration on the Brobdingnagian, three-volume Principia Mathematica. Many think Russell did most of the work, but he later wrote "There is hardly a line in all three volumes which is not a joint product." The publication of

Principia marked one of the death spasms of Victorian optimism. Many Victorians had cherished the proud hope that they could soon dissolve all the world's problems in a blaze of universal scientific reason. Principia was conceived as a step toward that noble result: Whitehead and Russell set out to prove that the whole of mathematics can be deduced from logic. But they proceeded under the dark threat posed by Russell's eponymous paradox.

Russell discovered his paradox shortly before the work on Principia began. The problem had slept for 2,500 years, like a cerebral aneurism waiting to burst within the skull of mathematics, ever since Epimenides the Cretan had declared that all Cretans were liars. Was Epimenides himself a liar? "Nobody treated that as anything but a joke," wrote Russell; but he found that this hoary parlour puzzle struck at the very root of arithmetic. He had the bright idea of applying Epimenides's reasoning to logical classes, which form the basis of numbers. In particular, he ruminated on the class of those classes that are not members of themselves. To his dismay he found both that it belonged to itself, and that it didn't: an intolerable result. He later said that he thought at first there must be some error in his thinking. He "inspected it under a logical microscope", without finding any mistake. In the end he mailed the bad news to Whitehead, who scrutinized it, and replied with a cheerless telegram, quoting Browning: "Never glad confident morning again".

Russell also informed Gottlob Frege, the venerable German scholar who was putting the final touches to his complete explanation of all arithmetic in two massive volumes. With his life's work in ruins, Frege bravely replied, "Your discovery of the contradiction caused me the greatest surprise and, I would almost say, consternation, since it has shaken the basis on which I intended to build arithmetic. The sole possible foundations of arithmetic seem to vanish". And with them vanished perfect human trust in the universal word of logic. A witty paradox had shattered the bedrock of pure reason. "Humiliate yourself, impotent reason!" wrote Pascal.

Russell toiled for six years to devise an ad hoc lash-up to defang his paradox, but the problems posed by it will always bedevil philosophers. Whitehead drew from it the metaphysical lesson that we must never stretch an idea beyond its proper scope. But how are we to decide what the proper scope might be? If pure reason ties itself in knots at its limits, we'd be unwise to lean too much on moral reason, either. Pascal, perhaps, offered the soundest advice for both metaphysicians and moralists when he declared, "Two excesses: to exclude reason, to admit nothing but reason".

Principia Mathematica took ten years to complete. Thereafter the friendship between Russell and Whitehead cooled, but Whitehead never quarreled with anyone. He did, however, remark, "Bertie says that I am muddle headed, but I say that he is simple minded". Russell recalled that Whitehead said to him once, "You think the world is what it looks like in fine weather at noon day; I think it is what it seems like in the early morning when one first wakes from deep sleep". Russell thought Whitehead's notion "horrid, but I could not see how to prove my bias was any better than his". Russell perceived the world in hard edges and points: "It is more like a heap of shot than a pot of treacle," he believed.

Mid-life course change

After twenty five years at Trinity, in the summer of 1910, Whitehead suddenly resigned his lectureship and moved to London. He had no job in sight. With this adventure, he entered the second phase of his life: he became an elder of the London professoriat.

In London, he became a power in the corporate halls of London University. Russell recalled, "He had practical abilities, a kind of shrewdness which was surprising, and which enabled him to get his way on committees in a manner astonishing to those who thought of him as wholly abstract and unworldly". In the last months of the First World War his younger son, an aviator, was killed. Russell comments, "This was an appalling grief to him. The pain of this loss had a great deal to do with causing him to seek ways of escaping from belief in a merely mechanistic universe".

In 1924, at the age of sixty-three Whitehead accepted an invitation to join the philosophy department of Harvard University. Not until then did he begin his seven major philosophical works. When the British Order of Merit was awarded to him in 1945, President Conant of Harvard reminded Whitehead that "the first lecture in a course on philosophy which you had ever attended was the one given by yourself". Whitehead retired at the age of 76, and two years after the end of the Second World War he died, aged 86.

The philosophy of solidarity and enjoyment

The doctrine of The Jewel Net of Indra forms the core of Hua-Yen Buddhism. It teaches that the cosmos is like an infinite network of glittering jewels, all different. In each one we can see the images of all the others reflected. Each image contains an image of all the other jewels; and also the image of the images of the images, and so ad infinitum. The myriad reflections within each jewel are the essence of the jewel itself, without which it does not exist. Thus, every part of the cosmos reflects, and brings into existence, every other part. Nothing can exist unless it enfolds within its essence the nature of everything else.

The same thought runs through Whitehead's philosophy, although he avoids the gorgeous imagery of the Orient. He prefers to present his ideas in obscure, grey, academic terminology. He calls his version of the Jewel Net the Doctrine of Internal Relations, or Solidarity; and he claims he got it from John Locke. He states that the cosmos is a network of 'actual occasions', which are pulses of feeling and acts of choice. Every factor of experience must call on all the others in order to express itself. Each occasion is a process which perishes as soon as it has asserted itself. Once dead, it forms the base, and sets the limits, for the deeds of its successors. The nodes of Whitehead's solidarity network are active, and the pattern never ceases to change.

Whitehead's sober view, and the vivid Jewel Net, both illustrate the bootstrap model of reality. In a turmoil that never ends, the entire cosmos renews itself, instant by instant. It is a self-actuated circuit: what mathematicians call a recursive process. It calls to mind Ouroboros, the worm of myth, which thrives by consuming its own tail.

Whitehead calls himself an empiricist, by which he means a philosopher who takes all of human experience into account, including vague, primitive experiences, such as sleepiness, as well as the clear experiences, like a lightning flash. He sets out to illuminate the enigma of reality; but most of it is incurably vague.

"In its advance, philosophy must involve obscurity of expression, and novel phrases. In human experience, the philosophic question can receive no final answer. Human knowledge is a process of approximation. There are always questions left over. The problem is to discriminate exactly those things which we know only vaguely".

A problem indeed: to make it clear where to draw the sharp border at which the rule of vagueness begins to prevail.

Whitehead's first assumption, that process is the ultimate reality, has become a commonplace, even among scientists. But the old Aristotelian error, that the world is made of static substances which carry universal qualities, still dominates our everyday view of things. That's not surprising, for dividing the world into substances and qualities is the clear, commonsense way to cope with everyday life.

Science today grants that 'substance' is a dubious concept: our minds, for instance are abstract patterns drawn by moving atoms. But the atoms themselves are also patterns, woven by subatomic particles. And the sub-particles--the electrons, muons and quarks--they are patterns, too, but patterns in what? Positivistic science refuses to let us ask. Our curiosity insists that we do.

We seem to be running into an infinite regress of patterns. In order to stop the rot, Whitehead proposes a primordial First Stuff. He sets up a Category of the Ultimate; and he names just three members of the ultimate: The Creativity, the Many and the One. 'Creativity' is his name for the ultimate process. It's the wave of goings-on that turns everything into something else. The Creativity has no

properties of its own. His creative ultimate is the bare desire to enjoy something new. Creativity is passion, but as yet without a pattern. Whitehead puts it this way:

"'Creativity' is the principle of novelty. It is the universal of universals characterizing ultimate matter of fact. It is that ultimate principle by which the many, which are the universe disjunctively, become the one actual occasion, which is the universe conjunctively. It lies in the nature of things that the many enter into complex unity. The many become one and are increased by one. This Category of the Ultimate replaces Aristotle's category of 'primary substance'".

An example: consider the picture on your TV. A TV picture isn't a static object: it's a process that's always changing. It's made by a spot of light that scans back and forth to form a grid of lines. Now, take away the picture, take away the lines, and take away the spot of light. You have reduced the image to the inquisitive scanning process itself, without the picture, without the lines and without the spot of light. That's akin to Whitehead's abstract process of 'creativity', which underlies everything. Or imagine the Cheshire Cat, without the smile and without the cat: just the cheeky aliveness of it. That's the 'creativity'.

Creativity is the bare desire to advance towards greater beauty, probing everywhere. It is pure feeling: it is curiosity, alertness, aliveness and ardour; but without shape. It seeks satisfaction indiscriminately. But until it's got a blueprint or recipe to work on, it is nothing at all; it's not even space or time; it's mere formless yearning. It needs a direction, or it will get nowhere; it must take instructions, or be nothing.

"Creativity is without a character of its own," Whitehead writes, "exactly in the same sense in which the Aristotelian 'matter' is without a character of its own. It is that ultimate notion of the highest generality at the base of actuality".

There's your primary substance, the stuff that makes up the world, the aliveness that makes things go.

Provables and unprovables

When Bertrand Russell was eleven he craved certainty. Because he had heard that geometry proved things beyond doubt, he asked his brother to teach him Euclid. His brother began with the usual self-evident axioms but young Bertrand quite properly refused to accept them. He demanded to know their proofs. His brother firmly told him that there are some things in life you have to accept without any proof, and if Bertrand didn't go along with it, the lesson would have to end. "At these words my hopes crumbled", Russell recalled.

Russell's youthful search for mathematical certainty led him to his collaboration with Whitehead. But Principia Mathematica begins, as every logical scheme must, with unproven axioms. And if logic itself relies on brute assertions based on intuition alone, then so must metaphysics. Therefore we have to grasp the ultimate notions of philosophy without proof. The ultimate notions are like Euclid's axioms: self-evident but unproven. We can't know the roots of the world by reason; but only through our aesthetic sense. As the late Richard Feynman put it, physical science comes down to a question, not of logic, but of taste. Whitehead's cosmology rests on an aesthetic set-up beyond reason, which makes sense of everything else.

He said:

"In all philosophic theory there is an ultimate which is capable of characterization only through its accidental embodiments, and apart from these accidents is devoid of actuality. In the philosophy of organism this ultimate is termed 'creativity'; and God is its primordial, non-temporal accident".

(In philosophy an 'accident' is a property or quality of a substance which is not essential to our conception of it).

I take him to mean that God is the blueprint, or recipe, or unconscious mind of the world. The ardent creativity is nothing without God, for it has no conceptual aim or purpose. To support this assertion, Whitehead relies on Plato's definition of being: "I hold that the definition of being is simply power". Without God, the creativity would

twitch vainly, like a fibrillating heart. God supplies the eternal, objective values that lesser creatures must aim at. God is an accident; but since the creativity is nothing without him, he's a necessary sort of accident.

This 'Primordial Nature of God', as Whitehead calls it (he likes to capitalize the names of his concepts), is a far cry from the omnipotent creator and universal king of the Jerusalem tradition. Whitehead says:

"In this general position the philosophy of organism seems to approximate more to some strains of Indian or Chinese thought, than to western Asiatic, or European thought. One side makes process ultimate; the other side makes fact ultimate".

Whitehead's doctrine of the ultimate declares that God did not create the world on one occasion, ex nihilo. The world goes on forming itself forever, always rising anew out of chaos. To what end? Whitehead gives a simple reply, "The teleology of the universe is directed to the production of Beauty". Whitehead's God is not the same as the world, and nor is the world a part of God, but they are both forms within the process of enjoyment and desire. The primordial aspect of God, which Whitehead also terms 'the Realm of Eternal Objects', ranks logically prior to the lesser creatures; they choose their forms from it; and then they must perish and fade back into the infinitely complex wave of primitive feeling. Process destroys everything. All that endures is form; and form comes from God, whose mind may change, though it never contradicts itself.

Whitehead flatly denies that God is the omnipotent creator and tyrant before whom mankind's first duty is to offer up fulsome metaphysical compliments. Though not omnipotent, God is necessary. Further, Whitehead asserts that God must be unique. What's more, Whitehead's God, although unique, appears to be not One, but Two. The first part of God is the Realm of Eternal Objects. I call this the Alpha-God, and it is unconscious, resembling Plato's world of ideal forms, Aristotle's world of potentia, and Steven Hawking's wave function of the entire universe. One is even tempted to identify this Alpha-God with the Tao. The second part of Whitehead's God is the 'Consequent Nature', the Omega-God, which is conscious, in the same sense that we are conscious.

For Whitehead, the actual world we inherit, woven out of the creativity, eternally perishes. God and the process are eternal, but the world is eternally perishing. When Whitehead lays out this tangled relationship between God, the world and the ultimate creativity, one fact stands out: the philosophy of organism is a one-substance doctrine. The process alone is reality.

Most of us have learned to live with the two-substance philosophy of Rene Descartes, who took mind and matter for his two ultimate substances. Since then, people have been trying to show that the properties of mind follow logically from the properties of matter; or else that mind doesn't exist at all. To deduce mind from matter continues to be the aim of some computer theorists, but it is a futile quest. In a Cartesian world, mind and matter must forever remain distinct.

In Whitehead's world, God is the agent that separates the single, beauty-seeking process of the world into mind and matter. If the Creativity did not have God to teach it, it could have no power, and so would not exist. But equally God could not exist apart from the process that acts out his suggestions. God and the world enjoy a state of mutual dependence: a bootstrap relationship.

Bertrand Russell pretended not to understand bootstrapping at all. Russell, you will remember, upheld the doctrine of logical atomism: the world is a heap of separate things, like a pile of shot. Therefore an entity for Russell is exactly what it is, and it would still be the same even if there were nothing else in the universe. A dog is simply a dog, and would still be a dog even if crocodiles didn't exist. This is the Cartesian doctrine that speaks of "an existent thing which requires nothing but itself in order to exist". I simply cannot understand how such an introverted entity can enjoy itself, or anything else.

Whitehead rejects Russell's position: In his view the essence of each entity is determined by its relation to everything else. He called this the principle of relativity. If crocodiles vanished from the earth the essence of your dog would change, Whitehead says. The dog's status in the

cosmos would alter; zoologists could devote to it the attention that once they squandered upon crocodiles; and the danger of being eaten by crocodiles would no longer figure in its possible future. In essence you would have a different dog; moreover, you would be different too.

How things connect

One of the targets of Whitehead's critical philosophy is the error he calls the Fallacy of Simple Location, the desolate answer, given largely by the geniuses of the seventeenth century, to the question posed by the Ionian thinkers of the fifth century BC: What is the world made of?

We tend to believe, after Sir Isaac Newton, that the simple location of matter in space truly describes the world. Newton decreed that the world at each instant is made of hard, massy particles of 'stuff' set at definite places in an arena called 'space'. If you take snapshots of space at various instants, the positions of the particles will change from picture to picture. Reality is a heap of these snapshots as they present themselves one after another. We rely on a mathematical myth called 'gravity' to tell us which new places the particles will move to between the snapshots. However, there's no logical reason why we should connect the pictures at all (even though instinctively we must, and do); and apart from the gravity myth there's no rule to determine what order the shots should be in (even though we know in our bones what the proper order is). Newton forbade us to inquire where gravity comes from: "I don't fabricate hypotheses," he rumbled, in Latin.

Whitehead insists that this is definitely wrong. According to him, the Scottish Enlightenment philosopher David Hume saw that the idea of simple location must deny us the power to learn from experience. Whatever snapshot we start with, there's no way of deciding which one comes next. The law of gravity doesn't help, because it begins by assuming that the snapshots are in fact connected. How do we know they are? Of course we know perfectly well they are connected; but under the crazy rules in this particular philosophical court we're not allowed to admit that knowledge as evidence. Taken to its limit (and why not?) this doctrine forbids us to connect any two events at all, not even a punch in the eye and a vision of shooting stars. We are denied all our memories, recent and remote, and we sink into an isolated condition that the Harvard philosopher George Santayana styled 'absolute solipsism of the present moment'. That is to say, Alzheimer's disease. Whitehead put it this way:

"The order of nature cannot be justified by the mere observation of nature. For there is nothing in the present fact which inherently refers either to the past or to the future. It looks, therefore, as though memory, as well as induction, would fail to find any justification within nature itself".

The annoying thing about this nonsense is, it works; and it works most wonderfully. It divides the world into two neat, false categories: 'things' and 'space'. The instantaneous locations of the things in space determine the forces between them; and the forces determine the next locations in space. The scientific circle becomes impregnable: there's no place for heart and feelings to break in. This bleak doctrine remains the orthodox creed of physics. It permits us to predict the future and retrodict the past, with stunning accuracy. It first triumphed with Halley's prediction of his comet's return. After that, the doctrine virtually destroyed metaphysics. It permitted Laplace to omit God from his system of the world, unwisely boasting to Napoleon, "Sire, I have no need for that hypothesis".

Today we know that the doctrine of simple location is just plain wrong. Quantum theory predicts--and experiment confirms--that each and every 'particle' exerts its influence everywhere and all at once. Our everyday idea of space has evaporated. Einstein detested this principle of non-locality, this denial of space; and most of the grand panjandrums of science still refuse to buy its implications, because it's not dreary enough for them. Science detests enjoyment.

Whitehead's argument is not that space and time don't exist: they are simply secondary appearances, not the main feature of objective reality. In denouncing the fallacy of simple location Whitehead is asserting that no entity, nor any man, is an island. Every time we move, or think, we

disturb the whole universe. As St. Paul wrote, we are members of one another. That is what the Jewel Net of Indra means. It fits well with the quantum mechanical view that the observer and the observed are entangled into one, even while they possess unique personal selves.

The root of ethics

Morality and civilization arise because occasions of action must take account of future occasions in their decisions. In order to move from cosmology to morality, Whitehead groups his occasions into 'societies'. The most typical 'society' of his occasions is the human soul, as it grows in time. One pulse of enjoyment follows another, and, as their number grows, all the pulses form the serial society we call the soul. It is like a growing pile of coins. Each pulse takes in all the frozen data from its predecessors and adds novel feelings of its own. The occasion does not passively copy the past: in the act of self-creation it refreshes the design of the past, thereby inventing its novel present, and preparing for its possible futures. Whitehead calls these takeovers 'prehensions'. The verb 'to prehend' means to engulf, perceive and transform.

So the soul of a man, or of an electron, or of a bacillus, is a sequence of prehensions, or takeovers, each of which prehends all its predecessors. As it grows in time the sequence defines the society called the soul. Your soul--your 'Self'--is a pathway of dead occasions, with one living occasion at the very tip, the growth point. Whitehead calls this kind of sequence a 'personal society'.

All societies display some mental qualities, because every occasion seeks emotional delight. You stand little chance of catching a rock in a spontaneous act, though you may watch it for ages. The decisions of the rock's atoms are all chained together in the crystals; and even if a single crystal could make up its mind to tunnel somewhere else, it would have to persuade all its fellow-crystals to go with it. Most of the world appears to be dead because in non-living societies, the members' mental desires cancel each other out.

Non-sensory perception

A unique psychology of perception informs Whitehead's metaphysic. Most respectable philosophers allow that only one kind of data enters our minds: the data that comes through sensory nerves, especially the optic nerve. Whitehead insists that we prehend two kinds of data: sensuous and non-sensuous. Whitehead asserts that memory is a form of perception: it's the non-sensuous mode in which we perceive our past. What's more, we experience large, diffuse feelings that come through no sense at all: we feel anxiety, anger, amusement, elation, nostalgia, dullness, joy. These vague, primitive feelings come down no nerve fibre, yet they account for the greater mass of our awareness. It is the fallacy of simple location that tricks philosophers into ignoring these massive facts.

Whitehead calls the precise, digital kind of data that nerves transmit, 'perception in the mode of presentational immediacy'. The more visceral, vague data that flood the whole bodily system he calls 'perception in the mode of causal efficacy'. Because they are physical facts, we take these two types of data into our minds by means of physical prehensions. They are always the data of the past, stubborn facts about the world as it was. We can do nothing to change them.

Alongside our physical prehensions, we perform another kind of take: we prehend concepts. These make up the mental pole of an occasion of feeling. At the mental pole we prehend the infinite world of what-might-be. Conceptual prehensions allow the objective scale of values, given by the primordial nature of God, to enter our decision. In other words, our minds are in direct touch with God. In this mental function, Whitehead's psychology revives the Christian concept of the synteresis: the divine spark at the core of the mind. His doctrine also resembles Eastern thought, which teaches that Atman, the Self, is identical with Brahman, the spirit of the cosmos.

Whitehead insists that unless we take account of the absolute, final enjoyments, or values, volunteered by God, we cannot make sense of our objective experience. Every pulse of the mind gobbles up all the fixed, objective facts

that have been, along with all the eternal values that might-be, and digests them. Whitehead pictures the mind as a society of free agents. Each agent, itself a society of lesser agents, specializes in a certain type of decision. In a timeless moment the whole society of mind (as Marvin Minsky calls it) weighs its options, and satisfies its desires by choosing just one target. In so choosing, the subject must sacrifice an infinite number of might-have-beens.

In their own way sub-atomic particles copy the action of the human subject. Quantum theorists describe how the electron consults its table of transition possibilities, chooses one actual value, and makes it real. The electron's decision, like the human being's, is free and unpredictable, although limited by objective fact. Just as non-local effects modify the electron, so do non-sensuous and conceptual prehensions enter our own decisions.

We have here two revolutionary notions. Whitehead asserts first, that the soul is a personal society of serial occasions piled on one another; and second, that perception in the primitive mode of causal efficacy, plus introspection, provides the only information that gives meaning, life and warmth to the dry digital data from the five senses. Together, they permit Whitehead to refute Hume's proof of the impossibility of induction; and they enable him to dismiss Immanuel Kant's doctrine of fixed forms of intuition. Hume accepts the doctrine of simple location, and sees the mind as a mere passive substance. Its 'impressions', our snapshots, are its private world of accidents. He can't explain how we join our impressions together, so he slyly invokes 'habit' of mind; but that still doesn't explain how the habit persists from one occasion to the next. Kant bought Hume's arguments, and relied only on the bare snapshots, delivered by the optic nerve, to construct his cosmology. That error forced him to invent the category of fixed, inborn forms of intuition, which could interpret the sense data, and produce the appearance of space and time.

Whitehead, alone amongst thinkers, has finally shown us why we can believe in induction, memory, and--most notably--other minds. The process, reality itself, is one seamless substance, an indivisible net of enjoyments. So we cannot help but know other minds, for we must build our unique souls out of the identical stuff. In Whitehead's cosmos we can, and should, bend our actions to moral values; but to do so we have to rely on two sources of knowledge hitherto ignored by conventional philosophers: 1) the massive flood of primitive enoyments we acquire through the mode of causal efficacy; and 2) the pure potential values we extract from our contact with the realm of eternal objects. As we compare these two sources with such physical matters-of-fact as we choose to notice, we can aim at an aesthetic achievement that is proper for us at that juncture. At the summit of the timeless moment of experience and inner reflection, the subject settles on its satisfaction, and the occasion perishes. The subjective pleasures of our specious present petrifies into a stubborn fact, and the subject bequeaths that unchangeable object to the next pulse of feeling.

No moral code

How do we choose the moral doctrines we should follow? Whitehead offers no general ethical doctrine. No logical code can chart the realms that open before a member of the Jewel Net at each decisive moment. Instead of ethical prescriptions, Whitehead offers five prime qualities of Civilization for us to aim at. He calls his five targets: Truth, Beauty, Art, Adventure, and Peace.

By Truth, he means the conformation of appearance to reality. Objective reality cannot be true: it is simply itself; but appearance can conform to reality to a greater or lesser degree, and in different ways. By Beauty he means the quality that arises when the members of a society of occasions act so as to conform and contrast harmoniously with one another's purposes. To create and enjoy beauty is the final cause and purpose of every society. Art is the unending human effort to produce the appearance of truthful beauty; and a work of art is a finite fragment of that effort. Our chief cause is to aim at and enjoy truthful beauty. He adds Adventure as a prime quality because he believes civilization will fade into tameness and vapidity unless we seek freedom, discord and risk in the search for novel enjoyments.

His fifth value, Peace, deserves special comment. By 'Peace' Whitehead means neither tranquillity, nor the absence of war. Whitehead's Peace comes to us from the final element in his cosmos: the Consequent Nature of God. This is the Omega-God, personal and conscious. God is a unique type of actual occasion. The Consequent Nature of God is the one subject that never perishes: he is everlasting but never complete. His body is the sum of all the stubborn, brute facts that we, and the other worldly creatures, are forever laying down within our countless occasions. His soul is the eternal form of his primordial realm of ideal values. His gift is redemption. The Omega-God takes up the coarse patchwork of hopeful events we bequeath to him; he marries them to his primordial realm of value; and he returns to us the intuition that, in the light of his providence, the deeds we offer up may become beautiful. That is the persuasive, transcendent vision of peace we should pursue.

Sin and evil

Evil, the solvent of values and scourge of enjoyment, hardly enters Whitehead's pages. In fact doctrines of good and evil are almost alien to his modes of thought. Yet evil plays such a large part in the rough chorus of our experiences that I feel impelled to append to his elegant system two metaphysical constancies he ignored. I must insert (no doubt clumsily) the heartbreaking conflicts symbolized by Nietzsche's classical Dionysian and Apollonian deities. These presences embody respectively the principle of plenitude and the principle of parsimony.

The principle of plenitude decrees that the world must generate as copious a flow of beautiful and enjoyable moments as possible. Plenitude is cosmic exuberance. The principle of parsimony decrees that, in their flight from birth to death, events must follow the most elegant course, namely that of least action. Parsimony is the cosmic scalpel.

Evil erupts when the miserly principle of elegance conflicts with the extravagant principle of plenitude--and that is the conflict that gives rise to Darwin's pitiless rule of natural selection.

Yes, there are grave paradoxes embedded in the nature of things, which inflict unbearable pain and hardship. The worlds need our help. We can and should consider the relief of anguish as more than a command; in obeying it we can find a source for our most profound satisfactions.

Whitehead gives us no advice for prayer, and suggests no scripts for ritual. Since he offers speculative philosophy and not science, we can test his views only in the vast practical adventure of living and advancing our civilization. But he is aware that he is seeking to articulate the ineffable:

"The metaphysician is seeking, amid the dim recesses of his ape-like consciousness, and beyond the reach of dictionary language, for the premises implicit in all reasoning. The speculative methods of metaphysics are dangerous, easily perverted. So is all Adventure; but Adventure belongs to the essence of civilization".

Many critics complain that Whitehead's metaphysic is hard to understand. To me his writings clearly describe a cosmic net of mutually creative moments. Every moment flows to its own purpose; everything perishes; each spark of experience relies on the whole net for its value; the final cause of the cosmos is beauty in action.

More about Whitehead and process philosophy:

New Thought Movement Home Page The Australasian Association for Process Thought

The Japan Internet Center for Process Studies

Claremont center for process studies

Whitehead's *even more*dangerous idea

United Church of Canada

Process-Philosophy Listserve

An internet discussion list entitled *Process Philosophy* is up and very active. The list is **FREE** and open to the discussion of all topics pertaining to the study of Process Philosophies. A certain focus inevitably falls on Whitehead and Hartshorne, but the possible topics are as inclusive as the interests of these two thinkers.

To join, visit the Process philosophy list page and follow the instructions

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