The Concise Encyclopedia of Western Philosophy and Philosophers

Fifth Edition

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First published 1960 by
Unwin Hyman Ltd

Second edition 1975

Paperback edition 1976

New edition, completely revised 1989

Paperback edition 1991

Second edition 1991

Routledge is an imprint of the Taylor & Francis Group

This edition published in the Taylor & Francis e-Library, 2005.

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British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication Data
A catalogue record for this book is available from the Library of Congress

ISBN 0-203-98073-5 Master e-book ISBN

ISBN 0-415-07883-0 (Print Edition)

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Abelard, Peter, (*c.* 1079–1142) born in Brittany, France. The details of his stormy life are to be found in the autobiographical letter known as the *Historia Calamitatum*. Most famous of all the events of Abelard's life is his seduction of Héloise, niece of the Canon Fulbert of Notre Dame; when their child was born they married secretly but Héloise's brothers broke into Abelard's room at night and castrated him. Subsequently Héloise became a nun and Abelard a monk.

Abelard is noted in the history of philosophy for his ability as a **dialectician** and for his contribution to the problem of **Universals**. He studied **logic** under Roscellinus, a nominalist master, and later disputed with the realist theologian William of Champeaux in Paris. The details of this debate, together with an account of the successive positions taken up, are to be found in Abelard's logical treatises *Concerning Genera and Species and the Glosses on Porphyry.*

Abelard stands firmly by the principle that only individuals exist and that universal terms, being more than mere names, get their meaning from the abstractive power of the mind. The famous formula that the mind may consider factors separately without considering them as separate from one another gave a convenient dialectical answer to the question as it was raised by **Boethius**.

Abelard also wrote an ethical treatise, *Know Thyself,* which emphasizes the subjective element in human conduct and stresses the importance of intention in the moral qualification of an action.

(J.G.D.)

Adorno, Theodor W. (1903–1969), born in Frankfurt; along with Max **Horkheimer** and Herbert **Marcuse,** a major architect of the **Frankfurt School** of Critical Theory. Besides his work in philosophy Adorno was also active as a musicologist (he was student of Alban Berg, and throughout his life a defender of the work of Arnold Schoenberg), sociologist, and literary critic and theorist.

Adorno's most important philosophical works are *Negative Dialectics* (1966) and *Aesthetic Theory* (1970). In *Negative Dialectics* he argues that dialectics must be freed from the totalizing impulse of Hegel's system because the whole of present day society is not a reconciliation of universal and particular, but the domination of particularity by the universality of subjective reason, determined

solely by the drive for self-preservation. Subjective reason conceives of knowing as the mastery of things by concepts, where nothing is cognitively significant except what different items share, what makes them the "same". The rule of identity and sameness is realized not only in the philosophical systems of German **idealism,** but also, materially, in capitalism where all use values (particularity) are dominated by exchange value (universality).

Negative dialectics is dialectics without a final moment of unification; its goal is to reveal the non-identity of an item and the concept under which it is usually "identified". Negative dialectics operates for the sake of the object of cognition. For Adorno cognitive utopia would not be a unified science, but a use of concepts to unseal the non-conceptual without making it their equal.

In *Aesthetic Theory* Adorno argues that the kind of non-identity thinking aimed at by negative dialectics is, for the time being at least, adumbrated in modernist works of art. Successful works of art claim us beyond our ability to redeem their claims conceptually. They are particulars demanding acknowledgement while simultaneously resisting being fully understood or explained: in fact it is their unintelligibility which reveals the wounding duality between particularity and universality in modern rationality. Art pre-figures what it would be like to comprehend individuals without dominating them. For Adorno modernist art enacts a critique of subjective reason, and reveals the possibility of another form of reason.

Other noteworthy philosophical works by Adorno are: *Dialectic of Enlightenment* (1947) (written with Max Horkheimer); *Kierkegaard: The Construction of the Aesthetic* (1933); *Against Epistemology: a Metacritique* (1956) (on **Husserl**); *The Jargon of Authenticity* (1964) (on **Heidegger**); *Three Studies on Hegel* (1963); and *Minima Moralia: Reflections from Damaged Life* (1951). See also **Philosophy of Science**.

[J.M.B.]

Aenesidemus, *see* Stoics.

Aesthetics. Though the division of philosophy into a number of departments has little theoretical value, aesthetics has long been regarded as one of the main departments of philosophy alongside logic, metaphysics, the theory of knowledge and ethics. The word "aesthetics" itself is little over two centuries old and results from a German coinage by the philosopher Baumgarten; thus though the word is ultimately derived from the Greek word *aesthesis* which means "perception", no weight can be put on this etymology. Where we now speak of aesthetics earlier writers would have spoken of the theory of taste or criticism of taste. The *Hippias Major* of **Plato,** in which the sophist Hippias vainly attempts to provide **Socrates** with a satisfactory definition of beauty, is the oldest surviving work in the field of aesthetics and there is a continuing literature from that period.

Aesthetics gains its subject-matter from the fact that people are constantly judging things, whether natural objects, products of the "fine arts" or other man-made articles, to be beautiful, sublime, charming, ugly, ridiculous or uncouth;

moreover, they attempt to support or question such judgments and fall into argument about them. The philosophical problems of aesthetics arise from reflection on these data; it will be helpful to list some of them without discussion. What have terms like "beautiful", "sublime", "charming", "ugly", got in common with each other that they do not share with "worthy", "useful", "wicked" and "right"? What is the difference between "beautiful" and "sublime"? How, if at all, can we show judgments of aesthetic merit to be true or justify one view rather than another? How does aesthetic appraisal differ from ethical and economic appraisal? What is a work of art? Can we have the same aesthetic attitude to works of art as to natural phenomena?

It is natural to find a close parallel between the problems of aesthetics and those of **ethics**. Some would indeed regard it as a mistake, however natural; others would maintain that to speak of a parallel is an understatement and hold that we should start with a general theory of value to be applied with slight modifications to the field of ethics, aesthetics and economics. The most important question of ethics is naturally expressed in some such way as: "Is there any standard of morality beyond the conventions of a group and, if so, what is it?". We can equally naturally ask whether there is any standard of aesthetic judgment and, if so, what it is. This being the case, it is not surprising to find a close parallel between the most common aesthetic and ethical theories. As the ethical **relativist** claims that moral beliefs hold only for an individual or a group so it is claimed that there is no criterion of good taste save that conventionally accepted within a group; as the ethical **hedonist** finds moral worth solely in the production of pleasure, so the aesthetic hedonist claims that the production of pleasure is the sole criterion of aesthetic merit; as some moralists say that goodness is an ultimate moral quality objectively present in things of value, so some have claimed that beauty is an objective quality; similarly we have subjectivist and emotivist theories of meaning in both fields.

The most influential classical discussion of aesthetics was that of **Kant** in his *Critique of Judgment,* especially through his insistence on the preconceptual level of the aesthetic judgment and the formal character of the criteria of aesthetic merit. The precise form of his discussion depends on his view that judgments differ in quantity, quality, relation and modality, so that the problem of aesthetics is mainly to say how aesthetic judgements differ in these four ways from others. In the twentieth century, the best-known theory is that of **Croce** in his *Aesthetics,* to which that of **Collingwood** in his *Principles of Art* is essentially similar; for Croce the work of art is a sensuous intuition of some emotion of which it is also an adequate expression, the canvas, the written words or the sounds being mere causal aids to others to have the same intuition. The view put forward in **Cassirer's** *Philosophy of Symbolic Forms,* especially as restated in S.K.Langer's *Feeling and Form,* has also been very influential. It is common to these views to see aesthetic experience as essentially expression, or symbolism, of feeling, and to connect it as such with all use of language and other symbolism; Croce indeed regards general linguistics and aesthetics as one and the same thing. These

theories, idealist in tendency, have not gained much support from **analytic philosophers,** but these have notably failed to provide any alternative.

Some philosophers, indeed, deny the possibility of any general aesthetic theory; aestheticians, they say, assume that there is some common feature of experience of all the diverse arts and of natural beauty, and that there is some general criterion of judgment to be found which will be applicable in all these fields; but this assumption they consider to be without any justification. We can say, they hold, what makes us admire this painting, that landscape or that symphony, but we must not expect there to be anything common to all these cases. Whether this extreme scepticism is justified or not, it must be admitted that aesthetics, more than any other branch of philosophy seems doomed either to a pretentious vagueness or to an extreme poverty which make it a poor step-sister to other main fields of philosophical inquiry. See also **Adorno**.

(J.O.U.)

"African Philosophy". The concept of African Philosophy originated as a variant of the general idea of "Primitive" Philosophy, which in its turn is part of the history of European attempts to understand the strange practices of "other peoples". In *Primitive Culture* (1871) the English anthropologist E.B.Tylor (1832–1917) postulated a childish but coherent world-picture called "animism", which he took to be at the basis of "primitive society". Animism, for Tylor, was a rudimentary scientific theory which attempted to explain natural phenomena by attributing them to the voluntary acts of personal spirits; it was not an arbitrary invention, but a special if naive application of the principle of causality. In this sense Tylor's approach was intellectualist: he went beyond purely emotional factors, such as fear, upon which previous analyses of "primitive culture" had focused, in order to identify its conceptual foundations.

This intellectualist approach did not necessarily involve a rehabilitation of "primitive" culture or an affirmation of cultural equality. "Primitives" were still primitive, "savages" still savage. For Tylor's intellectualism was a form of evolutionist sociology, in which inequalities of development were seen against a background assumption of the ultimate identity of humanity as a whole. Thus it contrasts, on the right hand, with theories of absolute difference, which fragment the idea of "the human race" into several different "races"; and on the left, with the principled egalitarianism which regards actual inequalities of achievement as historical accidents, which do not detract in any way from the equal value of all cultures and peoples.

Tylor drew extensively on **Comte's** theory that the history both of the individual and of humanity as a whole passes from a theological stage, through a metaphysical one, to a positive or scientific stage. Comte had regarded each of these three stages as based on a specific "philosophy", and held that their historical succession exhibited a progressive acceptance of the limits of human understanding. Thus theology, for Comte, was the earliest and most ambitious form of philosophy. It too had developed in three stages: fetishism, polytheism, and monothism. Fetishism—the habit of treating inert objects as though they

were alive—was thus the absolute beginning of reason. However, according to Comte every member of every society has to go through all the same stages, and moreover no society and no scientific system, however highly developed, could break completely with its origins. So Comte insisted on the functional value of fetishism, as the stage of the initial stirring of conceptual exploration, which left its mark on all subsequent ones.

Tylor, in contrast, saw fetishism (or animism, as he re-named it) as an absolutely backward mentality, present in primitive societies but completely overcome in civilized ones. However even Tylor's intellectualism came to be criticized for being excessively generous towards primitive cultures. In *How Natives Think: Mental Functions in Inferior Societies* (1910), the French philosopher Lucien Lévy-Bruhl (1857–1939) complained that the idea of "animism" made the unjustified assumption that "savages" are capable of rudimentary logical thought, so that they are essentially the same as the "civilized adult white man". Lévy-Bruhl suggested that savages are pre-logical and separated from Europeans by a gulf as large as that between vertebrate and invertebrate animals.

The French writer Raoul Allier reached very similar conclusions, on the basis of reports and letters written by Protestant missionaries. In *The Psychology of Conversion amongst Uncivilised Peoples* (1925) and *The Uncivilised Peoples and Ourselves: Irreducible Difference or Basic Identity*? (1927), Allier also challenged the idea of a universal human nature, and described the intellectual methods of "savages" as "para-logical". On this basis he argued that when uncivilized individuals were converted to Christianity they underwent a total crisis, which gave them access not only to a new faith, but to a new humanity.

There was then a reaction against prelogicism and para-logicism, and a well-meaning revival of intellectualism. Thus in *Primitive Man as Philosopher* (1927) the American anthropologist Paul Radin (1883–1959) described the role of intellectuals in "primitive society" in order to discredit the myth that "primitive man" is totally submerged in society, dominated by the thinking of the group, and lacking individual personality. The French ethnographer Marcel Griaule (1908–1956) pursued a similar task with the Dogon of French Sudan (now Mali). He did his best to efface himself as a theorist, and to act as little more than a secretary, recording, transcribing and translating the statements of some "master of the spoken word". (See for example his *Conversations with Ogotemmêli,* 1948.) With the discovery of "oral literature", numerous other investigators, including many Africans, have taken the same approach as Griaule.

In this context, "primitive philosophy" means an explicit set of doctrines, rather than the merely implicit animism postulated in Tylor's *Primitive Culture*. But the Dogon cosmogony which was expounded with elaborate beauty by Ogotemmêli is more like a magnificent poem than an exercise in abstract, systematic, critical analysis. It is not clear why it should be categorized as "philosophy" as opposed to, for example, "religion" or "mythology".

Alienation. Strictly speaking, to alienate something is to separate it from oneself or disown it. But an extended concept of alienation has gained wide currency in twentieth-century philosophy and social theory. Under converging influences from **existentialism**, the **Frankfurt School, humanism** and **psychoanalysis,** the term "alienation" has been used in numerous diagnoses of the maladies of something called "the modern world". All sorts of alleged symptoms of **"modernity"**—the dichotomies of civilization and barbarism, scientism and irrationalism, town and country, mental and manual labour, atheism and religiosity, individualization and massification, banal popular culture and unintelligible high culture, intellect and feeling, masculine and feminine etc.—have been en-compassed within theories of alienation.

Superficially, alienation refers to a subjective feeling of unease, dissociation or exile. At a deeper level, it indicates a kind of structure, in which people find it impossible to "identify" with the social and spiritual conditions of their existence. Ultimately it implies that modernity is the loss or disruption of an original unity, and may also suggest that a day of reconciliation in a "higher unity" is about to dawn.

But alienation is not supposed to be a catastrophe striking humanity from outside; it is essentially a perverted, malign, and self-destructive expression of human creativity itself. Alienation means that people are subject to an oppression which is—though they may not recognize it—of their own making. In this sense Mary Shelley's story of Frankenstein and his monster provides an exact allegory of alienation.

The concept of alienation achieved popularity as the basis for an alternative to **dialectical materialism** in the philosophical interpretation of Marxism. Humanistic Marxists such as **Marcuse, Sartre,** and the psychoanalyst Erich Fromm (1900–1980) used the term to translate the German words *Entfremdung* and *Entäus-serung,* with particular reference to the young **Marx** and his philosophy of labour or *praxis.* In the *1844 Manuscripts* (published in 1932) Marx tried to explain capitalism, or rather "the system of private property", as a form of "alienated labour". As Marx acknowledged, this explanation was indebted to **Feuerbach,** who had argued in *The Essence of Christianity* that "religion is the dream of the human mind" and that the God which people worship is nothing more than their own "alienated self ", inverted and unrecognized. According to the young Marx, the function of labour in modern society is just like that which Feuerbach attributed to worship in **religion:** it creates the power which confronts and overwhelms it. Hence "the *alienation* of the worker in his product means not only that his labour becomes an object, an *outside* existence, but also that it exists *outside* him, **independent** and alien, and becomes a self-sufficient power over against him—that the life he has lent to the object confronts him, hostile and alien". Moreover, in Marx's theory money itself plays the part of Feuerbach's humanly constructed God: it is "the visible deity, the transformation of all human and natural qualities into their opposites"; thus, "the *divine* power of money resides in its nature as the alienated,

externalised and self-estranging *species-being* of humanity: it is the alienated *power* of human beings".

Some Marxist commentators (notably **Althusser**) believe that the theory of alienation is only a regrettable vestige of pre-Marxist ideology. Nevertheless numerous traces of it are to be found in Marx's *Capital,* for example in its doctrine of "commodity fetishism" and in its criticisms of bourgeois theorists like **J. S.Mill** for "the folly of identifying a specific *social relationship of production* with the thinglike qualities of articles". **Lukács'** *History and Class Consciousness* (1923) was the first work to interpret Marxism in terms of alienation or rather **"reification"**. Later, Lukács followed the theme back to **Hegel**, arguing in *The Young Hegel* that alienation is "the central philosophical concept of the *Phenomenology of Spirit*" (see also **Kojève**). The concept is also at work in **Rousseau's** social theory, and may indeed be traced much earlier: perhaps it can even be detected in the theology of **neo-Platonism** (see also **Plotinus**) and in **pre-Socratic** doctrines of creation. For the idea that humanity is at odds with itself, and adrift from its spiritual home, is probably co-extensive with religion in general; in which case "modernity" must be considerably older than is commonly supposed.

[J.R.]

Althusser, L. (1918–), born in Algeria, is best known for his writings from 1960 onwards, the main theme of which was a re-working of Marxist orthodoxy and an associated defence of the scientific status of historical materialism. Using ideas derived from French historical **philosophy of science** and from **structuralism**, Althusser argued that **Marx's** early works, with their **"humanist"** and "historicist" philosophical basis, should be regarded as "pre-scientific". Later writings such as *Capital* could then be read as containing the elements of a new "scientific" problematic in the theory of social formations and their transformations. Human individuals were to be understood not as the self-conscious sources of their social life, but rather as "bearers" of a system of social relations which exists prior to and independently of their consciousness and activity. In opposition to economic reductionism, Althusser argued for a recognition of the relative autonomy of political, cultural and intellectual practices within a loosely defined "determination in the last instance" by economic structures and practices.

This notion of "relative autonomy", together with Althusser's insistence upon the irreducible complexity of social contradictions and struggles, made it possible for a new significance to be given to cultural analysis and to forms of resistance not directly attributable to "class struggle". However, Althusser's "scientism", and his apparent denial of autonomous human agency led to a growing division between Althusser and his younger, more radical followers. Althusser's response was a spate of self-critical writings which appeared to put an end to what was distinctive in the school of Marxist philosophy which he had engendered.

[T.B.]

Analysis. "Analysis" is a Greek word, meaning the resolution of a complex whole into its parts. It is opposed to synthesis, which means the construction of a whole out of parts.

Philosophers have always had two main aims, the construction of systems of **metaphysics, logic** or **ethics** (synthesis) and the clarification of important ideas (analysis). These cannot always be sharply distinguished, since what is synthesis from one point of view is analysis from another. **Plato's** *Republic,* for example, may be considered as the construction in thought of a perfectly just society or as the analysis of the idea of a just society. Large parts of **Aristotle's** *Ethics* are concerned with the analysis of such important ideas as "voluntary action", "virtue and vice", "pleasure", etc.

In recent times continental philosophy has tended to be synthetic and British philosophy to be analytic. For **Descartes** the analysis of concepts was only a preparation for the construction of a system of knowledge based on the "clear and distinct ideas" obtained by analysis; and **Spinoza** sought to construct a view of the world deduced, on the geometrical model, from a small number of definitions and axioms. British philosophers, on the other hand, have tended to be suspicious of constructive metaphysics and to be more concerned with the analysis of thought and experience into their fundamental elements.

Since the beginning of this century the view that analysis is either the whole, or the most important part, or the distinguishing feature of philosophy has been widely accepted in English-speaking countries. Philosophers who follow this trend often have little in common with each other except the use of the word "analysis" to describe their various activities. All that can be said about their view of the function of philosophy—and even this is not wholly true—is that they take it to be, not the acquisition of new knowledge (which is the function of the special sciences), but the clarification and articulation of what we already know. Three main stands can be detected in the practice of analysis:

(1) **G.E.Moore** questioned an assumption that metaphysicians have been prone to make and which was certainly made by the **idealists** who at that time dominated British philosophy. This was that we do not know all the ordinary humdrum things about the world that we claim to know. Some had said that these things are actually false; others, that even if they were true we could not know them to be true. The world, as it appears to the plain man, is mere appearance; reality is something recondite, wholly unlike what we take it to be, and to be discovered only by profound researches conducted in some new technical language. Against this, Moore held that for the thinker such truisms as that he has a body, that he was born some years ago and that he has existed ever since, are not only true but can be known for certain to be true. Nevertheless he had no wish to assert that metaphysical theories which contradicted these assertions were merely outrageous falsehoods. They were certainly that; but they were also mistaken attempts to answer very genuine and puzzling questions. Briefly, though we cannot seriously doubt the truth of such ordinary statements and though we know, in a sense, what they mean, we may not be able to state

clearly and precisely *what* they mean. We do not, in his words, "know their proper analysis" and almost all his philosophical activity was devoted to discovering the proper analysis of propositions whose truth cannot seriously be doubted.

To give the proper analysis of a concept or proposition is to replace the word or sentence which is normally used to express it by some other expression which is exactly equivalent to it and at the same time less puzzling. An analysis, therefore, is a sort of definition, a kind of equation with the puzzling expression, the *analysandum,* on the left-hand side and the new expression, sometimes called the *analysis,* sometimes the *analysans,* on the right. Now most of the ideas that seem to need this sort of clarification are highly complex and the very word "analysis" implies the splitting of a complex form, or replacing an expression that stood for a complex concept by a longer expression that lays bare its hidden complexity. Moore seems to have used this technique with no other aim than that of clarifying our concepts; he had no metaphysical theory and did not suppose that the things mentioned in the analysis were in any sense more real or fundamental than those mentioned in the analysandum. How, indeed, could they be, if the analysandum and the analysis were to refer, as they must, to exactly the same things?

(2) **Bertrand Russell** practised the same sort of definitional analysis as Moore, but for very different reasons and with very different aims. Where Moore sought only clarity and never wished to depart from common sense beliefs, Russell sought metaphysical truth and was quite willing to say with the Idealists that common sense beliefs can be false and ordinary language wholly inadequate as a means of discovering and expressing truth. As a metaphysician, his aim was to give a general account of the universe. His account was the exact opposite of that of the Idealists. They had claimed that only reality as a whole (the absolute) was wholly real; particular things were abstractions from this totality and, as such, only partially real or not real at all. Russell's picture of the world was that of a world composed of "atomic facts", corresponding to each of which there would be a true "atomic statement".

Consider the statement "it is either raining or snowing". This is not made true by correspondence with a complex alternative fact, either-rain-or-snow. It is true if either of the atomic parts of which it is composed ("it is raining" and "it is snowing") is true. Thus compound or "molecular" statements do not correspond or fail to correspond to compound facts; they can be broken down into atomic statements which do, when true, correspond to atomic facts. The aim of analysis was to break down complex facts into their atomic components, the method to analyse complex statements into theirs. Russell's conception of analysis was influenced in two main ways by the fact that he came to metaphysics from the study of mathematics and formal logic. As a mathematician, he regarded all defined terms as theoretically superfluous. Thus if "two" can be defined as "one plus one" and "three" as "two plus one" it is clear that arithmetical operations could be carried on with no numerals other than "one". He had himself claimed

to "eliminate" in this way even the notion of "number" by defining it in terms belonging to logic. As a metaphysician, Russell held that if the word "number" could be eliminated by being defined, then numbers are not part of the ultimate constituents of the world which it was his aim to discover. These constituents, whatever they turned out to be, would be only such things as would be named in a language in which all defined terms had been replaced by ultimately indefinable terms.

Secondly, Russell's study of logic had convinced him that the *grammar* of all natural languages is radically misleading. "Horses do not bellow" and "chimaeras do not exist" have the same grammatical form; but while the first denies that certain objects (horses) have a certain property (bellowing), the second does not deny that chimaeras have the property of existing. Rather it says that nothing in the world has the property of being a chimaera. Russell's aim here was that of replacing expressions whose grammatical form was misleading by expressions of "proper logical form", in which the grammatical structure would properly reflect the form of the fact stated. Confronted by the statement, "the average plumber earns ten pounds a week", one might be puzzled by the question "Who is this average plumber?" and perhaps led into wild metaphysical speculation. The remedy was to see that the statement could be translated into "the number of pounds earned each week-by plumbers divided by the number of plumbers is ten", a statement from which "the average plumber" has been eliminated. No one is likely to be bemused in such a simple case; but serious consequences, both theoretical and practical, had certainly followed from making the same mistake about more important objects such as "the State" or "Public Opinion". It is clear that in some sense these, like armies, governments, schools and other institutions are abstractions and that to say something about them is to say something, though not the same thing, about the people who make them up. In technical language they were said to be "logical constructions" out of the more concrete objects (people) who compose them. Russell and his followers had high hopes that analysis could be carried to yet deeper metaphysical levels by showing that the things, including people, that we normally treat as being on the "ground-floor level" of experience, were logical constructions out of more fundamental entities.

(3) Russell's views on logic and techniques of analysis were taken up by the **logical positivists,** but used with a very different aim. Where Russell sought a true metaphysical theory, the positivists held *all* metaphysics to be nonsensical and were mainly concerned to establish a sharp line between metaphysics and natural science. Analysis was to be used first for the elimination of metaphysics and secondly for the clarification of the language of science. The word "elimination" here is to be taken in a much more straightforward sense than in connection with Russell. Russell had not claimed that the objects which his analytical method "eliminated" did not, in the ordinary sense, exist; only that they were not metaphysically ultimate. Water exists; but because it is composed of oxygen and hydrogen it is not part of the "ultimate furniture of the Universe";

For analytic philosophy, the first major philosopher after Kant is Gottlob **Frege,** at the end of the nineteenth century. Frege's researches into the foundations of mathematics led to revolutionary advances in both logic and the philosophy of language. Bertrand **Russell** and Ludwig **Wittgenstein** developed Frege's work on logic and language, and in Russell it was allied to an empiricist epistemology inherited from Hume. This mix of logical analysis and empiricism gave rise to **logical positivism**. The logical positivists aimed to analyse all propositions into their fundamental logical form, and to dismiss as meaningless any propositions whose fundamental constituents did not correspond to elements of sense experience.

The influence of logical positivism waned after the Second World War. Wittgenstein recanted some of his earlier doctrines, and emphasized the social role of language as opposed to its purely representational function. **J.L.Austin** argued that the route to philosophical illumination lay in the sophisticated conceptual distinctions embodied in 'everyday language. A school of "ordinary language philosophy" emerged, centred on Oxford University, which sought to dissolve philosophical puzzles by attending to the structure of ordinary usage.

Much of the work done under the banner of "ordinary language philosophy" was philosophically shallow, and this particular school had ceased to be of any importance by the 1960s. But in another sense the post-war analytic tradition remained committed to "linguistic philosophy": nearly all analytic philosophers continued to place the analysis of language at the centre of the philosophical stage. Different analytic philosophers, however, drew different philosophical conclusions from it. Thus the American philosophers **W.V.O.Quine** and Wilfrid **Sellars** concurred with the later Wittgenstein in denying that words derive their meanings from sensory ideas in the minds of speakers; but rather than locating the source of linguistic authority in social practices, as Wittgenstein did, they turned to the developing frameworks of scientific theory instead. The influential British philosophers **P.F.Strawson** and Michael **Dummett** drew yet further philosophical morals from the theory of language: Strawson, harking back to Kant, argued that linguistic reference would be impossible if we did not live in a world of reidentifiable spatiotemporal objects; while Dummett argued against metaphysical realism on the grounds that it would be impossible to grasp the meanings of sentences about the world if the world in itself were different from the world as. we find it to be.

In Dummett's view, Frege's crucial contribution to philosophy was to show that the theory of meaning is the foundation of all philosophical investigation. However, while it is unquestionably true that the analysis of language has been central to philosophy in the analytic tradition so far in this century, there are signs that since the 1970s it has started being displaced by the **philosophy of mind**.

Treatments of the relationship between mind and language have varied in the analytic tradition. For the founding fathers the function of words was simply to convey ideas from one mind to another, and something of this conception

remained even as late as logical positivism. But when Sellars, Quine, and the later Wittgenstein discredited the idea of a self-intimating mental realm which breathed significance into words, most analytic philosophers came to regard linguistic practice as primary, and mental events as little more than dispositions to verbal behaviour. Since then, however, there has been something of a reversion -to the earlier view that mind is more fundamental than language: a "naturalistic" school of thought has emerged, which rejects the idea of a self-intimating mental realm, but which nevertheless regards the mind as an independent constituent of the natural world.

In *Philosophy and the Mirror of Nature* (1980) Richard **Rorty** argues that, once the traditional conception of mind as a special self-knowing substance is abandoned, any substitute naturalistic conception of mind will be unable to carry the same philosophical weight. Indeed, Rorty argues that the whole analytic tradition is fated to collapse. This is because it is committed, in Rorty's view, to a notion of philosophy as the "queen of the sciences" offering epistemological evaluations of human judgement in general; and the idea of epistemological evaluation, so Rorty's argument goes, presupposes the traditional distinction between a mirroring non-natural mind and a mirrored natural world.

However, analytic philosophy may be rather more healthy and adaptable than Rorty allows. For a start, while epistemological evaluation clearly requires some contrast between representer and represented, self-intimating mental states as traditionally conceived are not the only possible representers. On the naturalistic conception of the mind mentioned above, for instance, beliefs can be conceived as organizational states of the brain, and yet at the same time can be subjected to epistemological evaluation as better or worse representations of their subject matters. Of course there is a philosophical problem about physical brain states having representational powers; but the task of explaining representation is by no means peculiar to naturalism. It is also true that, on the naturalist conception, mental states are not self-intimating, and so cannot provide the kind of incorrigible foundations for epistemology which were provided by mental states as traditionally conceived: .but then there are various non-foundational approaches to **epistemology** open to **naturalism**.

It would be wrong to suggest that analytic philosophy as a whole has taken a naturalistic turn. Many analytic philosophers remain suspicious of the naturalistic conception of mind, and doubt its ability to replace language as the focus of philosophical analysis. This anti-naturalistic tendency has affinities with Rorty's critique of epistemology: the continued emphasis on language tends to go with doubts about the possibility of a perspective from which judgement in general can be evaluated. But those analytic philosophers who have doubts about epistemology continue to articulate them within the analytic tradition, appealing to Wittgenstein and Dummett and Donald **Davidson,** rather than to Martin **Heidegger** and Jacques **Derrida**. Perhaps we are entering a period of increasing convergence between the analytic and Continental approaches; but the sheer

power of tradition is likely to keep the two schools distinct for some time to come.

[D.P.]

Anaxagoras of Clazomenae flourished *c.* 450 B.C. He was prosecuted for impiety (for describing the sun as a white hot lump of stone) while working in Athens, partly because he was a friend of Pericles. His book *On Nature*, seems to have been written later than **Empedocles'** *On Nature* and tries to overcome the **eleatic** dilemma in another way. In the beginning all the natural substances (not merely a limited number of basic substances like Empedocles' roots) were mixed together; then Mind, "finest of all things and purest", started a rotation which brought the heavier parts to the centre, by vortex-action, to form earth, and the lighter to the circumference. This was a traditional, non-cyclical cosmogony; the production of a plural cosmos did not destroy the initial unity, since still "there is a portion of everything in everything, except Mind". Apparent coming-to-be, as for Empedocles, was caused by mixture. Objects were made up of "seeds", perhaps meaning constituent pieces having the nature of the whole; each seed contained a portion of every natural substance, including the substantial opposites and the main world-masses, but had the appearance of that substance whose portion predominated. Changes, as for example in nutrition, were presumably caused by an interchange of portions so as to alter the predominance in different seeds. Anaxagoras insisted that matter could be theoretically divided *ad infinitum,* and is indeed, what **Zeno** of Elea had denied, "both great and small". He did not attempt to reconcile this with the idea of the predominance of one substance in every seed. In most other details of cosmology and epistemology Anaxagoras was more conservative, often reviving Milesian views. See also **Pre-Socratics**.

(G.S.K.)

Anaximander of Miletus flourished *c.* 560 B.C. His scientific activities included making a famous map of the world. Like **Thales'** he tried to name a single substance out of which the world originated: for him this was "the indefinite", probably implying a material of indefinite extent to which no precise name could be given because it did not exist within the developed world. From the Indefinite was somehow separated off a nucleus which produced fire and dark mist. The mist solidified at its centre into earth, while the surrounding flame burst to form the heavenly bodies—wheels of fire, each showing through a single aperture in a tegument of mist. The earth is cylindrical, and stays still because of its equidistance from everything else. Physical change within the world occurs through the mutual encroachments and reactions of opposed materials like the hot and the cold, ultimate regularity being assured because these "pay penalty and retribution to each other for their injustice according to the assessment of time". There was a zoogony to parallel the cosmogony: the first living creatures, generated out of primeval slime by the heat of the sun, emerged out of prickly husks on to dry land. Men originally grew up inside a kind of fish, for otherwise they

could not have survived their long period of helplessness in childhood. See also **Pre-Socratics**.

(G.S.K.)

Anaximenes of Miletus flourished *c.* 545 B.C. He reverted to **Thales'** idea of a definite world-component as originative material, but said that this was *aer,* air or rather mist. For the first time he gave some account of how a single substance could turn into a diversified world: *aer* changed its appearance according to its degree of concentration. Rarefied, it became fire; condensed, water and earth. This was an important new idea; and Anaximenes behaved unusually methodically in citing a specific indication that density can affect, for example, temperature—when the lips are compressed in exhalation. He seems to have chosen air/mist as the basic substance not only because of its apparent meteorological connexion with fire (in the sky) and also with rain, but also because it appeared to fulfil in the world the function of soul, commonly envisaged as breath, in living creatures; soul being motive, directive, and in some way divine. In cosmology Anaximenes was less imaginative than his older contemporary **Anaximander,** often merely elaborating the popular world-picture as exemplified in Homer. The flat earth rode on air; the fiery heavenly bodies went round, not under, the earth, driven by winds; among them were invisible bodies that caused eclipses. See also **Pre-Socratics**.

(G.S.K.)

Anderson, John (1893–1962), Scots philosopher who became Professor at the University of Sydney in 1927 and the dominant figure in twentieth-century Australian philosophy. He was noted for his materialistic and deterministic opinions, and also for his outspokenly aggressive attacks on Christianity, patriotism, censorship, and communism, or anything else in which he detected timid intellectual conformism. He never published a book, but his principal articles are collected in *Studies in Empirical Philosophy* (1962).

[J.R.]

Animals, biologically speaking, are mobile, sentient organisms, whose cellular structure is less rigid than that of plants, and which do not photosynthesise. The class includes amoebas, tapeworms, sea-urchins, frogs, cats, dogs and people. Any animal, including us, is more like any other animal than either is like a mushroom or a rose; any two animals, if evolutionary theory is correct, are more closely related than either is to anything not an animal. It is this last fact, of evolutionary relatedness, which makes the class of animals something more than a construct. "Animals", unlike "weeds", constitute a real biological taxon, even though (as for other such taxa) there may be or have been organisms at once "animal" and "non-animal".

Although most modern biologists would agree that we are, straightforwardly, members of an animal species, *Homo sapiens,* closely related to other primates (chimpanzees and people, indeed, are more closely related, by biochemical test, than many varieties of fruit fly which are indistinguishable to lay observation), some still believe that people, chiefly in virtue of their linguistic and forward-

looking capacities, are as different from any other animal as animals are from plants. Other animals may mimic what people do in making decisions, formulating theories, painting pictures, engaging in class-conflict and productive labour, but are not "really" doing these things, because not "really" thinking what to do. This distinction between the separate "kingdoms" of plants, animals and people, and their different "souls", goes back at least to **Aristotle** and was mainstream opinion in the West in the next two thousand years. The even more radical claim put forward by **Descartes,** that "animals" (not now including people) did not even have sense-experiences, that they were more like plants than people, had been anticipated—by way of reductio ad absurdum of **Stoic** claims about the irrational nature of all animals except people—by Strato of Lampsacus (mentioned by **Porphyry,** in his work *On Abstinence from Meat-eating*): if they only behaved "as if "they were reasoning, then it must be that they only behaved "as if "they were feeling or desiring. Some commentators adopt this merely as a rule of method, not to impute to animals a mental state more complex or anthropomorphic than is strictly necessary; others believe that it is actually true that animals other than people do not have feelings. This doctrine is useful to experimentalists disinclined to take issues of animal welfare seriously.

Cartesians claim that things which cannot speak cannot "think" either, and so cannot ever "be in pain" in anything like the subjective sense in which "we" often are. It is easy, and natural, for us to "project" our own feelings and plans into the animals we live with, and to think that pet dogs are glad to see us, that cats go hunting and veal calves miss their mothers. Sceptics insist that, lacking language, such creatures cannot say even to themselves what they are doing, or what would satisfy them. "Pain" or "pleasure" must be attributed to them in purely behavioural senses, and without any implication that there is "anyone there" who is subjectively in distress or joy, or who reckons her life worth living. On this view there is no real need to anaesthetize (rather than immobilize) animals undergoing surgery. Members of our species who lack language, and should by analogy be thought insensible, are usually given the benefit of the doubt.

The alleged impossibility of our understanding what "animals" do or feel is not usually accepted by people who work with animals and find appropriate rewards and penalties for their charges. The radical incommensurability between "dumb beasts" and "talking people" also raises serious problems for evolutionary theory and for psychology. If we couldn't think until we could talk, how, as a species or as individuals, did we ever learn to talk? It seems more likely that Cartesians, and recent thinkers influenced by **Wittgenstein's** aphorisms, have exaggerated the importance for experience of the capacity to articulate that experience in the sort of tensed, referential language that people employ. There are, nonetheless, real practical and philosophical problems for those who seek to understand animals "from within", by empathetic identification, not least those posed by our traditional moral categories.

"Environmentalism" often stands opposed to the demands of "animal rightists", but the latter are more likely to achieve their goals through environmentalist policies than through the advocacy of abstract rights, or utilitarian calculation.

[S.R.L.C.]

Anscombe, G.E. M., Elizabeth (1919–), one of the most influential English philosophical teachers of her generation, liable to acute dismay about philosophers whose bland fluency prevents thought "about the stuff itself ". She was deeply influenced by **Wittgenstein**, and is his leading translator. Apart from two highly compressed books (*Intention,* 1957; *An Introduction to Wittgenstein's "Tractatus",* 1959), she has published numerous brief papers, covering topics in **the history of philosophy, metaphysics and epistemology,** and especially **ethics** and the **philosophy of mind,** both of which she sees in terms of the topic of her first book; and in the philosophy of **religion,** where she writes explicitly as a Catholic. Her *Collected Papers* in three volumes appeared in 1981.

[J.R.]

Anselm of Canterbury (1033–1109), canonized 1494. He was born at Aosta, Italy. In 1033, Anselm joined the Benedictine Abbey of Bec in Normandy under Lanfranc. He subsequently became Archbishop of Canterbury.

Apart from **Erigena** Anselm was the first systematic thinker of the Middle Ages. Meeting the difficulties occasioned by the **dialecticians** of his day with the celebrated formula "a faith seeking understanding", he was not prepared to substitute dialectic for theology but at the same time he insisted upon a reasoned presentation of traditional Christian belief.

His philosophical writing came in response to a request by some of his monks for a rational meditation on the existence and nature of God which would dispense with reference to scriptural authority. The *Monologion* and *Proslogion* are his reply.

In the former he begins with the experienced occurrence of differences in degrees of value, goodness and being in the objects around us. From this he argues to the necessary existence of an absolute standard, an absolute good, an absolute being in which the relative participates. And this absolute we call God. The argument follows a familiar Platonic method already used by **Augustine** and would later be more fully elaborated by Thomas **Aquinas**.

In the *Proslogion,* Anselm presents his famous **ontological argument**. We may, be says, start with no more than the commonly accepted idea of what we mean when we use the term God, namely a being than which no greater can be thought. This, he says, is a point of departure available even to the fool who, according to scripture, denies the existence of God. Such a being, then, can be said to exist in the mind. But to exist actually is more perfect than to exist in the mind. To deny the actual existence of God, then, is to fall into foolish contradiction. If God is the being than which nothing greater can be thought, he must exist in reality as well as in the mind.

The argument of the *Proslogion* at once aroused controversy and to this day philosophers have not ceased to be sharply divided about it. The monk Gaunilo

wrote a *Book on behalf of the Fool* attacking the validity of the conclusion and arguing that by similar argument one might establish the "existence" of anything, for instance of a most perfect island. Anselm in his reply pointed out that only in the unique case of the most excellent of all beings does the argument conclude and that only an infinite being can be conceived necessarily to exist.

In the Middle Ages the Franciscans tended to accept the argument, though **Scotus** required that it be shown that the nature of God is not self-contradictory. Aquinas on the other hand rejected it. **Descartes** accepted the argument; **Leibniz,** like Scotus, required the possibility of God to be accounted for; and **Kant** rejected it.

(J.G.D.)

Antisthenes (*c.* 444 B.C.-*c.* 366 B.C.) was the pupil of the rhetorician Gorgias, close friend of **Socrates,** critic of **Plato,** and held to be one of the prototypes of the **Cynics**. From the few fragments that survive of numerous writings, we see the intertwining of three threads: the **Sophistic,** the Socratic, and what was later to become Cynic. He held virtue to be sufficient for happiness. As knowledge necessitating moral action it could be taught, and once gained was unshakeable. Education begins with the study of the meaning of words. Words correspond directly with reality, and a proposition is either true or meaningless, contradiction and false statement being impossible. But practical **ethics** is stressed rather than great learning. Although not an ascetic, Antisthenes especially condemned luxury (wealth and external goods being unimportant), for a man should be rich in his soul. Virtue should be combined with exertion, which yielded the only important pleasure. Hercules was the ideal example of this. Established laws, convention, birth, sex, race, were unimportant in comparison with the law of virtue, by which the state should be governed. Although many of his views are clearly Socratic, the ancients asserted that his importance lay in giving the impulse through **Diogenes** to the way of life later called Cynic, and it is likely that **Stoicism** too was influenced by his practical ethics.

(I.G.K.)

A posteriori, see A priori.

Applied Ethics. There is nothing new about philosophers seeking to apply their ethical ideas to the world in which they live. **Plato** set out his view of the ideal republic, **Aquinas** wrote on the justification for going to war, **Hume** defended suicide, and John Stuart **Mill** attacked the subjection of women. Yet from the early twentieth century until the 1960s, **analytic philosophy** spurned practical questions. **Ethics** was seen as limited to the analysis of moral language, and hence as neutral between different moral views. To enter into practical questions, as Bertrand **Russell** for instance did, was to remove one's philosophical hat and to become a "moralist", on a par with preachers and leader-writers.

The bar against serious study of applied ethics came under pressure in America during the 1960s, when first the struggle for racial equality, and then the resistance to the war in Vietnam, began to raise questions of central importance which were clearly both practical and philosophical. The

radicalization of the campuses, with a mounting student demand for courses which were relevant to their present concerns, proved irresistible. Within a few years, an applied ethics course was part of the offering of almost every philosophy department in the English-speaking world. Such courses frequently attracted the largest enrolments of any course in philosophy—an interest soon reflected in new journals such as *Philosophy and Public Affairs,* and in a new, or revived, field of philosophical debate and writing.

Initially the most popular topics in applied ethics were those concerned with equality, the justification of war, and the obligation to obey the state. With the end of the Vietnam war there was a hiatus in discussions of just war doctrine, but these became more prominent again in the 1980s, in the context of concern over nuclear weapons: since traditional just war doctrine condemns the deliberate killing of the innocent, and demands that the gains be worth the costs of fighting the war, can a nuclear war ever be a just war? Discussions of racial and sexual equality have undergone a different change: perhaps because there was such widespread agreement on the issue of equality itself, it is the more controversial positions, such as reverse discrimination, which have had the most attention. Inequality of wealth has been thoroughly scrutinized when it takes the form of distribution within a society—John **Rawls'** *A Theory of Justice* being perhaps the most discussed single work of philosophy since **Wittgenstein's** *Philosophical Investigations*—but the far greater disparity in wealth between rich and poor nations has received less attention.

Some areas of applied ethics have become virtual sub-specialities of their own, often linking up with other related disciplines. Questions about the environment, and about our relations with the entire non-human world, for example, have opened avenues of inquiry into the nature of intrinsic value, and into the application of principles of equality, rights and justice to those who are incapable of reciprocity, and in some cases are not even sentient. Until recently, most ethical thinking has been, explicitly or implicitly, human-centred. (**Utilitarians** were exceptions, looking to sentience, rather than humanity, as the basis of moral concern.) This tendency has come under strong attack, and an explicitly and exclusively human-centred ethic is now rarely defended. Sentient **animals,** at least, are widely agreed to be of direct moral concern, even if some would still defend the legitimacy of a preference for our own species. On the other hand, attempts to bestow intrinsic value on non-sentient objects like trees, rivers and forests are still highly controversial.

Perhaps the most important sub-speciality in applied ethics at the moment, however, is bioethics. Although this term was originally coined to refer to an ethical approach to the whole biosphere, it has come to be used much more narrowly, as a label for studies in the ethical issues arising from medicine and the biological sciences. Philosophers began by contributing to discussions of abortion and euthanasia, and have gone on to write on the ethics of human experimentation, resource allocation, new developments in reproduction, and future prospects such as sex selection and genetic engineering. They have also

played a prominent role in government committees of inquiry which have made recommendations concerning the control of these new developments. Philosophers are now involved in inter disciplinary centres for bioethics in most Western nations. With the creation of the first "bleeper philosophers"—philosophers attached to hospitals who carry a paging device in case they need to be consulted about the ethics of an emergency treatment—philosophy has come a long way from the earlier attitude that it has nothing to contribute to ethical decision-making. See also **Animals, Political Philosophy**.

[P.S.]

A priori. *A priori* is a Latin phrase meaning "from what comes before", contrasted with *a posteriori,* "from what comes after". These terms were introduced in the late scholastic period to translate two technical phrases in **Aristotle's** theory of knowledge. Aristotle distinguished what is prior in the order of nature or more fundamental from what is prior in the order of discovery or known to us first. There are many truths, such as that fire burns or that water will not flow uphill, that we know from experience before we are able to explain why they should be so. Until we discover their causes our knowledge of them must be said to be empirical and not truly scientific. An *a posteriori* argument was an argument from observed effects to unknown causes; for, though the effects are known to us first, the causes are logically prior. An *a priori* argument was an argument from causes to effects or, since the relation of cause and effect was not sharply distinguished by Aristotle from that of logical ground and consequent, from ground to consequent. A *priori* arguments were held to provide certain scientific knowledge as opposed to probable belief.

From the seventeenth century, for example in **Descartes** and **Leibniz,** *a priori* came to mean "universal, necessary and wholly independent of experience". The term *a posteriori* fell into disuse and a priori is now usually contrasted with "empirical" i.e. depending on experience. The term *a priori* is now used of (1) arguments, (2) propositions and (3) ideas.

(1) An *a priori* argument is one in which the conclusion follows deductively from the premises, as for example in a mathematical proof. If the premises are true and the argument valid, no experience is needed to confirm the conclusion and no experience could refute it. By contrast, an argument from experience (empirical, inductive, or probable argument) is one in which the conclusion, however strongly supported by the premises, is not necessitated by them. For example, if we argue that it will rain somewhere in England next January, on the grounds that no January has been known to pass without some rain, this argument, though weighty, is not conclusive. There might be a January without rain even though there never has been one. Since **Hume** it has been generally believed that all natural science contains an empirical element and therefore cannot be *a priori*.

(2) An *a priori* proposition is one which (it is claimed) is independent of experience, except in so far as experience is necessary for understanding its terms. Thus we know *a priori* that a whole is equal to the sum of its parts; For,

once we understand the terms involved, we see that this is universally and necessarily true and that no experience could refute it.

(3) Empiricist philosophers—so called because they tend to emphasize the role of experience in knowledge at the expense of *a priori* elements—have sometimes held that all *ideas* are derived from experience. We can (they say) have no idea unless we have either come across an instance of it, as in the case of "red" or "horse", or fabricated it, as in the case of "dragon", out of elements that we have come across. There are, however, some ideas of great importance in philosophy, the origin of which it is difficult to explain in this way. Among them are the ideas of substance (thing), cause, existence, equality, likeness and difference. Of these it is claimed that, so far from their being derived from experience, we could have no experience without them. This is not to say that we are born equipped with these ideas, but rather that they are presupposed by our being able to have any experience at all. (**Plato's** Meno and **Leibniz's** *New Essays on the Human Understanding* are classic expositions of this doctrine, sometimes called the doctrine of Innate Ideas. For the empiricist view see **Locke** and **Hume**.)

It is clear that all **analytic** propositions are a priori. If "bachelor" means "unmarried man" we need investigate no particular cases to satisfy ourselves of the truth of the proposition "No bachelor is married". But the question whether any **synthetic** proposition can be known *a priori* is one of the most important and difficult in philosophy. The **rationalists** believed that the fundamental principles of science could, like those of logic and pure mathematics, be known *a priori*. Hume argued (in effect) that the principles of logic and pure mathematics were indeed *a priori,* but only because they were analytic. But all knowledge of matters of fact, both common sense and scientific, depended, he argued, on such causal principles as that every event must have a cause and that like causes must have like effects. He claimed to show that these principles are synthetic, cannot be known *a priori* and must be derived from experience.

Kant saw the force and the sceptical tendency of Hume's argument and devoted his most important book, the *Critique of Pure Reason,* to establishing the possibility and scope of *a priori* knowledge. He held that such knowledge was possible in mathematics (which he did not regard as analytic) and in physics. With regard to metaphysics he agreed substantially with Hume, but he also undertook to show how it is that men necessarily continue to ask metaphysical questions which it is impossible for them to answer.

In this century the **logical positivists** and many philosophers influenced by them follow **Hume** in denying the possibility of synthetic *a priori* knowledge. The most difficult problem for them concerns the status of pure mathematics. Mathematical statements are usually regarded as analytic; very few philosophers would now follow **J.S.Mill** in regarding them as synthetic generalizations from experience which have exceptionally good backing but might, nevertheless, not be universally true. Recently, however, the possibility of synthetic *a priori* knowledge has been much discussed, partly owing to doubts about the validity of

II.
THEORETICAL PHILOSOPHY

Aquinas' welcome for Aristotle's natural and metaphysical philosophy scandalised some of his contemporaries. Rejecting **Neoplatonism** he saw ideas as embodied here and now about us. Substance and accidents are the first categories of the material world. Substance is what is able to exist in itself, accidents are inhering realities, such as being quantified, qualified, or related. Material processes are shaped by the four causes—final, efficient, material and formal. All activity has a purpose or end, finis, but Aquinas' teleological reading of the universe is not the eighteenth-century Argument from Design: the finality within the acting thing is immanent, not imposed. The efficient cause, agens, is the producer. The material cause, the basic potential subject, and the formal cause, the actual determinant, are intrinsic and essential to the effect. All material substances are composed of matter, *materia prima,* and form, *forma substantialis*. Bare matter so conceived is not the ultimate atomic or infra-atomic point which can be calculated or recorded by scientific apparatus, but the substantial potentiality common to all material things which are formed differently in number, degree, and kind under the action of secondary causes.

The tang of reality infuses his psychology, which is less a study of consciousness than of human substance and activity. The Matter-Form distinction is uncompromisingly applied: the soul is the substantial form of the body. By one and the same actuality man is a bodily, vegetative, sensitive, and intellective being. This psychophysical unity is defended despite the difficulties it raises for the immortality of the soul.

The celebrated five ways, *quinque viae,* sometimes called the proofs for the existence of God, follow some general themes running through the universe, namely, change, dependence, contingency, limited perfection, and utility. Were they to extend to the whole of reality we should have no explanation of their presence. Aquinas infers the changeless changer, the uncaused cause, the necessary being, the completely perfect, and the ultimate end— notions all of which combine in the nominal definition of God.

He Who Is transcends our classification of sorts of being, but we can say what he is not by a process of elimination, *via negationis*. Furthermore, Aquinas goes beyond traditional negative theology by showing that we can think positively when we are dealing with unmixed values: to say that God is good means more than that he is not evil, or that he is the cause of the goodness we see about us. Goodness is more properly his than ours, being taken to its highest strength, *via eminentia*.

III.
MORAL PHILOSOPHY

Moral acts, *actus humani,* are our deliberate adjustments of means to an end beyond morals. Morality in the abstract is determined by what kind of act is performed, good, bad, or indifferent; in the concrete the personal intention will be either right or wrong. Circumstances must also be taken into account. Merely as a moral philosopher he may seem to add little to the eudemonianism and the typology of the virtues set forth in Aristotle's *Nicomachean Ethics* on which he wrote a commentary. Here he was but on the threshold of his heroic ideal of theological perfection, which makes his criticism of the stoic standard of passionless virtue all the more impressive.

Aquinas' synthesis on the nature and divisions of Law dominates his social philosophy. Law is rational ordinance, not directly a manifestation of might; it is for the common good, and this means a communion of persons; in the human community it comes from the ruler who is the representative, not the owner of the people; and it must be promulgated. The Eternal Law in the mind of God is the exemplar of all law. It is impressed on human minds as the Natural Law, which is immutable in its principles though its derivative precepts may be variously developed according to region and period. In contrast, though not in contradiction, stands the Positive Law: its precepts may sometimes reinforce the Natural Law, but as such they are not conclusions from it but rather pragmatic supplements to make the good life easier or to safeguard public order. Aquinas was the first to depart from the traditional view, formed by the Stoics and Augustine, that the civil power, like private property, was *propter peccatum*, a remedy against our anti-social appetites. He revived Aristotle's idea of the State meeting the essential demands of human nature, which, he says, using two terms, is both social and political. "Social" may be taken to mean the moral requirements of living together in community and society, "political" the constitutional forms that are chosen. Human legislation should know its limits, and not seek to cover the whole field of morality.

(T.G.)

Arcesilaus of Pitane, *see* Sceptics.

Arendt, Hannah (1906–1975), political theorist, was born in Königsberg and educated chiefly at Marburg (with Martin **Heidegger**) and Heidelberg (with Karl **Jaspers**). She fled from Germany in 1933, lived in Paris, and emigrated to America in 1941. Her first major work, *The Origins of Totalitarianism,* published in 1951, remains a classic historical study of Nazism and Stalinism as instances of a novel form a government, totalitarianism. Her next three books, *The Human Condition* (1958), *Between Past and Future* (1961), and *On Revolution* (1963), present basic political concepts and distinctions in challenging interpretations. For example, she analyses work, labor and action, public space/private realm, history, freedom, authority, power/violence, emphasizing their historical evolution as concepts and their present meaning and

political relevance. Arendt thought that the precondition for a "new science of politics", neither traditionally liberal nor conservative, was a radical, critical reexamination of all political thought since the rise of the Greek city-states. In 1963, Arendt published *Eichmann in Jerusalem,* a controversial study of Eichmann in particular and the Nazi genocide in general. This book posed questions about morality and politics that Arendt took up in her last (and unfinished) philosophical study of thinking, willing and judging, called *The Life of the Mind* (1978).

[E.Y.-B.]

Aristippus of Cyrene in North Africa (*c.* 435–356 B.C.) was one of the Socratic circle, a **Sophist,** and the traditional founder of the **Cyrenaic** school of philosophy. While his life and views are in harmony with its tenets, it is possible that these tenets were first systematically formulated by his grandson, also named Aristippus.

He made the goal of his life the enjoyment of present pleasure, eschewing regret for the past and toil for the future. But happiness consisted In the prudent, intelligent control or mastery of such pleasure, not in slavery to it, nor in abstinence. Hence his famous remark on his association with his expensive mistress Lais: "I have Lais, not she me." All acts were indifferent except in so far as they produced pleasure for the doer. Aristippus made his life the art of adapting himself to place, time and person, and playing his part appropriately whatever the circumstances, a virtuosity he displayed especially at the court of Dionysius of Syracuse. It was said of him that he alone could play the dandy or go in rags. He had in fact an extraordinary capacity for enjoyment combined with a great freedom from wants, a combination later to raise a difficult choice of ideals for his successors.

(I.G.K.)

Aristotle, (384–322 B.C.) was the son of a doctor of Stagira in northern Greece. For twenty years, from 367, he was a member of **Plato's** Academy. When Plato died and **Speusippus** became head of the Academy, Aristotle left Athens and went first to Assos (on the coast of Asia Minor) and then to Lesbos. About 342 he was invited by King Philip of Macedonia to go there to supervise the education of the King's son, Alexander. A few years later he returned to Athens to found a new school, which became known as the Lyceum or Peripatos. The school flourished; but in 323 Aristotle left Athens for political reasons and retired to Euboea. There he died in 322.

Aristotle's early writings were mostly intended for a general public. Written in a polished style (some in dialogue form), they were largely Platonic in outlook. These works were well known in antiquity but only fragments survive. The works which we possess are systematic treatises intended for serious students. These works had only a limited circulation in antiquity until texts were edited by Andronicus in the first century B.C.; our text of Aristotle is based ultimately on Andronicus' edition, and so were all translations into Latin and Arabic. Aristotle's treatises have a rather peculiar character, for they are in essence notes

of or notes for lectures. A lecturer rehandles his material many times over the years and introduces second thoughts and new ideas, and his notes in their final form may contain parts written at very different dates and not always integrated into a smooth unity. Thus an Aristotelian treatise is not to be thought of as a work written, revised and published in a .certain year, but rather as something that has been added to and altered over a period of years without perhaps ever receiving a final rewriting. Moreover what we count as a single treatise may really consist of several originally separate courses strung together by Andronicus or an earlier editor. All this makes the problem of the chronology of Aristotle's writings very complicated and hence makes it difficult to give an account of how his thought changed or developed. These questions have been the subject of much valuable research in recent years but cannot be discussed here.

It is worth saying a word about Aristotle's approach to philosophy. His very name suggests to some people the idea of a dogmatic system of rigid doctrines. But Aristotle's manner is far from dogmatic: he is always reopening questions and admitting difficulties. Nor is his method dogmatic. He does not argue arrogantly from premises laid down by him as self-evident. He considers carefully what his predecessors have said and what ordinary men say, he assumes that their divergent views will all have some element of truth in them, and he seeks to elicit reasonable solutions to problems by clarifying the issues and qualifying or refining the various inconsistent solutions that have been offered. Finally, it is a mistake to think that the philosophical value of his work must reside in his conclusions (or "doctrines"); it is his skill in analysis and his acuteness in argument quite as much as his positive conclusions which make him a very great philosopher.

The following notes, necessarily superficial, will introduce some of the ideas which recur constantly in Aristotle.

I.
CATEGORIES

Aristotle's categories classify reality: everything that exists falls under one of them—is either a substance or a quality or a quantity or a relation etc. (Aristotle sometimes lists ten categories, usually fewer.) It is because items in different categories have irreducibly different sorts of being that terms like "is" and "one" which are applicable in all categories are in an important way ambiguous (compare the scholastic doctrine of *transcendentalia*). Inattention to this type of ambiguity and to categorial distinctions had led, Aristotle argued, to philosophical paradoxes.

Substance is prior to all the other categories because substances exist "separately" while qualities, etc., exist only as the qualities of substance. Individual substances (for example Socrates or this table) are the subjects to which predicates belong and are not themselves predicates of anything else. Aristotle places in the category of substance not only individual substances but

also their species and genera (man, animal). For to say that Socrates is a man is not to mention some quality etc. which he has, but to say *what he is*. Moreover science, which studies reality and above all substance, defines and studies species not individuals. Yet of course species do not exist separately as individuals do. There is a deep difficulty in Aristotle's thought here, which may be expressed by saying that his word ousia (literally "being") does duty both for our "substance" and for our "essence"; Aristotle assigns to *ousia* incompatible characteristics, some of which really belong to individual substances, others to species or essences.

II.
FORM AND MATTER

A table is wood and glue put together in a certain way. Aristotle distinguishes as separate aspects of the table its matter (the wood and glue) and its form (how it is put together, its structure). Many of his central ideas—and of his puzzles—are connected with this distinction. *(a)* Form is *immanent*: the form of table exists only as the form of this table or that table, that is, as the form of certain matter. There is no separately existing transcendental Platonic Form of Table (or indeed of Man or Justice). *(b)* Form or structure is normally determined by function. It is because of what it has to do that a table has a flat top and four legs. Form may in fact be identified with function: to say what a table is is to say what it does or is for. *(c)* Matter is "for the sake of" form, not *vice versa*. If you want an axe—something for cutting down trees—you must of course use iron to make it; but there can be iron without there being an axe. So to state the form or function of something explains it far more than stating what it is made of; the form implies the appropriate matter in a way in which the matter does not imply the form. *(d)* Wood and glue, the matter of a table, are not matter in an absolute sense. In a piece of wood we can again draw a distinction between form and matter, since wood, like everything else, is made of earth, air, fire and water (or of some of these) combined in a certain way. Nor are these four elements pure matter. They can change into one another. This implies a persistent underlying stuff capable of receiving the form of earth, air, etc. but in itself without any form or definite character. This is what Aristotle calls *first* (or "*prime*") matter, a characterless substrate which never actually exists on its own but only in the form of earth, air etc. *(e)* Besides pressing the distinction of matter and form to the extreme concept of prime matter, Aristotle also uses it by analogy in quite different problems. Thus in the definition of a species he treats the genus as the matter and the differentia as the form: the genus is relatively indeterminate, the differentia gives its definite character to the species. This is typical of Aristotle's way of extending the application of key concepts, —which adds a certain unity to his thought at the cost of some obscurity. *(f)* So far form has been the correlative of matter, the form *of* some matter. Aristotle raises the question whether there can be

objects. It starts from principles and axioms —some common to all sciences, some peculiar to this one—and from definitions of the objects being studied. It then demonstrates by syllogisms that certain properties necessarily belong to the objects in question. This seems remote from what scientists do, and indeed from what Aristotle does in his scientific works; but it must be remembered that it expresses an ideal for the exposition of a completed science rather than a programme for investigators.

Two further points: *(a)* Aristotle is rejecting the notion, which he ascribes to Plato, of one grand comprehensive science; different sciences require different premises. *(b)* Aristotle uses the term translated "induction" to explain how we get indemonstrable starting points from which to make our deduction; but this is not induction in our sense. We are said, for example, to grasp the truth of the principle of contradiction (one of the principles common to all sciences) by "induction"; this means simply that we are led on ("induced") to recognise it as evidently true by noticing one or more instances of it. Aristotle gives a somewhat similar account of how we acquire concepts; having seen a number of men we are able to seize upon the nature common to them all. Grasping the universal, like grasping a universal truth, is a matter of direct apprehension not of inference.

VII.
PHYSICS

The study of *physics,* or nature, includes the study of living things, but it will be convenient to treat Aristotle's biology and psychology separately from his more general physical works. The *Physics* and connected works contain discussion and analysis of such concepts as nature, change, chance, time, place, continuity, infinity, growth; proofs that movement is eternal and that there is an eternal Prime Mover; and much doctrine as to the actual constitution and workings of the universe. What Aristotle has to say on this last subject is naturally out-of-date (and would not now be regarded as in a philosopher's province). His analyses of concepts are often subtle and illuminating but cannot be usefully summarised. His treatment of movement and continuity led him to reject as senseless, questions about the velocity (or direction) of a moving body at a given *point* (of space or time); this had unfortunate effects on the study of dynamics.

The argument for a Prime Mover starts from Aristotle's conception of change and causation. There could not be an absolutely first (or last) change. For since change implies pre-existing matter (or potentiality) and a pre-existing efficient cause to impose form on the matter (to actualise the potentiality), there must have existed before a supposed first change something capable of being changed and something capable of causing change. But then to explain why these potentialities (for being changed and for causing change) were actualised at a certain time, and not before, we must assume some actual change just prior to that time, that is, a change before the supposed first change. Change therefore, or

movement, must be eternal. But how is eternal change to be explained? Not by the assumption that there is something eternally *self-moving*. The very term "self-mover" is misleading. For the concept of movement or change demands that we distinguish in a "self-mover" one part which causes change and another which undergoes it. We must therefore assume the existence of a being itself *unmoved* which can somehow cause eternal movement. This Prime Mover, eternal, changeless and containing no element of matter or unrealised potentiality, keeps the heavenly bodies moving and maintains the eternal life of the universe. Theology will have something more to say about its nature and mode of operation.

VIII.
BIOLOGY

If Aristotle's work on physics suffers from a lack of experiment and observation, the same cannot be said of his biology. He collected a vast amount of information about living creatures and, in spite of some fundamental errors, was better informed on the subject than most of his successors until comparatively recent times. He recognized that theories must wait upon facts; after giving a theory about the generation of bees he says: "the facts have not been sufficiently ascertained". And if at any future time they are ascertained, "then credence must be given to the direct evidence of the senses more than to theories".

Two of Aristotle's important contributions are connected with classification and with teleological explanation. He achieved valuable systematic classifications of animal life, rejecting what he regarded as an inadequate Platonic method—the method of dichotomy—and employing multiple differentiae to distinguish the main classes of creature. He thought of the various species as eternal and not evolved from other species, but as capable of being arranged in a scale leading from the lowest and least developed to the highest and most complex.

Aristotle regards teleological explanation as the essence of the biologist's work: the explanation of material structure in terms of function. Nature, the perfect craftsman, does nothing in vain; and the true explanation of the characteristics of a species must show how they serve some purpose in relation to the life of the members of the species. Aristotle's teleology has nothing to do with one species subserving the interests of another; it is concerned with each species in itself. The job of an embryo is to become a mature animal, live its proper life and reproduce itself; and its parts and characteristics are to be explained as contributing to these ends. "For any living thing that has reached its normal development…the most natural act is the production of another like itself, an animal producing an animal, a plant a plant, in order that, as far as its nature allows, it may partake in the eternal and divine. That is the goal towards which all things strive, that for the sake of which they do whatsoever their nature renders possible."

IX.
PSYCHOLOGY

The word *"psyche",* commonly translated "soul", really has a wider meaning; plants as well as animals have *psyche,* they are *living*. Living things can be ordered according to the complexity of their powers. Some (plants) have only the power of nutrition and reproduction; others have also the power of perception, desire and movement; men have in addition the power of thought. Aristotle's main discussion of these various psychical functions is in the *De Anima*, which also contains his general account of soul and its relation to body.

A dead man, a body without a soul, is not strictly a man at all, for it lacks just those powers the possession of which defines what it is to be a man. A man (and any animal or plant) is a body-with-soul; and the relation between body and soul is the relation of matter to form. Soul is the form of body, as sight is the form of the eye ("when seeing is removed the eye is no longer an eye, except in name—it is no more a real eye than the eye of a statue"). Soul, the power of life, cannot exist in any and every body (form requires appropriate matter); it is only a body with suitable organs which can possess life. Such a body is *potentially* a living animal or plant; soul is the *actuality* of such a body. This important conclusion (which is closer to **Ryle** than to **Descartes**) enables Aristotle to dismiss the question whether soul and body form a unity: "this is as meaningless as to ask whether the wax and the shape given to it by the stamp are one, or generally the matter of a thing and that of which it is the matter. Unity has many senses…but the most proper and fundamental sense…is the relation of an actuality to that of which it is the actuality". On this general view to talk of a psychological activity is to talk not of the activity of an immaterial substance inside a body but of the actual functioning of a living body; and Aristotle's accounts of psychological concepts always bring in the relevant physical and physiological facts.

Aristotle allows one exception to the rule that soul is the form or actualisation of body. The activity of *nous* (pure intuitive thought) does not depend on body and may therefore exist separately from it. His doctrine on this point is exceedingly obscure, and it is disputed whether he attributes some sort of immortality to the *nous* in the individual human soul. In general his account of soul dissolves the question of personal immortality as effectively as that of the unity of body and soul.

X.
METAPHYSICS

Aristotle expresses two views about "first philosophy" (the name "metaphysics" was given by an editor to the treatise on first philosophy because it came after—*meta*—the *Physics* in his edition). One view, already mentioned, is that it is the study of changeless, separable substance, that is, theology. The other is that it is not a departmental science dealing with a particular kind of being, but that it studies

being as such, together with concepts (for example, unity, identity) and principles (for example, the law of contradiction) which are common to all departmental sciences. Aristotle is not very successful in reconciling these two views. Most of the *Metaphysics* is metaphysics in the wider sense—as a brief synopsis of the work will show.

In Book I Aristotle surveys and criticises the views of his predecessors on the ultimate principles of reality in order to confirm his own view that there are four and only four different kinds of "cause". Book III develops a number of problems further discussed later. Book IV discusses the law of contradiction and the law of excluded middle (without trying to *prove* them). Book V is a lexicon of important philosophical terms, various senses of each being discriminated. Books VII and VIII discuss substance and wrestle with the notions of essence, genus, universal, substrate, form, etc. The next books treat of actuality and potentiality, unity, plurality and similar notions. Book XII contains Aristotle's theology. Books XIII and XIV discuss and reject certain views held in the Academy about immaterial substance: there are no such things as Platonic Ideas or Ideal Numbers, and mathematical objects are not substances.

Only Book XII can be further discussed here. In it Aristotle argues again (as in the *Physics*) that there must be an eternal, immaterial Prime Mover—which he now calls "God". God, himself not susceptible of movement, causes movement as an object of desire and love. His life is perpetual activity—activity being perfect and complete in every moment and not, like movement, a process. The only sort of activity which can be ascribed to God is pure thought, uninterrupted intuitive knowledge of the highest object of knowledge, God himself. "It must be of itself that the divine thought thinks (since it is the most excellent of things), and its thinking is a thinking about thinking".

The outer heavens and the planets are animate beings moved by a desire to imitate the eternal activity of God; the outer heaven comes nearest by its single continuous spatial movement. In nature as a whole there is something similar: the processes of birth, growth and reproduction maintain forever the life of the various species. But of course plants and animals are not *consciously* imitating God (except that man, possessing reason, may do so), nor is God aware of or concerned about them.

XI.
ETHICS

The *Nicomachean Ethics* is certainly one of the best books ever written on the subject. It is rich in analysis of moral and psychological concepts, and in ingenious arguments. The following account will indicate the main lines of the work:

(i) The good life. "Good" is not, Aristotle argues, the name of a single quality. Different kinds of things are called good for different reasons: an axe is a good one if it *cuts* efficiently, eyes are good if they see well. To decide what is the

best life for man one must ask what are the proper functions of a man (as cutting is the function of an axe); a good man will be one who performs those functions excellently, and his will be the good life. Now the function of something is what it alone can do or what it can do better than anything else. Man is distinguished from other animals by his power of thought. So the functions of a man—the effective performance of which will make him a good man—are those of his activities which involve thought and which therefore he does not share with other animals. Man's possession of reason shows itself not only in his ability to think, but also in his ability to control by thought and principle his desires and conduct; so the virtues of the good man will be not only intellectual but also moral or ethical (that is, virtues of character, ethos).

(ii) Moral virtue. Moral virtues, like skills, are acquired by practice. A man becomes generous by being trained or habituated to do the things a generous man would do. He has himself become generous when he has acquired a settled disposition of character so that he now does such things regularly, gladly and without ulterior motive. The "gladly" is important; it helps Aristotle to argue that the virtuous life is pleasant. His ideal is the man who always does what he ought because he wants to; the presence of a moral struggle, the need to conquer desires —these are signs of imperfection.

Moral virtue is concerned with feelings and actions, and in these there can be too much, too little, or the right amount, "the mean". Virtue is a matter of striking the mean between opposite vices: generosity lies between meanness and prodigality. The mean involved is not an arithmetical average, it is the mean "relative to us", that is, it is what is appropriate to a man. There are no simple rules for deciding what is appropriate; it is the possession of phronesis ("practical wisdom") which enables a man to hit the mean. This doctrine of the mean is more famous than it deserves to be. Aristotle admits to difficulty in bringing *all* virtues and vices into his scheme. More important, that virtue is not just a matter of the right amount is implied by Aristotle's own words: "anger and pity…may be felt both too much and too little, and in both cases not well; but to feel them at the right *times,* with reference to the right *people,* with the right *motive,* and in the right *way,* is what is intermediate and best, and this is characteristic of virtue". The doctrine of the mean, in fact, contains little positive moral teaching and is inadequate if considered simply as analysis of vice-virtue concepts.

Supplementary discussions consider responsibility and choice. Aristotle acutely analyses the conditions under which responsibility can be disclaimed, and reduces these to two— duress and ignorance of material facts. Choice he finds to involve deliberation and desire: our desires and character determine our *ends;* we deliberate about the *means* by which we may reach these ends.

(iii) Intellectual virtue: practical wisdom. This intellectual virtue enables a man to get the right answers to practical questions of conduct. It involves skill in deliberation but also presupposes the possession of moral virtue. For to have the right aims is a matter of moral virtue —character determines ends. Moral

body; and they are disordered and dissipated in disease, insanity and death. Visual perception occurs because objects shed physical "images" of themselves in thin atomic films which impinge upon our eyes. These "images" are moving all around us, sometimes in fragments, and are responsible for dreams, phantoms and in their most subtle form for experience of "the gods". This thoroughgoing materialism, and the **hedonist** ethics which Democritus and Epicurus associated with it, were responsible for the disfavour with which atomism was long regarded in European culture.

In the seventeenth century **Gassendi** and Boyle detached the atomic or corpuscular theory from its associations with atheism and **materialism**. Indeed they turned the tables on those, like **Hobbes,** who believed that the material world was a *plenum* and who denied the existence of a real "vacuum" on the grounds that "incorporeal substance" was impossible. In Hobbes' universe not only must the "soul" be material and mortal, but there could be no physical space in which his "corporeal" God could act. Newton, following the example of the Cambridge Platonist Henry More, justified his introduction of "Space" as a real, infinite entity (and by implication, the existence of "hard, massy, impenetrable, moveable particles") by claiming that Absolute Space is constituted by the Omnipresence of God.

Newton sought to make the action of Universal Gravitation across empty space believable by reference to the power of God, but as the investigation of electricity, magnetism and chemical affinity developed in the eighteenth and nineteenth centuries attempts were made to find physical explanations for "action-at-a-distance". In the theories of Boscovich and Faraday the dualism of Atoms and the Void is replaced by an all-pervasive "field of force" in which there are many mathematical centres. (This vision also informs the account of gravitation in Einstein's General Theory of **relativity**.) Paradoxically the attraction of "mathematical atomism" proved an obstacle to the acceptance of Dalton's atomic theory in which "atoms" of many different sizes and weights were proposed, each associated with a different chemical element. That theory provided an explanation of the empirical regularities discovered by experimental chemists, but positivistically inclined scientists regarded atomism as a "metaphysical encumbrance" until the early years of the twentieth century. A critical factor in convincing the doubters was Einstein's analysis of the "Brownian" motion of microscopic particles, which dimly echoed Lucretius' discussions of the significance of dust dancing in sunbeams. Scepticism over the question of whether "atoms" can be "observed" raises questions about the meaning of "observation" when sophisticated instruments are employed. A thoroughgoing **positivism** will continue to hold that "atomic theories" are simply devices for talking about observable phenomena.

The ancient atomists postulated "atoms" of many different shapes and sizes, but this variety itself stands in need of explanation. Reduction of this variety to one single type of elementary entity would be more "satisfying", though this would not prevent one from asking why this "ultimate entity" had its particular

properties. A great simplification in the Daltonian atomic scheme was achieved when it was shown that periodic regularities in the properties of different "atoms" could be explained in terms of inner structures constructed from just three kinds of more elementary particle (electron, proton and neutron). Subsequent collisionexperiments generated a profusion of other "elementary" particles, which were eventually largely reduced to order by postulating entities which are yet more fundamental ("quarks"). It might be supposed that this process could continue for ever—without any "ultimate particles" (genuine "atoms") ever being identified. Indeed it is difficult to see how anyone could *demonstrate* that "the end of the road" had been reached. However ordinary concepts of "structure" have come under strain in these explorations, and it is by no means clear that the most elementary entities postulated at present have properties which are explicable in terms of *any* classical atomistic model.

One of the assumptions of the fundamental atomist picture is that the atoms have intrinsic properties of their own and that all "relational properties" can be analysed in terms of these properties and the *spatial* relations of the bodies. (This is another way of saying, "There is nothing but Atoms and the Void".) However **quantum mechanics** indicates that the elementary constituents presently postulated by physical science have properties which cannot conceivably be analysed in this way.

The attempt of the ancient atomists to solve a metaphysical problem about the nature of change resulted in a brilliantly fruitful strategy for the construction of theories in the physical sciences. However there are unanswered philosophical objections to atomism and the very successes it has stimulated suggest that "the stuff of the world" cannot ultimately be understood in terms of atomism.

[J.H.P.]

Augustine (354–430), Saint, also known as Aurelius Augustinus and Augustine of Hippo. He was born at Thagaste in Numidia (Souk-Ahras in Algeria on the Tunisian border). His mother was a Christian, his father a pagan. Augustine received a thorough education in rhetoric, a discipline over which the spirit of **Cicero** presided. Before he was twenty he had turned his back on Christianity, intellectually repelled less by the strangeness of its doctrines than by the crudity, in style and content, of its Scriptures. Its canons of behaviour were also uncongenial to him, and as a very young man he was already established in Carthage with a mistress and a professorial chair of rhetoric.

His energetic and curious mind had been fired with a love of philosophy by Cicero's *Hortensius,* now lost, which he read at the age of eighteen. This started him on an intellectual adventure that led him first to Manichaeism, then to the thoroughgoing **scepticism** of the Academics; next, about the time he was appointed to a chair of rhetoric at Milan, to **neoplatonism;** and finally, at the age of thirty-two, to what he himself used to call Catholic Christianity. He was baptized in Milan at Easter 387, about nine months after his conversion.

In 391 he was ordained priest and in 395 bishop of the city of Hippo Regius (Bône, on the Algerian coast). His native genius and his strenuous devotion to

his pastoral duties soon made him the intellectual leader of African Catholicism. After an episcopate of over thirty years, during which he won an Empire-wide reputation, he died at Hippo on 28 August, 430, as the Vandals were besieging the city.

It would be a great mistake to suppose that Augustine's philosophy can be scientifically assessed in isolation from his theology. His thought is always concrete, always the expression of his personal experience, and this was an experience of conversion to Christianity followed by a life spent in teaching it. For him Christianity was the true philosophy, and pagan schools of philosophy were so many false or defective theologies.

Truth is one, it is divine (it is indeed what God is), and its possession is happiness, *beatitudo*. Augustine defines beatitude as *gaudium de veritate,* enjoying Truth. Under the pull of Truth his life had a certain splendid simplicity about it; first the quest for Truth, then at his conversion the discovery of it, and after that a life spent in its exploration.

It is wisdom that gives knowledge of Truth, so the quest for Truth is a quest for wisdom. One of the first philosophical problems to engage Augustine was how a man can pass from being unwise to being wise. To do this he must desire the wisdom he lacks. But desire implies knowledge of the thing desired. Desire of wisdom therefore implies lack of wisdom and possession of wisdom, that is knowledge of it, at the same time. This conundrum was posed for Augustine by the Academics, for whom wisdom consisted in knowing that we can know nothing, and he made use of it in his *De Utilitate Credendi* against his Manichee friends, who thought they had all the answers. Dialectically he extricated himself from the *impasse* of scepticism by what has been called the Augustinian *Cogito: Si fallor, sum* (if I am wrong, I am). But his real method was the most un-Cartesian one of what could be described as systematic faith. "Unless you believe, you shall not understand" (Isaiah 7, 9) was one of his favourite texts. (He thought naturally in texts. The older he got, the more biblical his thought and its expression became.) Faith alone can provide the base from which the quest for wisdom must start, because it is both a knowing, which makes love of the thing known possible, and a not knowing, so that love is still desire, not yet enjoyment. Augustine's conversion was his discovery of wisdom by faith, and the beginning of his exploration of it by understanding.

This method is deployed most conspicuously in the *De Trinitate*. In this work too we can assess the extent and the bearing of Augustine's Platonism. His cosmos is constructed on a Platonic dialectic; there is the outer and the inner world, the lower and the higher, the sensible and the intelligible, and the carnal and the spiritual. Progress in wisdom is a movement of the mind inwards and upwards to God at the apex and the centre, an opening of the mind to the illumination of incommutable truth, which is there within and above, always available for its inspection, provided the mental vision has been purified by faith. But this progress is, so to speak, a feeling one's way backwards along the

channel of influence which comes downwards and outwards, causing the participating or imaging of the higher order in the lower, Creator in the creature.

The word "Creator" suggests the limits of Augustine's Platonism. His crucial theme of the divine image in the world and in man is more biblical than Platonic, and depends on the wholly biblical doctrine of creation. In virtue too of this doctrine Augustine could regard the material world with a reverence impossible for a thorough Platonist. The goal of his vision was the resurrection of the body, not the soul's release from the prison of the body. His doctrine of evil as nothing, as a privation, a lack of due order, marks his easy independence of Platonism as much as his emancipation from Manichaeism.

The Incarnation is a doctrine which accords ill with the ultra-spiritualism and intellectualism of the Platonists, but fits smoothly into Augustine's God-imagining world. The divine image in man has been defaced by sin, which upsets the divine order, ruffles the clear surface. It is restored by a transcendent manifestation of divine order, in which the Word, the image *par excellence,* makes up for pride by humility, disobedience by obedience, restores life by enduring death, and innocence by taking the consequences of guilt. The dialectical statement of the Incarnation by St Paul or St John plucks an immediate response from Augustine the trained rhetorician.

The Word incarnate is the Way back for man to the Word who is Truth, and the Way on to the risen Christ who is Life. Restoration must come from above just as creation comes from above. All the initiatives are God's. Hence Augustine's teaching on grace. Human freedom is fully vindicated only when its unconditional derivation from the divine freedom is accepted. Divine grace is shown us in divine charity —"God so loved the world…" and the human response is a response of charity, which Augustine would almost say is as natural as falling off a log. *Amor meus pondus meum* ("My love is my weight"), he said. Since, then, his ethics stems from grace before will-power, and from the personal relationship of love before abstract principle, it is quite free from the harsh Puritanism which has often been ascribed to it, and which was far more characteristic of the Pelagianism which he fought so strenuously.

(E.H.)

Aurelius, *see* Marcus Aurelius.

Austin, John Langshaw (1911–1960), English philosopher. He was White's Professor of Moral Philosophy in the University of Oxford. He had a very considerable influence on the development of **analytic philosophy** since the second world war. His work consists mainly of close examinations of the way words are ordinarily used, without any direct reference to the traditional problems of philosophy. Austin gives an admirable brief account of his reasons for this procedure in his "A Plea for Excuses."

Two of his most important sets of lectures have been published posthumously. In *Sense and Sensibilia* he attempted to show that certain arguments traditional in philosophy that are designed to prove that the direct object of the senses is always a sense-datum and never a physical object derive their plausibility from a

systematic distortion of key terms from their normal use. *In How to Do Things With Words* he first restates his doctrine of "performative utterances", but finds it ultimately unsatisfactory and goes on to replace the distinction between performative and statemental utterances by a distinction between locutionary act (saying something with a certain meaning), illocutionary act (what one does, such as promising, in saying something), and perlocutionary act (what one brings about by saying something) as abstractable components of the complete speech-act. This doctrine has influenced later work on the philosophy of language.

(J.O.U.)

Averroes (1126–1198); his name is latinized from Ibn Rushd. Philosopher, jurist, judge and physician, he was born at Cordova, Spain, and died at Marrakesh. To the West, Averroes is best known as a commentator on **Aristotle**. On many Aristotelian writings he wrote three different kinds of Commentaries: *Summaries* in his own words, and *Middle* and *Long Commentaries* quoting portions of the text and adding explanatory and critical comments, in the light of classical commentators like Themistius, Alexander of Aphrodisias, and al-F r b , **Avicenna** and Avempace (Ibn B jja). His exposition is lucid and concise, adhering more closely to Aristotle than any of the earlier *Fal sifa* (Muslim religious philosophers). Not having Aristotle's *Politics,* Averroes commented on **Plato's** *Republic,* which he treated as the second, practical part of the science of politics supplementing Aristotle's *Nicomachean Ethics* which was the first, theoretical part.

The significance of Averroes as a religious philosopher lies in his polemical treatises, his spirited rebuttal of Ghaz l 's attack, and his Commentary on Plato's *Republic*. After Ghaz l , philosophy was on the defensive, under constant fire from jurists and theologians. Hence the polemical nature of much of Averroes' writing. He set out to prove the essential agreement between the religious law *(Star 'a)* and philosophy *(falsafa)* by claiming identity of aim for both in the *Fasl (Decisive Chapter on the Agreement between Religious Law and Philosophy)* and in the Commentary on the *Republic*: one is "the companion and foster-sister" of the other. Truth is one and indivisible, only sought and explained in different ways. The theory of Double Truth is wrongly fathered on him; it belongs to the Latin Averroists. Averroes asserts the philosopher's exclusive ability, right and duty to expound the inner meaning of the prophetically revealed Law by demonstrative argument. The theologians use dialectical arguments and confuse the masses. With Plato he distinguishes the few elect philosophers from the masses. With Aristotle he distinguishes three classes of arguments (demonstrative, dialectical and rhetorical or poetical), which he assigns to three classes of believers: philosophers, theologians and the masses. The masses must accept the stories, parables and metaphors of Scripture in their plain meaning. But Scripture contains the whole truth even though its inner meaning is only accessible to the metaphysician. All three classes must accept certain statements in the *Qur'an (Koran)* in their literal meaning as religious truth inaccessible to human reason, because they are God's revelation. On these grounds, he

criticism. The same epistemological problems are repeatedly attacked, and with substantially the same weapons; but there is less disposition to claim finality for the results. The common sense claims to knowledge of the external world, the past, the self and other people are now scrutinized, not in order to "reduce" or repudiate them, but in order to elucidate the logical grounds for their acceptance. In pursuit of this inquiry, Ayer has been increasingly led to doubt the possibility of analysing claims about material objects into claims about the actual or possible occurrence of sense-data; and he has at length forsaken phenomenalism. His present position seems best described as that of an analytically-minded empiricist, dubious of claims made for "ordinary language", and without commitments to any really definable school. Ayer is also the author of the article on **Russell** in this Encyclopedia.

(P.L.H.)

B

Bachelard, Gaston (1884–1962), French philosopher and historian of science, more widely known to the English-speaking world for his writings on aesthetics and poetics, but whose approach to the history and **philosophy of science** influenced a whole generation of philosophers passing through French universities, including such figures as **Canguilhem, Foucault** and **Althusser**. Bachelard's first degree was in mathematics and he taught physics and chemistry at his local college, in Bar-sur-Aube, whilst working on his doctorate in philosophy. He thus came to the history and philosophy of science from science. This is reflected in his approach to the philosophy of science, which is characterized by an opposition to the impo-sition of philosophical ideologies (whether **positivist, existentialist, realist or phenomenalist**) on science. He insists that any philosophy concerned with **epistemology** must learn from science. It must recognize the distinctive character of twentieth-century science. The overthrow of classical Newtonian physics by the theories of **relativity** and **quantum mechanics** represented a break with past science, which in its turn requires epistemology to break with past philosophies of science. (This view is most succintly expressed in *The New Scientific Spirit,* 1934.) Bachelard rejects the picture of the development of science as a continuous, gradual accumulation of knowledge in favour of a discontinuous, ruptured development in which what was once taken for knowledge undergoes repeated re-evaluation and re-interpretation. His concern with the development of science and with the objectivity of creative rational thought in science is paralleled by his concern with the subjectivity of non-rational, artistically creative thought, with poetic imagination and reveries. In works such as *The Psychoanalysis of Fire* (1938) and *Water and Dreams* (1942) he draws on Jungian depth psychology for his exploration of the trans-subjective power of poetic images, images which reverberate in the readers' consciousness and lead them to create anew whilst communicating with the poet. Such communication is contrasted sharply with the objectivity required of scientific discourse, which requires that the power of images (which present epistemological obstacles) be broken and that the scientist learn to dream in the austere realm of abstract mathematical structures. This

duality of objective and subjective, of concept and image, of the scientific and the poetic, informs not only Bachelard's philosophy, but the whole structure of his written corpus.

[M.T.]

Bacon, Francis (1561–1626) was born in the shadow of the English Court which dominated his whole life. He was educated at Cambridge and admitted to the Bar in 1575. In 1584, through the help of his uncle, Lord Burghley, he obtained a seat in the House of Commons. He was befriended by Essex, the favourite of Elizabeth, who tried unsuccessfully to get him made attorney-general in 1593.

Under James I Bacon's fortunes improved. In 1607 he was made solicitor-general and in 1613 attorney-general; in 1617 Lord Keeper and in 1618 Lord Chancellor. He was also created Baron Verulam of Verulam and in 1621 Viscount St Albans. Three days after this final honour Bacon was accused of bribery, found technically guilty, and deprived of office. He had accepted presents from litigants, the usual practice of the time. To quote his own words: "I was the justest judge that was in England these fifty years. But it was the justest censure in Parliament that was these two hundred years." He died in 1626, in retirement, working on his scientific projects.

Bacon had always held that his aim in seeking political advancement was to improve man's estate and to use his wealth and influence to forward the cause of a new science that might contribute to this end. But in spite of repeated attempts he obtained neither a college nor a royal foundation. He lived lavishly, and debts which he accumulated prevented him spending much on the advancement of science during his lifetime; after his death they also prevented the implementation of his will, in which he provided for lectureships in natural philosophy at Oxford and Cambridge.

His actual contributions to learning and science were similarly incomplete—programmatic aspirations rather than concrete pieces of work. In 1603 he laid the foundation for his Great Instauration in his *Valerius Terminus* and in his *De Interpretatione Naturae Proemium,* which were followed by his *Cogitata et Visa*. He announced that he had constructed a new method of scientific discovery. Large natural histories and collections of facts had to be amassed, preferably within a college, and carefully interpreted. The same stress on natural history and a new method of interpretation runs through his *Advancement of Learning* (1605), together with a criticism of previous thinkers and passionate pleas for the use of knowledge to better man's earthly estate.

This was a preliminary to the Great Instauration itself, which was to consist of six parts, the *Advancement of Learning* forming a major section of the first part. The parts were as follows: (1) A classification and review of existing sciences which would make the gaps in them obvious. He fulfilled this portion of his plan in his De *Dignitate et Augmentis Scientiarum* (1623). (2) A new inductive method for putting all human minds on a level in the interpretation of nature. (This he sketched in his *Novum Organum,* 1620.) (3) Natural history or a collection of data and experiments arranged in accordance with the principles laid down in

Part 2. (This was extremely fragmentary consisting of his *Parasceve ad historiam naturalem et experimentalem,* 1620; *his Historia Naturalis et experimentalis ad condendam philosophiam: sive phenomena universi,* 1622; and his *Sylva Sylvarum,* 1627, which was a strange collection of facts and fables.) (4) The Ladder of the Intellect, which was meant to consist of fully worked out examples of his method. (There is none of this extant save a preface called *Scala Intellectus sive filum labyrinthi.*) (5) Generalizations reached from natural history without the use of Bacon's special method of interpretation. (Only a preface to this exists called *Prodromi sive Anticipationes Philosophiae Secundae.*) (6) The New Philosophy or Active Science, consisting of the complete science of Nature. This was to be built on the facts of Part 3, established by the methods of Part 2. (None of this is extant.)

Bacon wrote many other works which do not fall into his Great Instauration and which are not easily regarded as anticipations or offshoots of it. Most famous are his *New Atlantis* (his contribution to Utopian literature), *De Sapientia Veterum* (1609), and *De Principüs atque Originibus* (1623–24), an attempt to supplant the Platonic and Aristotelian traditions by a more materialistic theory deriving from **Democritus**. Also in refutation of earlier philosophers he wrote his *Redargutio philosophiarum* (1608)—his treatise on "the idols of the theatre". There are also several other fragments like his *Temporis partus masculus and his Delineatio et argumentum,* both of which were anticipatory of his Great Instauration.

Bacon's main contribution to philosophy was in the sphere of scientific method. He was one of the most powerful and articulate rebels against the Aristotelian and Platonic traditions; in many respects he attempted to revive a materialism akin to that of Democritus. He claimed that Aristotelian logic was a useless tool for discovery. It forced assent, but revealed nothing new and dragged experiment along like a captive. Also the final causes which it employed in its explanations had wonderfully corrupted philosophy. They were only appropriate in explaining human affairs. The alternative school of thought, deriving from **Plato,** was equally useless. No trust was to be placed in the abstract axioms of the geometric method. Definitions could not remedy the evil in nature or material objects, because they consisted themselves of words and these words produced others. "Words are but the images of matter; and except they have life of reason and invention, to fall in love with them is to fall in love with a picture". Rationalists are like spiders spinning ideas out of the recesses of their mind. The brute empirics, on the other hand, are no better. For they are like ants, aimlessly collecting data. The bees provide the proper model for scientific procedure. Order is the secret— the amassing of data or natural history, storing it, and interpreting it judiciously according to definite canons.

In the endeavour to replace rash anticipations of Nature by orderly interpretations the inquirer is brought up against certain deep-seated limitations of the human mind. These bacon called the Idols of the Tribe. Men tend to generalise too readily, to find instances which suit their purposes and to believe

more readily that which they prefer. Bacon therefore stressed the importance of looking for the negative instance, of seeking systematically for exceptions to generalizations. Idols of the tribe are also due to other limitations such as the dullness of our perceptual apparatus. But there are also Idols of the Den, which are defects due not so much to human nature generally as to individual differences and idiosyncrasies, both innate and acquired. Then there are Idols of the Market Place, which are due to words and phrases that corrupt and muddle our thinking—especially vague words and words that describe nothing. Finally there are the Idols of the Theatre which arise from systems of philosophy. The remedy for these obstacles was not simply to expose the faulty reasoning of others, but to set out the new method of inquiry clearly for all to use.

This method consisted of accumulating data and dealing with them in a certain manner. Suppose the cause of heat was sought. A table of presence had first to be compiled containing all the known instances in which heat was present. A table of *absence* had then to be constructed with instances corresponding to these in the table of presence. A table of degrees had also to be compiled containing instances in which heat was present in varying degrees. By examining the tables a generating nature might be found which was co-present, co-absent, and co-variant with the effect or generated nature. An interpretation or "first vintage" could then be made—for example, that motion is the cause or "form" of heat. (These tables are very similar to **J.S.Mill's** joint methods of agreement and difference and the method of concomitant variations.)

One of the most vexed questions of Baconian scholarship is the status of these "forms" which it was the natural philosopher's business to discover. He distinguished physics which investigates efficient and material causes but "does not stir the limits of things which are much more deeply rooted" from **metaphysics,** which investigates "forms". These are both generic and generating "natures". Heat, for instance, is a limitation of the more generic nature "motion"; and it is also in some way *produced* by motion. Such "forms" do not seem like Aristotelian formal causes because they are generators of other natures and not just correlative with matter. It is often suggested that Bacon had in mind some primitive atomic theory akin to that of Democritus. Yet these "forms" are observables to be discovered by compiling tables whereas Democritan atoms are not observable.

Whatever doubts there may be about the status of these forms, there can be no doubt about Bacon's enthusiasm for projects of a practical sort which a knowledge of the laws of the combination of these forms might permit. He was one of the first to stress that knowledge gives man power over nature and has been heralded as a forerunner of both **utilitarianism** and **Marxism** in this respect. Bacon thought that the aim of his Great Instauration was "knowledge of the causes and of the secret motion of things, and the enlarging of the bounds of human empire, to the effecting of all things possible". He subscribed to the alchemist's ideal of transmuting substances of one kind into substances of

De Beauvoir is exceptional among philosophers both in the range of her writings (which include novels, journalism and autobiography alongside distinctively philosophical works) and in the extent to which she uses fictional forms to convey philosophical ideas. Of note, too, is her practical adherence to the philosophy she espoused: she lived her life as a project, and not least among her achievements is the record she bequeathed in her memoirs of the existential unfolding of an individual life in its unique and unrepeatable passage from birth to grave.

[K.S.]

Being, *see* Metaphysics, Existentialism, Realism, Idealism, Monism, Dualism, Heidegger.

Benjamin, Walter (1892–1940), born in Berlin; German literary critic and theorist; he was a close friend of Gershom Scholem, a noted historian of Jewish mysticism, Bertolt Brecht, and Theodor **W.Adorno,** whose philosophy Benjamin's writings significantly influenced. During the 1930s Benjamin was associated with the **Frankfurt School,** in whose journal some of his best-known essays appeared.

Benjamin's philosophical thought circles around his idea of "redemptive criticism". This idea is revealed explicitly in the "Epistemo-Critical Prologue" to his *The Origin of German Tragic Drama* (1928), his "Theses on the Philosophy of History", and in some of his early essays; and implicitly in his historical-critical works, especially the unfinished "Paris—Capital of the 19th Century".

The goal of redemptive criticism was to overcome the modern split between critique, which seeks the truth content of a work of art, and commentary, which seeks to illuminate a work's subject matter. In pursuit of this goal Benjamin developed ideas on the philosophy of history and the philosophy of language, and on critical cognition.

According to Benjamin the idea of history as a progressive continuum, as the slow becoming of truth and human freedom, is a vision from the perspective of the victors— "the continuum of history is that of the oppressor." Redemptive criticism seeks to interrupt this continuum, to reveal the moments of discontinuity in history where its true nature comes to light, and to restore that which continuous, progressive history has dominated and repressed.

While Benjamin's philosophical thought is intensely idiosyncratic and problematic, especially his theologically-inspired philosophy of language, it continues to inspire interest, in large measure because of the way it informs his uniquely powerful critical and historical writings.

[J.M.B.]

Bentham, Jeremy (1748–1832), originally expected to follow his father and grandfather as a lawyer working in the city of London. However he revolted against the unnecessary technicality of current legal procedure and devoted himself instead to discovering the fundamental principles of a just, clear, and rational legal system. This led him into a profound examination of the nature of thought, language, law, government, and public morality. Bentham substituted

clear expressions for unclear ones, and made the fundamental innovation of substituting at the level of sentences rather than terms (the method of paraphrasis). Unclear sentences are analysed into clear ones and clarity is achieved by closeness to experience, particularly the sensations of pleasure and pain. So, in his account of law, Bentham analysed sentences about rights into sentences about duties, and sentences about duties into sentences about the commands of a person or group backed by the threat of sanctions (that is, the possibility of pain). In this way he established an account of the law as it is. He then took as his leading principle of how the law ought to be the principle of utility (as used in various ways by **Hume,** Helvétius, and Beccaria) declaring at the start of his first main work the "fundamental axiom, it is the greatest happiness of the greatest number that is the measure of right and wrong". This principle also substitutes clear goals, again concerned with pleasure and pain, for unclear. Finally, Bentham added a (relatively standard) self-interest psychology describing how people actually value various states so that the value varies with such factors as certainty, distance, intensity, or duration. With an account of man as he is and an account of society as it ought to be, Bentham spent much time designing institutions, in particular his famous prison, the panopticon, in which these two were united. In these institutions, be they states or prisons, men would naturally (that is, following their own interests) do what they ought to do (that is, promote the greatest happiness of the greatest number). From this follow the utilitarian principles of punishment in which deterrence is its only justification. As Bentham puts it, all punishment is in itself evil (that is, it causes pain); it is only justified therefore if it causes greater good by deterring the wrong acts of others. By taking account of value, this enables the precise quantity of punishment appropriate for every offence to be measured. See also **Utilitarianism**.

[R.H.]

Berdyaev, Nicholas (1874–1948) was born in Russia; he remained there until his expulsion in 1922, when he settled first in Germany and then in France. A faithful member of the Russian Orthodox Church, Berdyaev, in most of his work, should be classed as a religious thinker and as a social and political propagandist rather than as a philosopher in the narrower sense of the word; his aim was a practical one —to bring about a Christian social system —rather than theoretical. His fundamental philosophical thesis was a distinction between the material world, subject to natural law and necessity, of which man as an animal is a part, and the higher world of freedom of which man as spirit is a part, a position reminiscent of **Kant's** distinction of the phenomenal and noumenal worlds.

(J.O.U.)

Bergson, Henri Louis (1859–1941), French phi-losopher, who produced a philosophy of "creative evolution" which made a considerable impression in literature as well as thought during the early years of the twentieth century (see, for example, the Preface to G.Bernard Shaw's *Back to Methuselah*). This was

not only a romantic para-biological theory of a "Life-Force" invoked to counteract materialistic or mechanistic notions of the evolution of life in nature. It was an ingenious speculative theory of the relation of life and matter, correlated throughout with a particular theory of knowledge. Indeed, Bergson's work could either be interpreted idealistically, in which case the theory of knowledge is prior, and we have a certain kind of concept of matter because our minds work in a certain way; or it could be interpreted as an evolutionary realism in which our minds have come to think in a certain way because of the natural history of their evolution. In any case, Bergson's originality lay in the way in which he interpreted a theory of evolution and a theory of knowledge in terms of each other. The theory of knowledge was presented first, in *Essai sur les données immédiates de la. conscience* (1889), (the English translation is entitled *Time and Free-will*), and in *Matter and Memory* (1896). Here Bergson draws a sharp distinction between the character of our conceptual knowledge of the external world and consciousness as known from within. The intellect in its scientific study of the external world proceeds by analysis and classification. For analysis, the world must be considered as composed of isolatable objects externally related to each other; for classification these must be regarded as repeatable instances of similar kinds. So the world is interpreted in terms of limited kinds of discrete units, undergoing repeatable arrangements in space. Hence the intellect thinks naturally of static objects in spatial juxtaposition; it does not grasp fundamental changes through time, but imagines change as a succession of static states of affairs, spread out in a succession of instantaneous spaces—a limitation which was brought out by **Zeno** of Elea in his paradoxes about motion, and which, Bergson thought, is never transcended by mere concepts, although it may be met practically by devices such as the infinitesimal calculus, where a succession of very small intervals is treated as though they formed a continuous movement. The intellect therefore, Bergson says, "spatializes", and its ideal form of thinking is geometry.

Sharply contrasted is our own self-consciousness. Here change in time is experienced from within; we are aware not of a succession of distinct states, but of our present as arising out of our past and turning into a not clearly envisaged future. The "time" of this inner experience is not external clock time, which is "spatialized time", measured for instance by noting successive positions of the hands of a clock. It is an actual experience of change, in which stages of "before" and "after" interpenetrate each other; this kind of time Bergson calls "duration" *(durée),* and he claims that it is not merely a way of measuring a changing reality, but is the changing reality itself. The state of mind in which we are aware of the quality and flow of inner consciousness is called Intuition. It is a nonconceptual kind of awareness; Bergson even says that it dispenses with symbols; what he here means by "symbol" is not clear, and indeed his own attempts to express and describe Intuition are couched, perhaps inevitably, in metaphors. For a form of consciousness which used neither concepts nor imaginative metaphors would presumably not be explicit thought at all, but *feeling*. Indeed Bergson speaks at

times of Intuition as "sympathy", and as "integral experience". In the essay *Introduction to Metaphysics* (1903), he speaks of metaphysics as "the science which claims to dispense with symbols". If this were the whole truth, it is hard to see how it could become articulate knowledge, since any expression must presumably use some form of symbolism. Bergson does not, however, present Intuition as able to work apart from intellect, although he describes these as if they were polar opposites. Intuition is compared with the creative inner excitement which enables a writer to fuse his mass of materials into a unity, which he cannot do unless he has first gathered the materials by intellectual effort. "Any one of us, for instance, who has attempted literary composition, knows that when the subject has been studied at length, the materials all collected, and the notes all made, something more is needed in order to set about the work of composition itself, and that it is an often very painful effort to place ourselves directly at the heart of the subject, and to seek as deeply as possible an impulse, after which we need only let ourselves go.... Metaphysical intuition seems to be something of the same kind. What corresponds here to the documents and notes of literary composition is the sum of observations and experience gathered together by positive science. For we do not obtain an Intuition from reality—that is, an intellectual sympathy with the most intimate part of it—unless we have won its confidence by a long fellowship with its superficial manifestations." In neither case, however, can the "impulse" produce a synthesis out of the materials apart from an integrating idea. Bergson's description of "intuition" seems to be not so much an account of such integrating ideas as of the underlying state of mind out of which they may come. This is a form of feeling intensely concentrated on the present task, but which has behind it the resources of the person's whole past experience. Here Bergson's particular view of memory should be taken into account. He holds that consciousness contains implicitly the whole of one's past experience, but the function of the brain of the animal organism is to act as a "filter", letting through selectively into immediate awareness such memories as may be relevant in attending to the situations in which one is placed. But by reversing the practical habits of the intellect (always to Bergson primarily a way of thinking shaped by practical needs), it may be possible through contemplative Intuition to draw on a wider range of the resources of consciousness. Bergson was here impressed by the work of Charcot on amnesia, and by experimental work on hypnotically recovered memories. He was writing before Freud's theory of the unconscious mind had been put forward, and he uses the word "consciousness" broadly and not only for such experiences as are within the focus of attention. Indeed he imagines a rudimentary form of consciousness in all living organisms, and is prepared to interpret them by what he calls an "inverted psychology".

Bergson's theory of knowledge, drawn in terms of the contrast between Intellect and Intuition, is correlated with a view of the function of these within the process of Evolution. Intelligence, Bergson holds, begins with the making of tools. "Instinct" he describes as an innate power of using natural instruments,

either parts of the organism itself, or materials directly found in the environment. Intelligence is first of all a power of making tools as artificial instruments: *homo faber,* the smith, rather than *homo sapiens,* would describe man at the dawn of intelligence. So intelligence starts from the interest in practical construction; it always bears the stamp of this practical interest, and finds its model of intelligibility in artefacts, which are discontinuous, isolatable systems, repeatable as specified types. Instinct on the other hand is continuous with the organizing power of life; but it is unreflective and unadaptive. When it can become disinterested and self-conscious, it is Intuition, and then it can carry forward the original impetus of life into the creation of new forms. Bergson interprets evolution as the outcome of an impulse of life *(élan vital)* manifesting itself in innumerable forms. This is not finalist teleology in the classical sense, which Bergson calls "inverted mechanism", development tied to the realisation of predetermined ends. Nor is it vitalism as ordinarily understood, since no "vitalist principle" is invoked over and above the physicochemical components of organisms. Rather, the whole of nature is said to be the outcome of a force which thrusts itself forward into new and unforeseen forms of organised structure. These store and utilize energy, maintaining their power of growth and adaptive novelty up to a point, and then relapse into repetitive routine, and ultimately into the degradation of energy. The universe, Bergson says, shows two tendencies: there is "a reality which is making itself in a reality which is unmaking itself'. The laws of the tendency to repetition and the dissipation of energy are the laws of "matter"; the counter tendency is the thrust of "life". Here, in *Creative Evolution* (1907), "matter" is represented as a real tendency in nature, inverse to life, and representing the running down of life into uniformity. Bergson also speaks of "matter" as the picture formed by the artificial fixing of a system of spatialized concepts by the intellect. Possibly the link is to be found in the belief that the more things display the tendency inverse to life, the more they are amenable to this kind of intellectual treatment. But the notion of pure matter, and indeed the notion of a purely free and creative life impulse, would be abstractions. What is routine and mechanical and what is living and creative are never in fact, as Bergson often acknowledges, found in complete separation from each other. But his concern to bring out the difference between them underlies his whole work; and it finds a special application in *The Two Sources of Morality and Religion* (1932). Here Bergson turns from biology to moral and religious sociology. He describes the "closed" morality and religion based on social custom as the conservative force of a limited society making for the solidarity and preservation of a social group. His analysis follows closely that of the French sociological school of Durkheim. The demand for solidarity and stability stops at the cohesion of limited groups. Groups cohering by closed morality are always limited groups, not just by definition, but because their way of life is maintained through real or possible conflict with other groups. Humanity as a whole does not therefore form a group of this kind; and those persons, prophets and saints, who are charged with an outgoing love towards humanity, are drawing on a different

sense. For how could an observer, who was aware of nothing but his own ideas, know *anything* about Locke's "external world"? Locke himself had asserted, absurdly enough, that colour, for instance, is only an apparent, not a real, feature of that world; but how could he know that, in *any* respect, contemplation of our own ideas apprises us correctly of the world's actual character? A **sceptic** has only to suggest the possibility that our ideas mislead us, not only in some ways, but in every way, as to the character of objects, and it is evident that Locke could in no way counter this suggestion. Locke is thus committed to the ridiculous view that, for all we can *know,* objects in the world may be utterly unlike what we take them to be —and perhaps that, for all we can *know,* there may be no such objects. This is surely repugnant to any man of good sense.

But Locke's doctrine, Berkeley believed, was also exceedingly dangerous. For, apart from its offering a general pretext for scepticism, its tendency was towards **materialism** and atheism, and therefore, in Berkeley's view, towards the subversion of morals. God was brought in by Locke as the designer, creator, and starter of the great Machine; but how could he show that Matter itself was not eternal? And if it were, would his system not make it possible, and even rational, to deny the existence of God altogether? Again, Locke himself had held that consciousness belonged to "immaterial substances", which doubtless he would have regarded as immortal souls. But he had confessed that he could not disprove the counter-suggestion that consciousness might be just one of the properties of matter, and so, presumably, wholly dependent on the maintenance of certain material, physical conditions. His theory was thus in some danger of permitting—if it did not actually encourage—denial of the existence of God and of the immortality of the soul; and with this denial, in Berkeley's opinion, religion fell, and dragged morality after it.

Finally, it is clear, though it is less explicitly asserted, that Berkeley was utterly oppressed and repelled by the notion that the Universe is really a vast machine. Those metaphors of clocks and engines, wheels and springs, in which Locke delighted, inspired in Berkeley the utmost detestation. The world, he felt, *could* not be really like this—particularly if, in order to maintain that it is, we have to assert that its actual appearance is delusive; that, in fact, the "visible beauty of creation" is to be regarded as nothing but a "false imaginary glare". Why should we deny the evidence of our senses, in order to believe that the Universe is so repulsive?

Now Berkeley perceived—and it struck him as a revelation—what seemed to be a bold but beautifully simple means of eliminating, at one blow, all these horrors and absurdities. It was necessary only to *deny the existence of Matter.* For what would be the consequences of this? First, the actual course of our everyday experience would be quite unaffected. On Locke's own admission, we are never actually aware of anything but our own ideas; to deny the existence, then, of his "external objects", material bodies, is not to take away anything that has ever entered into our experience, and is indeed to leave quite undisturbed the opinions of unphilosophical men. But not only so; it must also put an end to all

sceptical questioning. For Locke was obliged to concede to the sceptic that our ideas might mislead us as to the character of things, precisely because he had regarded things as being something *other* than our ideas. But if instead we adopt the view that things—the ordinary objects of experience —are just "collections of ideas", it will then be manifestly impossible to suggest that things may not be as they appear to us, and even more so to suggest that their very existence is doubtful. If an orange is not an "external" material body, but a collection of ideas, then I may be—as of course any man of good sense actually is-entirely certain that it exists, and that it really has the colour, taste, texture, and aroma that I find in it. Doubts on so simple a point could only seem to arise as a result of the needless assertion that things exist, *distinct* from and in addition to the ideas we have.

We may next see how Berkeley counters two serious objections. First, must it not be admitted that our ideas have *causes*? We do not simply produce our ideas ourselves; they plainly come to us from some independent source; and what could this be, if not the "external objects" of Locke's theory? Now Berkeley admits that our ideas are caused; but to take them to be caused in the way supposed by Locke is, he holds, both needless and impossible. It is needless, for we can suppose them to be caused by God; we can suppose that it is directly by the will of God that ideas occur in our minds as they do, with such admirable order and regularity. And it is in fact impossible, he holds, that they should be caused otherwise; for to *cause* is to *act,* and nothing is genuinely active but the *will* of an intelligent being.

But, it may secondly be objected, if Matter is denied, what becomes of physics? It is plainly impossible to dismiss the discoveries of Newton and his fellows as mere moonshine; but Matter, in the form of particles or "corpuscles", is precisely that of which they have discovered and proved so many of the properties. What is there for the laws of physics to hold true of, if there are really no material bodies.

Berkeley's earliest reflections on this objection were rather evasive; but later, notably in the *De Motu* of 1721, he devised a strikingly ingenious reply in which, though running against the main tendency of his age, he anticipated the ideas of many twentieth-century **philosophers of science**. He answered, in effect, that scientific theories are not true of anything at all. Certainly, if correct, they *apply* to the world of our experience, in that they enable us both to predict and in some degree to control its course; but their function is no more than that of predictive devices. The theory of the corpuscular structure of matter, for example, makes possible the exact mathematical expression of formulae, by the use of which we can make invaluable predictions; but there is no need to make the supposition that the corpuscles and particles of that theory actually exist. That there are such corpuscles is a theoretically useful supposition; so long as it proves useful it should continue to be made; but it should never be regarded as a literal truth. Thus, the practice of science need not be disturbed by Berkeley's doctrines; it is necessary only for the scientist to admit that he is not investigating

"the nature of things", but rather perfecting the formulation of predictive devices.

It ought to be mentioned here also that, in the belief that the errors of earlier thinkers, notably of Locke, had been due in part to linguistic unclarity, Berkeley devoted the Introduction of his *Principles* to an investigation of language. In that passage he rather unfairly interprets Locke's vague expressions always in their most vulnerable sense. But his own insistence that the essence of language lies in its use, and on the concrete understanding of expressions in definite contexts, makes this one of his most original and stimulating contributions to philosophy.

Two of Berkeley's later works may be mentioned briefly. His *Alciphron* is a long work in dialogue form, in which the tenets of Anglican orthodoxy are defended against various current types of "free-thinking" and **deism**. Though able enough, it suffers from the artificiality of the convention, and has little interest now that the controversies which prompted it are dead. Berkeley's last work was *Siris,* a very extraordinary production, in which a strangely rambling, ponderous, and speculative statement of some part of his earlier opinions leads on to an inquiry into the virtues of tap-water, a medicine which Berkeley made popular, and for the promotion of which he worked in his later years with almost eccentric zeal.

Berkeley's main work was slow to exert any influence on philosophy, though his limited first work on vision became fairly well known. His criticisms of Locke were for the most part powerful and well-taken; and the transition to his own remarkable doctrine of a theocentric, non-material universe, whose *esse* was *percipi* (which existed because it was perceived), and in which human beings were conceived of as conversing directly with the mind of God, was at least a triumph of ingenuity. But this doctrine was too extraordinary to be taken seriously; the fact that, so far as actual experience went, he could represent it as coinciding with the customary views of ordinary people was felt, rightly, to be not enough to make it actually the same; and Berkeley was not welcomed as the defender of common sense. Even his criticism of Locke was deprived of much of its effect, since it appeared to lead straight into a position still less defensible; and his philosophy of science was much less acceptable then than it would be today. It was then generally accepted that physical theory was merely a kind of extension of ordinary observation, revealing truths of just the same kind as those of common experience. Today this has become somewhat difficult to believe; but to deny it then was probably felt, rightly enough in Berkeley's case, to constitute a veiled attempt to undermine the physicist's prestige. There is no doubt that this was Berkeley's intention; he had the bad luck to detest the "scientific worldview", at a time when that view was in the first flush of its ascendancy.

Today the ordinary student of Berkeley is most likely to regard him as a pioneer of **phenomenalism**. It is certainly true that it was part of his doctrine to maintain that material objects could be reduced to collections of ideas, or of sense-data as his successors would say. This is, moreover, the classic rejoinder to