including body with reference to the included; and hence, of course, where there is no body there can be no space. Specially ingenious is his statement (against the Atomists) that not the plenum but the void is incompatible with motion. The void would be absolutely homogeneous in all directions, without distinctions of place, and there would be in it. therefore, nothing which could give a body any definite movement (which implies place) and nothing to bring a body ever to rest (Zeller, *Gesch. d. griech. Philos.*, ii. 399–401). Strato agreed with Aristotle in his polemic against the Atomists, but still asserted the void as necessary to account for certain phenomena of light and heat. Outside the world, however, there is no empty space. The Stoics reversed this position. Space within the world is simply the limits of bodies, or the distance between the limits of a body; but beyond the world there exists an absolutely empty and infinite space. After this time, the conception is best treated in connection with that of space, save to remark that Descartes, by identifying matter with extension, reduced the conception of the vacuum to a self-contradictory absurdity. In general, it may be remarked that the conflict regarding plenum and void is part of the larger conflict between a mathematical-logical construction of nature which tends to identify space with the ultimate basis of the material (as Plato and Descartes), and a mechanico-physical one, like Atomism; or, logically, it has to do with the relation of the discrete and continuous; metaphysically, with the question of the finite and infinite. (J.D.)

Vague (in logic) [Lat. *vagus*, rambling, indefinite]: Ger. *unbestimmt*; Fr. *vague*; Ital. *vago*. Indeterminate in intention.

A proposition is vague when there are possible states of things concerning which it is intrinsically uncertain whether, had they been contemplated by the speaker, he would have regarded them as excluded or allowed by the proposition. By intrinsically uncertain we mean not uncertain in consequence of any ignorance of the interpreter, but because the speaker's habits of language were indeterminate; so that one day he would regard the proposition as excluding, another as admitting, those states of things. Yet this must be understood to have reference to what might be *deduced* from a perfect knowledge of his state of mind; for it is precisely because these questions never did, or did not frequently, present themselves that his habit remained indeterminate. (C.S.P.)

Vaiçeshika Philosophy: see ORIENTAL PHILOSOPHY (India).

Valentinus. Supposed to be an Egyptian, who lived in Alexandria and Cyprus. Taught in Rome, 140–60 A.D. He was founder of the Gnostic sect of Valentinians. He taught, among many others, Ptolemaeus, Axionicus, Heracleon, and Secundus.

Validity [Lat. *validus*, strong]: Ger. *Gültigkeit*; Fr. *validité*; Ital. *validità*. The possession by an argumentation or inference of that sort of efficiency in leading to the truth, which it professes to have; it is also said to be valid.

Every argument or inference professes to conform to a general method or type of reasoning, which method, it is held, has one kind of virtue or another in producing truth. In order to be valid the argument or inference must really pursue the method it professes to pursue, and furthermore, that method must have the kind of truth-producing virtue which it is supposed to have. For example, an induction may conform to the formula of induction; but it may be conceived, and often is conceived, that induction lends a probability to its conclusion. Now that is not the way in which induction leads to the truth. It lends no definite probability to its conclusion. It is nonsense to talk of the probability of a law, as if we could pick universes out of a grab-bag and find in what proportion of them the law held good. Therefore, such an induction is not valid; for it does not do what it professes to do, namely, to make its conclusion probable. But yet if it had only professed to do what induction does (namely, to commence a proceeding which must in the long run approximate to the truth), which is infinitely more to the purpose than what it professes, it would have been valid. Validity must not be confounded with *strength*. For an argument may be perfectly valid and yet excessively weak. I wish to know whether a given coin is so accurately made that it will turn up heads and tails in approximately equal proportions. I therefore pitch it five times and note the results, say three heads and two tails; and from this I conclude that the coin is approximately correct in its form. Now this is a valid induction; but it is contemptibly weak. All simple arguments about matters of fact are weak. The strength of an argument might be theoretically defined as the number of *independent* equal standard

unit arguments upon the other side which would balance it. But since it is next to impossible to imagine independent arguments upon any question, or to compare them with accuracy, and since moreover the 'other side' is a vague expression, this definition only serves to convey a rough idea of what is meant by the strength of an argument. It is doubtful whether the idea of strength can be made less vague. But we may say that an induction from more instances is, other things being equal, stronger than an induction from fewer instances. Of probable deductions the more probable conclusion is the stronger. In the case of hypotheses adopted presumptively on probation, one of the very elements of their strength lies in the absence of any other hypothesis; so that the above definition of strength cannot be applied, even in imagination, without imagining the strength of the presumption to be considerably reduced. Perhaps we might conceive the strength, or urgency, of a hypothesis as measured by the amount of wealth, in time, thought, money, &c., that we ought to have at our disposal before it would be worth while to take up that hypothesis for examination. In that case it would be a quantity dependent upon many factors. Thus a strong instinctive inclination towards it must be allowed to be a favouring circumstance, and a disinclination an unfavourable one. Yet the fact that it would throw a great light upon many things, if it were established, would be in its favour; and the more surprising and unexpected it would be to find it true, the more light it would generally throw. The expense which the examination of it would involve must be one of the main factors of its urgency.

Returning to the matter of validity, an argument professing to be necessary is valid in case the premises could not under any hypothesis, not involving contradiction, be true, without the conclusion being also true. If this is so in fact, while the argument fails to make it evident, it is a bad argument rhetorically, and yet is valid; for it absolutely leads to the truth if the premises are true. It is thus possible for an argument to be valid and yet bad. Yet an argument ought not to be called bad because it does not elucidate steps with which readers may be assumed to be familiar. A probable deductive argument is valid, if the conclusions of precisely such arguments (from true premises) would be true, in the long run, in a proportion of times equal to the probability which this argument assigns to its conclusion; for that is all that is pretended. Thus, an argument that out of a certain set of sixty throws of a pair of dice about to be thrown, about ten will probably be doublets, is rendered valid by the fact that if a great number of just such arguments were made, the immense majority of the conclusions would be true, and indeed ten would be indefinitely near the actual average number in the long run. The validity of induction is entirely different; for it is by no means certain that the conclusion actually drawn in any given case would turn out true in the majority of cases where precisely such a method was followed; but what is certain is that, in the majority of cases, the method would lead to some conclusion that was true, and that in the individual case in hand, if there is any error in the conclusion, that error will get corrected by simply persisting in the employment of the same method. The validity of an inductive argument consists, then, in the fact that it pursues a method which, if duly persisted in, must, in the very nature of things, lead to a result indefinitely approximating to the truth in the long run. The validity of a presumptive adoption of a hypothesis for examination consists in this, that the hypothesis being such that its consequences are capable of being tested by experimentation, and being such that the observed facts would follow from it as necessary conclusions, that hypothesis is selected according to a method which must ultimately lead to the discovery of the truth, so far as the truth is capable of being discovered, with an indefinite approximation to accuracy. (C.S.P., C.L.F.)

Value: see WORTH.

Value (economic) [OF. *value*, from Lat. *valere*, to be worth]: Ger. *Werth*; Fr. *valeur*; Ital. *valore*. An estimate of what a price ought to be.

The word value is used in a number of different meanings, but this idea of a permanent standard or cause of price, as distinguished from a temporary or accidental phenomenon, lies at the basis of them all. Sometimes value is used in the sense of utility; for instance, when we say that an article has a value to the owner out of all proportion to the amount for which he can sell it. This sense of the term was characterized by Smith as 'value-in-use.' Modern writers avoid this term of Smith's, and say 'degree of utility' (Jevons) or OPHELIMITY (q. v., Pareto). The marginal degree of utility, or