

SECOND SERIES OF GIFFORD LECTURES

By Michael Polanyi

(as delivered in Aberdeen, November 1952)

1. Meaning.
2. Objectivity.
3. Personal Knowledge.
4. Chance.
5. Order.
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Lecture OneMEANING

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1. The construction of the concept of commitment which was the task of the first series of these lectures was undertaken in order to establish a satisfying framework for the affirmation of personal beliefs with universal intent. The elaboration of this concept will lead us to expose in every area of conscious life the interpenetration of the personal and the universal; and this in turn will necessitate that we modify and enrich our earlier survey of intelligence: that we enter avenues of legitimate access to reality which the critical tradition, denying personal knowledge, found closed. We shall see that the grasping of fact by theory which, under the influence of science, has so much exercised philosophy, is but a single and partial instance of that reaching beyond itself through which the mind and indeed the whole organism seeks constantly to extend its life and to direct it aright.

2. Before embarking on this renewed charting of the mind in the light of the concept of commitment, I may recall the acknowledgement, made at the close of the first series, of the pervasiveness of personal responsibility not only in our intellectual commitments as adults, but also in the anterior process of accepting our intellectual heritage and particularly in the development of our gift for speech. This is to restate at the outset that all confident use of language implies a personal commitment of the user to the meaning of a minimum vocabulary.

In saying this I am recalling also the logical structure of my position. To put this in terms of meaning: I acknowledge my own responsibility for the meaning of my further utterances and predict the presence of this personal element in my meaning, which I am bound to meet when reflecting on my own utterances and to discover also whenever I investigate any significant utterances of others.

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What I say here in justification of a personal use of language will also claim for itself no more than representing a personal use of language. There is no other way of being consistent. To this extent therefore my argument must presuppose its own conclusions and my project is seen to involve an intentional circularity.

By confessing to this I have staked out the grounds on which my argument is to rest, relying in a sense on the very grounds thus staked out. For the confident admission of circularity is justified by a conviction which I myself hold; namely, that insofar as I put forward my own utmost understanding of my responsibilities as my own personal belief, I may rest assured of having fulfilled the ultimate requirements of self criticism; and that indeed I am obliged to form such personal beliefs and can hold them in a responsible manner, even while I recognise that such a claim can have no other justification than such as it derives from being declared in the very terms which it endorses. Logically, the whole of the subsequent argument is but an elaboration of this circle; it is a systematic course in teaching myself to hold my own beliefs.

I confess to this position in contradiction to the view that meaning can be specified by purely impersonal rules, which would prescribe in particular the consistent naming of objective facts. I hold that if anyone claims that his fundamental outlook is determined uniquely by the facts, he is merely evading his proper fiduciary responsibility, for the bearing of which he has disqualified himself by discrediting those who frankly assume such responsibility for themselves. And I see the same self-destructive circle operating also internally. A belief in absolute objectivity first destroys the grounds for holding any belief other than itself; then as it proceeds to destroy itself too, it recognises that it does so on the very grounds of objectivity that it is about to destroy

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and so it goes on. There is no end to the ensuing fruitless see-saw from which we can be rescued once more only by the explicit affirmation of our personal beliefs.

3. With this perspective in mind which will guide the subsequent lectures, I shall preface these today by a preliminary consideration of the personal nature of meaning.

A confident use of an idiom implies universal intent; but there is no universal intent which is not personally intended and accredited through such personal intention. If challenged, the speaker may appeal to common sense or to expert opinion; but he must then assume the responsibility for relying on these when employing his own terms. Thus all rational articulation must ultimately fall back on the appraisal of its own appositeness by the speaker. Nor can he always define his terms in a manner which he would himself consider to be exact. Ultimate definitions will often refer quite conspicuously to entities which are manifestly complex and yet cannot be specified in detail; and careful reflection will always discover some residue of such unspecifiable references. Therefore, even though references to facts may be said to be satisfied by experience, such satisfaction is ultimately an act of personal appraisal on the part of the verifier.

Other utterances like jokes, mathematical theorems and legal systems are manifestly self-satisfying. The criteria of their validity are ascribed to them predominantly by the person who utters them. Yet again, this person applies these criteria in view of his belief in their universality, for all intellectual satisfaction that we accept as binding to ourselves postulates its own universality.

4. The framework by which a permanent access to the fiduciary act embodied in the use of words is persistently held open is an extension of the concept of commitment. It

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implies that in speaking or understanding speech, as in every personal act, we are making a venture but a reasonable venture. If in the use of words with meaning there is always a residue of ambiguity present by virtue of the fact that such a use depends on the assessment of meaning by a person: it is through this very act of assessment that the speaker commits himself to the belief that his words have such a meaning.

Verbal discourse, then, consists in the confident use of words by a person to whom they mean something. In trying to define the meaning of a word we try out its use critically for the purpose of analysing its remembered meaning in terms of other words used confidently. The process of defining our terms may be revealing, but it can never do more than shift the risk of articulation from our confidence in one set of terms to our confidence in another set of terms. When we say of the latter that they are clear or precise, we merely give expression to this concluding commitment. We declare that we are entrusting ourselves to their use without enquiring into such ambiguities as remain attached to them.

I believe that I may and that indeed I must use words in this manner even though it is evident to me that I can never strictly eliminate ambiguities. I believe in the justification of this rashness which alone enables me to deploy to any extent the powers of my mind. Any attempt to define precise meaning in precise terms leads to an infinite regress, which the justification of imprecision is self-justifying since it does not claim precision for itself either. It licenses certain risks of the process of articulation which are bound to become apparent when reflecting on this process of licensing itself, but which cannot be held to invalidate it, since they should be acceptable in the very light of this licensing. For if I say that every word I confidently utter or accept as meaningful is so uttered or accepted at my own ultimate risk, then I may be

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satisfied that the words used for making this statement are similarly employed at my own ultimate risk. Thus if I cannot speak except inside a language, I may at least learn to speak of language in a manner consistent with this situation. I believe I may achieve this by avoiding the conception of a meaning attached to language, except as its meaning to a speaker or listener who believes that he understands what he says or listens to. I shall call this the personal mode of meaning.

5. I have argued in the First Series of these Lectures against the established habit of regarding declaratory sentences concerning matters of fact as true or false, as distinct from my believing them to be true or false. As I have denied truth-value to unasserted sentences, so I now deny the justifiability of referring to terms which mean something, apart from meaning something to me. Had I listed on the map of mental acts which I outlined in the First Series the administration of sacraments or the canonization of saints, it would have been obvious that I begged certain religious beliefs not shared by others. I might have been asked to transpose these references into more objective terms in which the religious beliefs in question were quoted as allegations. It is of course possible to make such transpositions, and thereby reduce the commitments implied in our terms, but it is not possible to eliminate my commitment from the use of the terms on which I eventually rely for my discourse. Indeed, any attempt to achieve this is logically unsound for my ultimately reduced vocabulary will remain significant to me only in view of my personal intention according to which I shall use and apply this vocabulary. And what is more, when we strain towards the logically impossible ideal of impersonality, we seriously endanger our actual mental possessions. Every stage in a progressive reduction to more neutral terms may involve a

loss of some true meaning. On every such occasion I have either to abandon part of my actual beliefs and thus deny my real outlook, or retain my beliefs hidden behind a set of neutralised terms which does not truly express them. The first of these alternatives falsified my beliefs, the second disguises them; either alternative is a step towards confusion and mental dishonesty. I believe that we must avoid pressing for objectivity at the expense of truth and frankness. There can be no higher aim in the choice of our terms than that they should express what we really believe in; nor can we be satisfied with less for the sake of reducing the extent of our personal commitments.

6. To accept the personal mode of meaning implies also the belief that I can approach the universally valid only within my given historical situation, and shall approximate it the more closely, the more precisely I record my own beliefs, as they emerge when clarified and criticized in the light of my personal antecedents. When I speak of a joke I shall mean a story that makes me laugh and I shall call it funny, though it may not make everybody laugh at all times everywhere. And similarly I shall use terms like 'understanding' or 'rational individual' or 'science' or 'music' and hundreds of other terms which beg questions of significance and value wholesale. For I am not trying to say something unquestionable or unambiguous, but merely to utter words which when said by me to those whom I am addressing convey to the best of my ability my true convictions in terms which possess their meaning, as used by me, within the framework of these very convictions.

7. I am not isolating myself thereby in a personal world of my own, but am striving on the contrary towards the fullest communication with every other sincere person. For I believe that understanding between men is based on the coherence of consciences which govern their ultimate inarticulate

judgments. And that, therefore, communication is achieved not by the ideal of significs which reduces these unformalized functions to a minimum, at the expense of what we actually believe to be true, but by keeping open in our minds a broad and patent access to the personal origins of our actual convictions.

8. Indeed, communication is only possible by ultimate reliance on our fellow feeling which accredits the meanings intended by a fellow being. Otherwise the mental performances of other persons must remain incomprehensible facts. Only when sentience expands into empathy and emotion becomes mutual, can our appreciation of meaning become centered on the existential grounds of a thing under survey. We can then recognise in it an agent which is to be judged from its own point of view, while its point of view may be judged in its turn by me from my point of view.

Meaning operates then on two levels; both meanings are meant by me, but one I hold on behalf of a fellow-being and the other on my own behalf in respect to that other person's meaning which I criticise, endorse or reject. Such two-storied belief involves a two-fold claim to universality; one being implied in the standard that I believe the other person accepted by committing himself to a meaningful action and the other being held by myself in interpreting this act and passing judgment over it.

Communication, when envisaged on these grounds, automatically extends to far more than the meanings of verbal utterances. For our fellow-feeling will inevitably grasp and our intelligence will criticise meaningful manifestations of persons on the inarticulate level as well. For example, all purposive actions are processes that mean something. We can understand that an animal is feeding and can appreciate the way that it is done; we can also criticise the skill and appositeness of

the process from the point of view of the animal. Similarly, the functioning of an organism may be said to have a meaning which we can recognise and which sets up a standard by which we judge certain processes as healthy or as disordered within an organism. Even the harmonious growth and shapeliness of a living being will fall within the domain of meaning, for their achievement can be appreciated and criticised by its standards as recognised by ourselves.

I shall try to show in my last three lectures that the descriptive sciences, including psychology are ultimately based on such a critical participation of the observer in the intended meaning of the observed being. I shall trace the stages along which this relationship gradually ascends from the morphologist's delight in the shape of plants to the responsible intercourse of intelligent personalities. It is enough to have suggested here that this extension necessarily follows from a conception of meaning as a venture confidently entered upon by a person in the belief of its universal appositeness coupled with the correlative notion of communication as the fusion of two persons in the appreciation of the same meaning.

9. Contrast with this the programme of modern nominalism which would strictly eliminate the personal element of meaning. It conceives denotation in the light of a model relating utterances or marks on paper to data in space-time. Communication of matters of fact is then made possible if identical utterances or marks always refer to identical data and if this relation is known to the listener or reader. I shall accept this model of language for the moment and examine the suppositions which it implies. It requires first, the reproduction of certain signs by the speaker; second, the identification of such signs by the listener; third, the

identification of the thing to which the sign refers by speaker and listener, and fourth the establishment of a consistent general relation between instances of the sign and instances of the thing in the minds of both speaker and listener; so that the speaker will always correctly name such an instance and the listener always correctly expect it when named by others.

The last-mentioned aspect of the meaning situation, the habit of correct nomination and the habit of correct expectation of the referent when named by others, is the essence of denotation. It clearly entails the anterior performance of a correct inductive inference on the part of the speaker and listener when learning to use the denotation in question, by watching the use of it by others.

I. A. Richards has tried to construct a sequence of sign-picture situations called 'Sen-Sits' which should establish in the reader a unique relation between the two. Such an illustrated manual can be useful, but it offers no process by which the fundamental difficulty of all induction can be circumvented. This can be proved in this case by the fact that young apes whose empirical inferences are otherwise as good as those of infants of the same age, are unable to learn the names of objects by listening to human language. And again the child itself is far superior to the adult in establishing denotative relations, for example for the purpose of lipreading. The point is that all induction involves an act of personal judgment and that in this case the judgment is derived from a specific gift, the gift of speech and of learning speech which is possessed only by man and is most brilliantly developed in the young child. But for his anterior instinctive confidence in the possibility of relating the two, no child would connect an utterance heard by him

the process of induction by which we identify a "phenomenon" and

with a referent indicated by it. Nor could he ever learn to speak but by extending the personal confidence by which he learns to listen, to a further process by which he selects from his own repertoire of spontaneously produced sounds those which would match the utterances of others to which he has learnt to attach significance.

The child's implicit belief in the significance of language spoken in its presence, which underlies its gift of speech, is an instinctive personal commitment similar to that of its first choice of food at its mother's breast. It is continuous with the young mammal's and young bird's reliance on its protecting and guiding seniors. The confident use of language, which it is the purpose of nominalism to transpose into an impersonal framework, is itself but an adult form of this confidence. We do not learn to speak by following a general logical procedure but by exercising a special innate aptitude; and again, we rely on our gift of speech for judging that we understand a language and use it consistently. Our commitment to the meaning of words as conceived by ourselves remains rooted in this vitally personal act.

While the establishment of the same consistent use of a name both by the speaker and the listener is the crucial antecedent of any communication, this is based, as I have said, on the more elementary acts of repeating the same sign and of recognising the sign and the thing which it signifies, which also entail indispensable elements of personal judgment. For on reflection it appears that no new event is ever identical with an earlier one, so that to repeat something which we have done before or to recognise something that we have met before, invariably involves a judgment of the similarity of essentials and of the irrelevance of differences. Such a judgment is indeed of the same character as underlies the process of induction by which we identify a "whenever p and

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q" relationship, on the basis of similarities and against a variable background that is judged to be irrelevant in respect to the identity in question, and we can no more expect to find it definable by strict rules than we can expect this for any other act of inductive generalisation.

There are of course instances in which the act of identification can be formalised to a great extent so that the residue of personal judgment may appear negligible. Poincaré has suggested that the identification of the same objects when seen from different angles may be defined as the operation of a group of geometrical transformations. There is no need to expose here the unformalised residues on which such an operation would ultimately rely, since it suffices to mention the equally elementary instances of identification which cannot be handled by any such formalism. Take for example the process by which we identify the colour of an object under changing illumination. A black coat, though bathed in sunshine, may still be seen as black if our field of vision includes the shadows cast by trees against a sunny background, while otherwise it may be seen as light grey. This kind of judgment which is not a geometrical operation pervades our every perception of identity. Thus we may readily recognise physiognomies whose characteristics we cannot specify at all. Many acts of identification require a high degree of ingenuity and specially trained connoisseurship, including the capacity for performing and evaluating tests which require great skill. Medical diagnostics is a highly skilled technique of identification which cannot be fully specified. The deciphering of an illegible handwriting or listening to an unclear speech against a background of noise similarly requires special intelligence supported by strained attention. The identification of zoological specimens is an art within a science. I hope to reveal more fully in my lectures on

conditions of this test, he is not only compelled to furnish

Skill and Connoisseurship the inherently personal character of such identifications. What I have said should suffice to show that the kind of identifications that must be made even before we associate names with objects are too subtle to be encompassed within any precise, impersonal rule.

The study of aphasia offers an opportunity for realising the personal skill involved in the elementary processes of naming things and of receiving communications about things by attending to the naming of them. Patients suffering from aphasia are not generally weak minded, yet they show considerable defects in their powers of identifying names, of repeating names and of linking them to identifiable objects or performances, the powers which nominalism would reduce to impersonal acts requiring no personal judgment. I shall quote a few cases described by Head in his classical survey of Aphasia published in 1920. ("Brain" XLIII 1920, p. 390-411, p. 406). "The higher the propositional value of the mental act (he explains), the greater difficulty will it present. Thus, the patient may be able to execute a printed command to hold up his hand, although he is unable to carry out an order to touch with it his eye or his ear. The addition of the second factor has rendered the task too difficult. The larger the number of alternatives presented by the order, the more certainly will the desired action be defective. All propositions express an abstract relation; but even the same generalized statement may vary in difficulty according to the means by which it is expressed. For example, during the compass test, the aphasic patient may be entirely unable to record in speech, or in writing, whether he has been touched with one or two points; but if the figures 1 and 2 are written on a sheet of paper, he can indicate correctly whether the contact was single or double. Under the ordinary conditions of this test, he is not only compelled to formulate

in words his sensory impressions, but he must express them in verbal symbols; but when it is carried out according to the second method, he has only to determine whether his sensations are of one or two points, and the means of expression lie on the table before him. When the defect consists of want of power to evoke words or names, the patient may be unable to name a set of common objects, although he can choose them correctly to oral or printed command. The verbal symbol conveys its proper meaning when presented ready formed in sound or in print; but to produce it freely at will demands a greater perfection of symbolic thinking and expression." This difficulty of the nominalist position has not gone unnoticed. Wittgenstein has already pointed out that ultimately we cannot speak of the relation between name and object but can only show it. We fall back on what is called an ostensive definition which is supposed to fill the gap of ambiguities left open where the attempt at formalising meaning and the process of communication ultimately falls short of its aim. But this gap is regarded as negligible. Let me therefore show by an example how completely uncertain is the ultimate root of meaning relying on ostensive definition. This is one of the lessons pointed out by the case of Clever Hans, a horse in the possession of Mr. von Osten of Berlin who exhibited his performances to the world in the year 1904. It had been trained to tap out with its hoofs the letters of the alphabet and could answer various questions written out on a blackboard by such signs. It spelled words, formed sentences and also gave the solution of problems in arithmetic. Enormous interest was roused by these feats and eventually a commission of eminent zoologists, hippologists and psychologists was formed to investigate the case. They questioned the horse in the absence of its owner and took every precaution they could think of against deception or self-deception. Unanimously they

declared the horse's performance to be genuine.

They were mistaken. Shortly afterwards O. Pfungst, on re-examining the case, discovered that the horse could answer not even the simplest questions if the person who asked him did not know the answer. Mr. van Osten had indeed succeeded in training the animal to an intelligent performance, but not the one intended by him. He had unintentionally trained him to look out for and react to signs of expectation in persons questioning him. These signs were imperceptible to those who gave them and went unnoticed by the audience watching the demonstrations. Once Pfungst had concluded that such messages were playing this part, they were easily detected in a slight nod or relaxation of the trunk. The horse had discovered them by his own efforts in trying to earn the carrot which was his reward for tapping out the right answer.

Here we see a number of honest and intelligent persons, who went on for years on end directing a horse - as they thought - to attend to the writing on a blackboard, then showing him the objects named by the words written on the board, and supposedly teaching him to tap out the answers to the questions on the board; then we see a number of other highly critical persons proceeding to test the horse's responses to these questions as given in the tappings of its hoofs; while all the time all these people were actually calling the horse's attention to something quite different - of which they were themselves entirely unaware - namely their own slight relaxation of posture at the moment when the horse had given the expected number of tappings. How can we simply take for granted that we can point out what we mean, when all the time we may be doing something entirely unintended which never even enters our consciousness?

A fiduciary philosophy can admit these uncertainties,

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and indeed they form in its view the essential opportunity for the act of personal commitment by which meaning is constituted. But not so a philosophy that sets up strictness as its ideal and regards the intervention of the personal as a defect that must be eliminated in order to achieve objective validity. Such a philosophy condemns itself by its own standards if it has to admit that no complete formalisation of meaning or communication is conceivable, for any formalism has ultimately to rely for its own meaning on an unformalised component.

12. Moreover, in trying to eliminate the indeterminacy of language, nominalism would intolerably reduce its scope. There would be little purpose in classing objects by particular properties but for the fact that the groups thus formed may be expected to have also an indefinite number of other characteristics in common. A language is rational to the extent to which it maximises these uncovenanted common properties, usually described as the intension of the terms used in the language. The degree of reality which we attribute to an entity to which we give a name depends on the range of the presumed intension, which includes its known and specifiable properties, its known but unspecifiable properties and its yet unknown properties.

A known, but unspecifiable property is one of which we would notice the absence though we could not have told its presence. We notice when a dish tastes insipid though we may never have known that its normal taste was due to the presence of salt. The range of such properties subsumed under a term is the measure to which its analysis can lead to a further understanding of the entity which it designates. It is a first measure of its profundity, naturalness or reality. But our expectations extend beyond this range. When we believe that we have designated something real, we expect that it may yet manifest its effectiveness or its implications in an indefinite and

perhaps wholly unexpected manner. This is often described in retrospect as the fruitfulness of the conception covered by the term. The nominalist's ideal is to have only terms of which the scope is fully and specifically known. Such terms would have no profundity and no fruitfulness whatever.

13. Nominalism, if consistently pursued, must end up by pulverising meaning: it must reduce it to a collection of utterances and clues with nobody present to understand them. But to set up what is meant as an entity existing outside our commitment to it, is no more a satisfactory a solution of the problem. If nominalism is to be avoided, so is its opposite. It is no good designing an edifice of self-existent entities - essences or eternal objects - as a duplicate of intended meanings which somehow justifies them by mirroring their structure: this is simply to reverse the direction of the denotative relation - from sign to ideal archetype instead of from sign to fact - while insisting equally on a univocal impersonal correlation, - and that is precisely to miss again the element of appraisal and of personal responsibility, which is the indispensable carrier of significance wherever we find it. If the traditional concept of the real universal - the pure, intelligible itself-by-itself - which all generated things, including ourselves as organisms, only aspire to imitate and share, but never quite achieve - if this tradition is, rightly, fathered on Plato, it must be remembered also that in the dialogues which reach a positive conclusion, the nature of the forms is exhibited in an intimate relation to the nature of the soul. The beautiful itself, in Diotima's story, presides as mistress over generations: it is in and through the striving of every living thing for immortality that beauty is revealed. In the myth of the Phaedrus the ideas which subsist

outside the heavens, and which a soul must have seen "before it can pass into human form," are again the soul's "true nourishment", the fodder which alone causes its wing to grow. It is as the goal of the soul's aspirations that the forms are envisaged, and it is only through such aspirations that they may, rarely and with difficulty, be perceived.

14. All attempts to escape from our ultimate personal responsibility for our mental commitments are essentially futile. But for any particular act in which we are engaged our responsibility is more obvious than for the matrix of our ultimate responsibilities. A fiduciary philosophy tries openly to profess the ultimate beliefs endorsed by our use of the matrix within which we deploy our mental existence. The matrix is composed of a number of frameworks, each of which is a sectional matrix with its own set of principles, based on distinctive notions. In view of their belonging to my own matrix I can pronounce these notions and principles only with confidence in their validity. As they are my accepted guides, they are not merely suffered by me and still less produced by me; I am confronted by their demands with which I comply for I believe that they are universally valid. These notions and principles refer therefore to something outside me, but which is there only so long as I believe in it. Strictly speaking this is of course true also of any particular fact that I observe or appraise in a definite sense. But it applies more strikingly to the general notions and principles by which our mental life is guided, for, in contrast to facts, these can be neither appraised nor observed, as they are themselves the standards of all appraisal and observation. Nor are they artefacts, for they are also the standards by which all artefact are accredited (as rational, significant, harmonious, etc.). If we call these notions and principles ideals, we may say that

ideals exist only in our own respect for them. We may deny any particular observation or appraisal on the grounds that it does not fulfil certain standards and eventually find not one observation or appraisal which fulfils them. This result would not impair our standards but would, on the contrary, imply their renewed affirmation. But if we abandon these standards as illusory, they completely cease to exist, or, more precisely, any reference to them as an ideal becomes self-contradictory.

I may observe (within the framework of my own standards) another person being guided by his standards, and may reject these as illusory. I may also reflect in the same critical manner on the standards that have guided me in the past, but the whole system of discourse which deals with my present standards is intrinsically uncritical. A profession of my own ultimate ideals must speak with absolute confidence, even though I may well know that I can never be certain of this confidence at the next moment. For in each moment of belief we are responsible only for that moment as we reflect in it on the past and the future. At the next moment we shall have to struggle again and so on. Future beliefs cannot be anticipated and taken into account for they can be held only in the future, not now.

15. In this sense we may speak of a theory of science, of law, of history, of political life, of right behaviour. In the theory of science we will rely on notions like the uniformity of nature, natural law, the natural as opposed to the supernatural, measurement, precision, accident, observational error, and a whole system of related principles. (They will include scientific tradition, scientific opinion, and "true scientist"). The theory of deductive sciences will be represented as logic. The theory of law may refer to natural law and to principles of equity, it will speak of consistency, enforceability and certainty of the law. Its concepts will include the reasonable