Certainty and its Acquisition

Knowledge is the recognition of *how things are,* and the understanding of *their various implications*. Knowledge might best be thought of as the *result of discovery*. For until someone discovers a fact, we don't have it, and it cannot be passed on to others.

Mental Processes and Results

1. We *perceive data*. This is empiricism. 2. We *conceive notions*. This is rationalism. By it we can guide imagination to discover possibilities and form hypotheses. 3. In both cases we reason to *conclusions*. This is rationality. By means of rationality we abstract characteristics from data, analyze our notions, and build theories to explain the present and control the future. The result is knowledge. These processes rarely occur alone. How do we get such notions as "cause-and-effect," or "regularity," or "identity," or "similarity" or "continuity?"

Knowledge

Epistemology is the discipline that deals with knowledge of various sorts and varying degrees of certainty. Certainty is that form of knowledge we have with *absolute assurance*. There are other types of knowledge such as *provisional* and *statistical* knowledge. Provisional knowledge combines a degree of *certainty* with a degree of *uncertainty*. For example we are certain that there is a force of nature to which we have given the name gravity. But we are uncertain of precisely how strong it is. This is illustrated by the fact that we cannot seem to discover the exact value of the *gravitational constant*.

For these types of *knowledge* there are corresponding sources. Certainty is produced by rationalism, or the workings of the mind. This does not mean that everything that results from rational thought is certain. Logical certainty results from flawless logic applied to concepts reduced to language. But such logic may itself invoke nonexistent beings. Absolute certainty requires that logical certainty *be checked against experience.* Thus, while it is true that if all vertebrates have spines, and all unicorns are vertebrates, then all unicorns will have spines, a quick check of experience reveals that there is no such thing as a unicorn. On the other hand, the logical conclusion that 2+2 equals four is borne out in our experience every day. *And it cannot be otherwise.*

Empiricism not only provides a check for rational conclusions, but itself results in two kinds of knowledge, commonly called *probability.* There is what we might call provisional certainty which we realize is subject to change, even if only slightly, with better accounts of experience or keener logic, or better measuring devices. There is also statistical knowledge. Statistical knowledge provides us with varying degrees of probability and provisional certainty concerning occurrences, but a sharply limited knowledge of the subjects involved. Thus, we may say that smoking kills one third of the people who smoke, but we do not know *which* one third it will be, or how long it will take in any given case.

Finally we have knowledge *via* revelation. This, despite the fact that it is usually not considered a channel of knowledge at all, is in fact the largest category of all. Revelation is what we gain from others, not from our own thinking or our own experiences. It is what is "passed on" to

others. I do not know, and may not be sharp enough to know, the theory of relativity by means of my own thinking. Instead the theory was *revealed* to me in classroom instruction, in outside reading, and in discussions with friends. Nor have I ever done the famous oil drop experiment to determine the charge of an electron. But I have been tested over such knowledge in chemistry classes where it was revealed to me by the instructor, and in the textbook.

There are other channels of "revelation" as well. One is by a prolonged and unabashed appeal to authority – "gunpoint conversion" such as Islam has used for centuries. Another is what we pick up from the press and other media, in articles that can range in veracity from clinical trials to political propaganda. A third channel is popularity. I doubt there is an American alive who has not at one time or another begin a sentence with the phrase "they say," without asking who "they" are and why they are saying such things. This is the channel of urban legend and old wives tales. One example that has been around American culture for many decades is that swallowing gum will block your alimentary canal. It isn't true, of course, but so strong is the revelation, and the popular authority of this old wives tale that virtually nothing can shake it.

These channels of revelation share a common feature. They all gain their strength through *endless repetition*. It makes no difference whether what is being repeated is true or false, endless repetition gives it the patina of respectability and veracity. This is the way the press works, the way Islam gained and controls its adherents, the way Hitler took over the minds and culture of Germany, the way the hippies poisoned the political scene and produced so many of the other "realities" we today take for granted.

When we receive revelation, depending upon its importance to us, we should attempt to verify the thoughts, experiments, and thinking processes that eventuated in those conclusions. Until we have people who can and will do this, we will continue to be afraid to swallow our gum, vote for political candidates on the strength of our knowledge rather than the charisma of the politician, and critical thinking will become a thing of the past.

Rationalism

Rationalism is generally represented by one of three schools of thought. But they all regard true knowledge as based upon either intuition or innate knowledge. Common also is a general reliance on the absolute certainty that characterizes deductive reasoning. That is to say that all rationalism claims that some knowledge is, or is deduced from, *a prioris*, (that which is present *before* experience).

These features are denied by empiricists, who believe that *all* knowledge is *a posteriori*, that is, that knowledge comes about *only as the result* of experience. Empiricists and skeptics claim that deductive reasoning does not result in *new* facts, but only unpacks facts already contained in the premises. But this does not affect the acquisition of knowledge *per se*. It might be remembered that pure deduction used on false premises necessarily results in false conclusions, and that false premises are often the result of wishful thinking rather than innate knowledge or concepts. In any case, it seems that there are enough problems, metaphysical, ethical, and aesthetic, at the outset, and a growing number of problems produced by the extreme application of one school of rationalism or the other, that a high degree of caution is in order.

Empiricism

In recent years the term empiricism has taken on a more flexible meaning, and now is used in connection with any philosophical system that finds all of its materials in experience. — Funk and Wagnealls Encyclopedia

Berkeley's Empiricism

Berkeley demonstrated that Locke had merely *assumed* "matter" to exist. But "matter" or "substance" cannot be known, or at least known *empirically*, to exist. Later empiricists, beginning with Hume, "disproved" God and miracles. So logically, we are left with Descartes' Cogito (rationalism) and Berkeley's "to *be* is to *be perceived"* (empiricism). It would seem that the only things of which we can be fairly certain is our own existence and the existence of some perceptions.

Berkeley seems to say that we do not experience the *matter* of an object but only *sensations*, and that therefore *there are no objects*. But the most we can say is that we have no notion of what *matter* is like based upon experience since we only experience *qualities*. But the mind is no less inclined nor more prone to error than the senses are when it makes of the data what it can. It would appear that what Hume would state explicitly with regard to cause-and-effect, Berkeley simply assumed, i.e., that appearances need not be the effects of (objective) *causes*. If, as Hume later claimed, cause-and-effect is just a bad, but persistent mental habit, the inference of a material substratum underlying the causes of the sensations that we perceive are merely part of that "bad habit."

Empiricism and Substance

To expect a term like "substance" to be explicable to the mind in any terms other than *physical* is a mistake. "Substance" is, by definition and expectation, that which produces the *physical* effects we call "sensations." The rational counterpart of this empirically slanted term might be "essence," or some such notion. One might wonder what is the essence of substance. By assuming its existence and listing its properties we may feel better about our understanding. The problem is that while this procedure is more satisfactory, it is not strictly empirical and admits as much; hence, it is not an option for the pure empiricist.

Basic Failure of Empiricism

Pure empiricism cannot establish the "uniformity of nature." All categories, whether of color, weight, size, or motion, are abstractions like that of cause-and-effect which David Hume demonstrated to be impossible on the basis of empiricism. Similarly, the "advanced logic" of A. J. Ayer's "logical positivism" cannot be determined empirically either, because, again, the 'reality" of such abstractions cannot be determined empirically. Abstraction is something that is *done*, not something that is *discovered*. It is a mental process applied to "facts" and data. [The basis for such categories lies in our make-up; it is a given in the condition of humanness and, I believe, conditioned for use *in utero*.]

On the basis of pure empiricism the proposition that "all men die" may be premature, being based, as it is, on only a 50 percent sample. So the notion that evolution can be inferred empirically is ludicrous, given that it has not even the 50 percent sampling of the proposition that "all men die," and even if it *does* happen, we cannot infer that it *did* happen. There is no basis in naked empiricism to make such an inference. Inferences about the past disappear along with such notions as cause-and-effect.

The empiricist must remember that categories such as *similarity*, *pattern, relationship,* and so forth, as well as the very notion of *data* itself, cannot be discovered empirically. They are principles that *allow empiricism to work*, but are not immediately obvious to the understanding in the same way as experience is. They are *principles of recognition*, and are logically prior to normal experience itself.

Rationalism and Empiricism

We are aware that empiricism, or the knowledge we gain through our senses, can be mistaken, as when we see a mirage, or think we saw something that we did not see. We are also aware that rationalism, or the knowledge gained by purely deductive processes, can also be mistaken, and can result in erroneous systems like Astrology. The difference between the one and the other is the starting point. When we fail to make the right sense of our experiences, we make an empirical error. When we start from wrong or improper premisses, or fail to reason logically, we draw mistaken conclusions. Thus, rationalism suffers not because the process of deduction is bad, but because either the starting points are wrong or the reasoning processes are not rigorously applied. This necessitates cross referencing from rationalism to empiricism and *vice versa*. The quality of our rational premises must be submitted to empiricism as often and as thoroughly as possible to assure their veracity. Likewise, our experience must be submitted to the judge of reason to make sure of the nature of the experience before conclusions are reached. Thus, whether it is the sighting of a UFO, a misreading of a love letter, or some experience of the "supernatural," we must submit what we *experience* to what we *know*, and what *we think we know*, to what *experience teaches*.

This leaves open the possibility of "supernatural" phenomena, but lessens its likelihood, and mitigates its nature.

Presuppositions, and *A Prioris*

Empiricism has *a prioris* which explain experience or sense data. But rationality, has presuppositions which stand behind both the *a prioris* of empiricism (the recognition of common features etc.) and the reasoning processes themselves. And just as presuppositions, or *a prioris* make empiricism rational, empiricism validates rationality and distinguishes truth from flights of fantasy and superstition.

The bases for logical inference must precede the sense perceptions of empiricism.[1] Such

[1] How does a certain species of bird know that it likes to eat snails? When it searches for its first meal on his own, how will it know a snail when it sees one. It seems likely that some

human literary and logical devices as argument-by-analogy are simply unthinkable to pure empiricism. "Analogy" would never suggest itself to pure empiricism.

In Utero

In all the discussions of rationalism and empiricism, one common feature is plain. The theories all take their departure *in medias res*, and they do not depart therefrom. There is little discussion of how reasoning begins, or how it develops. We are most often presented a theory of knowledge already full-grown and functioning. There is little or no discussion of the origins of such abilities, or the reasoning disparities from person to person.

I believe that the *basis for all knowledge* is gained *in utero*. All basic cognitive abilities are first exercised prenatally. Humans may truly say, " I remember the subject-object distinction, therefore I am," or, "I remember my continuity, therefore I am," or perhaps, "I remember my experiences, therefore, I am."

We have known about babies "learning" language *in utero* for many years. But while this is not *learning* in the strict sense of the word (because definitions and proper application of words are *not* learned *in utero*) it *is* recognition of *sounds*, and as such provides a very clear parallel to what I am getting at with my thesis. My contention is that such "learning," or *recognition*, applies to preparations for use of philosophical categories necessary to *learning and reasoning*, as was first tentatively expressed in my journal in 1987.

Several points are relevant, for no self can define or understand himself in complete isolation. First, the unborn baby is aware, *via* sensation, that he has physical extension which is "hooked up" to him – whence he receives empirical input. Second, at some point he becomes self aware *via* thought – reflection, memory, etc. – whence a later subjectivism. He is the one "thinking." He is the most certain (but not the *only)* thing he "knows." He thinks (or at least *responds*), *therefore, he is*. Finally, he is aware that there is something "outside" himself, something "other" than himself – the basis for objectivity. When he touches himself he feels it twice; when he touches his surroundings, he feels it once. That is, when the baby moves his hand across his stomach, *both his hand and his stomach* feel it. But when the baby touches his mother, he only feels it with his hand, or foot. He simply cannot avoid "feeling" the difference. He is locked up to such sensations.

But is this not empirical learning? Yes! But with a difference. For the baby, there are no distractions, no biases, no wishful thinking. Here is the *Tabula Rasa*. All day, every day the baby has nothing else to consider but the sensations coming to him and his growing awareness of their different types. He has no axe to grind – all there is, is experience – just the constantly recurring experience conforming to the human mind's natural receptivity.

The concept of regularity, for example, is an example of how the mind works on data supplied by perception. Interestingly, the basis for the notion of *regularity* also may be learned *in utero* as a result of experiencing the mother's heartbeat being contrasted to the irregularity of other movements the mother might occasionally convey to the baby.

Eventually, the baby probably notices that his universe is "stable." He notices that when he sleeps, the universe goes away. He notices that when he awakens it "returns" just as it was before.

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form of genetic engineering allows it certain abilities which are activated in experience.

There is therefore rationalism and uniformity in his universe and a basis for later belief in a rational universe.

There is correspondence between his universe and his ability to grasp it. It is not chaotic, it does not become something radically different every time the self sleeps and awakens. Reality may be released without fear that it will become something else, something unrecognizable while he sleeps. There is a basis for belief in continuity and in rational progression and growth.

What changes *do* occur, do so within the same familiar, recognizable framework, and bit by bit rather than all at once. When the baby touches his mother he recognizes the presence of "the other." When he first hears voices, it is a sensation added to his already familiar, and undiminished universe. Hence there is a basis for regularity and continuity. *There is unity in diversity*.

The knowledge gained *in utero* can scarcely be considered knowledge as *we* think of it. The baby, even if he could verbalize it, would probably not recognize what he had experienced as "knowledge." He would not know what "knowledge is. His knowledge is really nothing more than his experience traveling the channels prepared for it, and in turn, preparing the baby for receiving knowledge after his birth. Newborn babies look around inquisitively not because *they cannot think*, but because their new experiences are so different from the old. The postnatal experience is not like the experience *in utero*, because there are distractions, and perhaps because it may take a little while for him to recognize the fact that he can now "make sense" of the bigger world in the same way he made sense of his smaller one.

With what we learn *in utero*, we map out the playing field of rationalism, because we are "wired up" to do so, some better than others. If this were not so, there could never have been rationalism; nothing from *mere experience* could lead to such a belief. Nothing *in empiricism* teaches us that knowledge can generate more knowledge *via* logic. That is, rationalism cannot be the product of experience, but must be the result of our nature, just as the ability to run is part of our nature. Some run better than others because they are better equipped to run. In short, empiricism can neither produce nor explain rationalism apart from our rational nature.

Empiricism, Data, and Rational Thought

"Normal," experience is that *usual* and *expected* range of sense perception we receive in every day contact with "reality." Normal experience is what we may refer to as *daily* experience, because it is of life-size objects characteristic of our daily lives and which is usually unavoidable. It is not of the *microscopically* small or *astronomically* distant. That is, daily life is carried on under conditions we think of as *direct experience*. We receive our data directly from our environment. Furthermore, we do not actually experience "matter," according to some thought, only their "qualities." That is, we do not experience the *matter* of a baseball, only its *texture*, *color*, *hardness*, size and the *smell* of leather.

Experience of such properties is *uniform* in that the appearance of these properties may change slightly according to outward circumstances, but they never go away. Item X will always (under "normal circumstances") behave within a spectrum of what is "normal" for it. Interpretation of the various facts of daily experience (at least the physical aspects of it) is generally automatic. We rarely need to think about what a baseball is, or the "meaning" of a baseball. Its very "nature' suggests immediately that it is made to be thrown. Such interpretive processes as we exercise with

regard to daily experience are common.

On the other hand, *indirect data* (readings from meters, or "views" through an electron microscope) are examples of *secondhand*, or *indirect* experience. We do not experience individual atoms or the distance to stars directly, but rely on the reports of instruments. Such inferences as we may draw from indirect data are at a remove from those of daily experience, and require reasoning about the implications of *meter readings,* not about direct or firsthand experience.

We maintain that the interpretation of experience, especially indirect experience, is a function of rationality. Otherwise we would have no indication that data is even *data* at all, that is, that the sense impressions which come to us are in any way "meaningful" – that our *experience may carry implications*. The very notion of *implication* is a rational concept. Even the notions of *uniformity* and *similarity* are concepts not supplied by experience itself, but are pre-existing categories of rational thought. Raw occurrence neither *knows* nor *teaches* anything at all. It has nothing to teach us. It merely *happens*, and awaits the next event. Nature (most particularly when conceived of in terms of evolutionary theory) is not analytical.

Another area of which we can have no direct experience is the past. Every single statement we make about what happened in past centuries is based upon the reports and physical remains left to us by those who lived in those eras. Such reports are to the historian similar to the meter readings of scientists, the great difference being that historical data is not repeatable, whereas scientific meter readings are.

Certainty and Contingency

It is not the reasoning that determines whether conclusions are certain or only probable. Reasoning is simply the rational process of drawing conclusions. It is not inherent in the temporal nature of the inanimate *objects* of reason. These are merely the objects of thought and argument. The determining factor in the certainty or probability of a conclusion is whether or not *contingency attaches to it*. Put differently, certainty is solely determined neither by the logic used, nor by the sources of the premises, but by the *presence of contingencies* applicable to the conclusions. Certainty can be had of *any* conclusion not bedeviled by forces that can modify, mitigate, or eliminate it. That includes all sound deductive conclusions and several inductive ones as well. Certainty only requires the lack of possible effective contingencies. We know that something is certain whenever 1) it *must* be as it is, and 2) *there is nothing to prevent it from remaining as it is*.

In order to see this, reduce empirical, or a posteriori, statements to the consequent (apodosis) of a hypothetical statement. For the antecedent (protasis), provide a statement concerning the contingency necessary to falsify the claim. Thus, we may say "if no contingency arises to alter them, all mechanical processes are predictable." That is, we may be as certain of the statement contained in the apodosis as is allowed by the statement in the protasis. What we are saying, for example, is that under all circumstances, billiard balls struck by other billiard balls will act in an absolutely uniform way. The nature of possible contingencies covered by the antecedent may be discussed to determine precisely how accurate the statement of the consequent truly is. A subset of the above argument might be "If no contingency (the breakage of a link in the chain, for example) arises to alter their behavior, bicycle gears and chains will always act in an entirely predictable way.

The basis for knowledge is simply the way the mind is made, that is, its ability to recognize

and use categories, properties, and relationships. Since the basic presuppositions were learned *in utero*, both rationalism and empiricism function because of such mental preparedness.

Certainty requires the lack of possible effective contingencies. We know that something is certain if *it must be as it is*, and *there is nothing to prevent it from remaining as it is*. The problem with empirically derived knowledge is not *inherent uncertainty*, but the possibility of some *contingent feature* acting upon the process. Viewed in this way, empiricism can result in certainty. We have achieved practical certainty of a "fact" when any aberrant behavior of that fact makes us look for an independent *cause for the aberrancy* instead of *reassessing* the fact we *know* to be true. Such things as tomorrow's sunrise, the mortality of all men, and so forth, are matters of empirical knowledge. But perhaps the best example of empirically derived certainty is the Second Law of Thermodynamics.

Empiricism, Rationality, and Idealism in the Theory of Evolution

Empiricism has had a striking history since its nascent beginning in the Renaissance. Over the course of several centuries empiricism has dethroned rationalism in discipline after discipline, many to great advantage, but some wrongly or improperly. It has in fact, often been pressed far beyond its reasonable limits.

We can see at least one example of rationality coming up with an erroneous premise (based upon wishful thinking), supported by only one small bit of empirical evidence, itself so ambiguous as to never have suggested the thesis, and receiving the patina of fact by force of repetition and political propaganda. That example is the Theory of Evolution There are others as well, but evolution is the Granddaddy of the modern epistemological misstep.

Today evolution (a theory that claims to be based upon lots of empirical data, but is not) claims that what we see in the world around us including our sense of reason, is the result of physical operations guided by time and chance. Such physical processes and unfolding are items that might have qualified as *experience* only if there had been an observer present. So when an evolutionist says that "sharks close their eyes when they bite something *because* otherwise, torn flesh and bone might hit their eyes and render them blind," or that "male cardinals are brighter than females in order to save more females from predators" – in short any time an evolutionist explains things with words like "because" or "in order to," he is using the language of rationalism (teleology). And he has no right to do so, for he believes the things that we now experience came into being through the "guidance" of time and *chance*. If the mere chaos of time and randomness produced all that we see, we have no right to read cause-and-effect or reason into "patterns" of behavior.

Such implicit claims amount to asserting that reason evolved from chaos. If rationality was not *responsible for reality* (i.e., *prior to* and the *sine qua non* of) it had to *arise from* "reality." That means that reality developed reason, and not vice versa. Where does such a thesis leave the whole notion of knowledge, and the processes of reasoning and learning?