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Scepticism and Credulity[1]

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ABSTRACT: Though scientific thinking has been in vogue since the seventeenth century, it represents only a minority view, and is essentially sceptical. The majority of mankind adopts a credulous attitude towards natural phenomena. The extremely sceptical and the extremely credulous have many psychological characteristics in common and both may be unreliable in assessing occasional phenomena.

Technology has existed, as far as we can tell, for as long as man has existed. Although we can find, almost as far back as written records extend, individuals who show signs of a scientific approach to the world, scientific thinking did not really come into its own until the seventeenth century, with the writings of Francis Bacon and Descartes, and the researches of such men as Galileo, Hooke, and Boyle.

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Science has only had a firm hold on the tiller of technology for about the last century, during which time it has been responsible for fantastic changes in the mode of living of a considerable proportion of the world's population.

Considerable though this proportion is, however, it is by no means as great as we who are the most affected tend to suppose. There are still hundreds of millions of people whose world is bounded by their capacity for walking, and for whom the day ends when the sun goes down. Furthermore, relatively few of those whose lives are affected by the products of science are in any important way infected with scientific thinking.

Scientists, then, represent a minority view among mankind, and even among their own countrymen. They must always be on the defensive against more popular and more traditional ways of viewing and handling the universe. The end of this long-term confrontation is still in doubt. Newspapers, for instance, are prepared to devote more space to astrology, graphology, or spiritualism than to science, and they do this on the basis of their knowledge of popular tastes.

In view of these observations, the deference accorded to scientists seems a little surprising until one recalls that men have always feared or revered the powers they did not understand. Remarkable too, is the way in which scientists so obviously see themselves as representing the sane, 'normal', viewpoint. This is perhaps explicable, at least in part, as a defensive response to the state of being committed to an unpopular position. The opposition is perceived as being a handful of 'odd' people instead of what it happens to be, namely, the majority of people.

Science can be seen as having two main aspects. There are, on the one hand, processes concerned with the discovery and demonstration of phenomena, and, on the other, processes of organising and collating information about the universe once it has been attained. The latter kind of process is relatively well established and understood, and no great commitment to a particular point of view is necessary. It does not hurt a scientist to agree that someone may come along later and organize his findings differently, around a different set of concepts, although individuals may develop commitment to a particular viewpoint as a result of the investment of a great deal of time and effort.

With regard to the establishing of phenomena the situation is entirely different. Both the scientists and the philosophers are unclear about the status of scientific induction. Logical consideration of the scientific

technique of establishing generalisations by collecting positive instances leads to a series of paradoxes. No agreed techniques exist for the setting of criteria for evidence. The accepting of new phenomena may enforce the reorganisation of whole areas of theory in initially incalculable ways. In short the scientist is likely to be strongly motivated towards scepticism in relation to new phenomena.

Scepticism is in any case academically respectable. It has a long tradition stemming from Descartes, and has become a part of the scientist's image. The sceptical posture is one which requires no special training. It will then be no surprise to find it being worn as a badge of merit by those scientists who are least sure of their other qualifications for that title and its status. We may also expect it to characterise those people who have little scientific training or aptitude, but who, for reasons related to their personality structure, wish to think of themselves as being scientific.

Clearly other mechanisms leading to scepticism could be envisaged. Not all sceptics are scientific sceptics. But we do not have to comprehend all of the mechanisms involved in order to recognize that there are people for whom scepticism has become a habitual mode of response. The so-called 'authoritarian personality' was recognised by Adorno and his colleagues (1950) through the observation that people holding one 'authoritarian' belief tend to hold other, and unrelated, 'authoritarian' beliefs. Thus the belief that homosexuality is a serious crime, and should be severely punished, is more likely to be held by someone who assents to the statement that foreigners are not to be trusted than by someone who disagrees with this statement.

In the same way one might identify a 'sceptical personality' through observation of a correlation between sceptical beliefs with unrelated content. A scale could be constructed consisting of statements such as, 'Flying saucers are extra-terrestrial vehicles' and, 'Some people can obtain information directly from the minds of others', and some people would probably score very low in terms of their tendency to agree with these statements.

Conversely some people would probably score very high on such a scale. We might call such people 'credulous' as opposed to 'sceptical'. Anyone who has ever had any contact with 'fringe' areas such as psychical research, or the investigation of UFOs will have encountered people who, like Lewis Carroll's White Queen, try to believe at least one impossible thing before breakfast.

One would expect such people to come out very high on the scepticism/credulity scale. In the case of the authoritarianism scale it appears that people who have scores at opposite extremes have some important characteristics in common. Thus they both tend to be high on independent measures of rigidity. It would not be surprising if we found that there were other measures which were related in a similar way to our scepticism/credulity scale, so that people who were at opposite poles of the scepticism/credulity dimension were similar in their positions on other dimensions. Certainly my own history of interaction with the extremely sceptical and the extremely credulous leaves me with the feeling that the similarity between the two types is far greater than either would care to acknowledge.

The speculative analysis so far has suggested that the sceptical and the credulous are at opposite ends of a continuum. Very often, however, in public discussion of contentious material, the middle of the continuum is not represented. People at the two extremes tend to be highly vocal, not to say vociferous, in response to each other. The area of their dispute tends to be one in which a phenomenon is being recognised by one and denied by the other. The dispute itself tends to become highly acrimonious, with all sorts of personal comments and accusations being leveled at each side by the other.

The sceptic is accused of bolstering up a system in which he has high status, of pandering to the repressive demands of governmental authority, of willful blindness. The believer is accused of fabricating data; of pretending to believe in order to jump onto a financial bandwagon; of striking back at the scientific 'club' he has not been able to join; of being a deliberate agent for chaos. The atmosphere becomes charged with personal descriptions ranging from pig-headedness through stupidity to insanity.

The content of these accusations is quite often justified. There are 'nuts' on both sides. Some of the sceptics are clearly more than a little obsessional, while some of the believers are clearly classifiable as paranoid schizophrenics. Data do get fabricated. Unscrupulous people do capitalise on the credulity of others. Governments do try to exercise control of the beliefs of the public, and sometimes they use scientists in this endeavour. However justified may have been the negative conclusions of the Condon Report on UFOs (1969), there can be little doubt that the study was conceived and executed with a strong bias towards reaching such negative conclusions, and that the governmental institution of the project and

selection of its personnel was intended to produce this bias.

Irrespective of the frequent justifiability of such accusations it is clear that they usually predate the evidence. The disputes are operating at an emotional level that has little in common with the state appropriate to the dispassionate establishment of facts. Qualitatively the emotional atmosphere resembles that which accompanies a clash of attitudes or of tastes rather than of beliefs. The disputants evidently find each other incomprehensible in the same way that we find people incomprehensible who dislike the foods we like. It is interesting to note that in that situation too we often find ourselves suspicious that the other person does not really believe what he is saying.

The foregoing implies a similarity in state of mind between the credulous and the sceptical. Some similarity may also be observed when one comes to consider the specific theoretical and methodological errors which they make. Thus both show a tendency to confuse and amalgamate theoretical and observational issues. Thus one man may see a lenticular formation moving in the sky in a particular way, and interpret this as an extra-terrestrial vehicle. Another man, deeply sceptical about extra-terrestrial vehicles and the like, may set out to prove that he did not see anything, when all he has to prove to maintain his position of scepticism is that whatever was seen it was not an extra-terrestrial vehicle. Similarly, J.B. Rhine (1948) puts forward evidence suggesting that some subjects in ESP experiments obtain information that is difficult to account for their obtaining through any well-recognised sensory modality. Rhine makes it clear that he believes that the phenomena are outside the explanatory scope of science. Many sceptics behave as if Rhine's observations and his beliefs about them were inseparable, and therefore find it necessary to argue, not just that the phenomena can be explained in scientific terms, but that there are no phenomena.

This error can arise in a more subtle way, taking advantage, as it were, of one of the weakest links in the chain of scientific reasoning. One might have thought that to the scientist, striving to obtain an objective view of the universe, a piece of evidence for a proposition would have a status independent of his previous opinions, but this is not so. What he in fact does is to weight the evidence according to his current state of belief about the phenomenon or theory it relates to. In other words he attaches a certain probability to the phenomenon or theory, and demands stronger or weaker evidence in accordance with this a priori probability. The philosophical

status of this procedure is not clear, although attempts have been made to justify it in terms of the varying degrees of reorganisation of previous concepts that may become necessary upon the acceptance of new phenomena or theories.

However justifiable the procedure may be it is clear that it provides a broad avenue for the entry of subjectivism into science. Many examples can be found of the attaching of particular a priori probabilities on the most flimsy, or mysterious, of grounds. Very often the low probability is attached to a theory simply because it is not in keeping with the spirit of the times. Sometimes it is difficult, looking back, to account for the scepticism with which a particular hypothesis was greeted. What, for instance was so very unlikely about Wegener's (1915) theory of continental drift as to justify its forty years in the wilderness?

Let us return to our consideration of Rhine's experimental reports and his anti-materialistic interpretation of them. The sceptic who does not go so far as to confuse the phenomenon with the interpretation may nevertheless place an unrealistically low a priori probability on the phenomenon by transferring to it the incredulity which the interpretation arouses in him. He may then find himself in a position to say that the evidence is weak. Thus he may point out that three researchers in cahoots could have faked a particular set of results. So, perhaps, they could, but one wouldn't demand that this possibility be obviated if one didn't regard the results as incredibly unlikely.

This brings us to another, but related, way in which the credulous and the sceptical are often similar. They both seem to have a penchant for innocently putting forward hypotheses of strikingly low intrinsic probability. Thus the believer in flying saucers may suggest that the earth has been under observation and guidance from outside over a period of millennia. One of his cases may be that of a trio of astronomers who spent some hours observing the antics of a UFO over the Sahara in daylight. This case is explained by the sceptic as a confusion on the part of the astronomers, who were really observing the planet Venus. Both hypotheses would seem to me to be of vanishingly small a priori probability.

Their anxiety to explain away phenomena rather than to explain them often prevents sceptics from noticing that they too have theories about the nature of the field of events they are dealing with, and that their theory may be inconsistent with some of the facts available to them. Thus the person who is sceptical about ESP may have an implicit theory that all of

the positive results in this area reflect, through one psychological mechanism or another, the folk belief in these phenomena. This person may not notice that the general failure to find positive results in precognition experiments, and the relative abundance of positive results in telepathy experiments, do not reflect the relative frequencies of belief in these phenomena.

The fact is that a position of scepticism is one that stands in need of justification as does a position of belief, and there is often as capricious a basis for the sceptic's disbelief as for the believer's credulity. In exactly the same way as the credulous person sometimes seems to go out of his way to find extraordinary things to believe in, the sceptical person often seems to be trying very hard to find things in which to disbelieve, and to modify his perceptions accordingly.

A good example of this can be seen in the response of many sceptics to the claims of ESP researchers that ESP does not obey the inverse square law for the propagation of energy. The evidence for this proposition is that a number of ESP subjects have scored at about the same level over a variety of distances. This is clearly very poor evidence for the claim. A similar case could be made for the proposition that radio does not obey the inverse square law. Yet many sceptics seem to be prepared to accept this finding as a basis for rejecting ESP because it is scientifically impossible. This reasoning is as zany as anything the most cranky believer is likely to come up with.

Here again we find the sceptic selecting items from the information available to him in ways not essentially different from those of the believer. He is not trying to account for observations, but to find support for a particular world-view. An interesting example of such selection can be seen through a comparison of observations relevant to witness credibility in relation to psychical phenomena and to flying saucers. Numerous sceptics, for example D.J. West (1962), have pointed out that if one tabulates claims for spontaneous psychical phenomena in relation to the qualifications of those making them one finds that the most detailed claims come from the people whose credibility as witnesses is lowest. If one does the same for UFO reports one finds, in fact, leaving aside those claims which fall down on grounds of internal consistency alone, that the most detailed claims come from just those people whose status as observers of aerial phenomena should be highest; pilots, astronomers, meteorologists, and so on. UFO sceptics do not draw attention to these facts. A similar observation can be

made about the variability of the claims in the two areas. That is, the bigger the sample of internally consistent psychical event claims one considers, the more different phenomena there seem to be, whereas most of the internally consistent UFO claims seem to fall in one of a very limited number of categories.

To sum up, a consideration of the people expressing belief and disbelief in a wide range of fringe phenomena and speculations suggests that the extremely credulous and the extremely sceptical are brothers under the skin, displaying similar faults of reasoning, biased observation, and capricious assignment of a priori probabilities. They also display similar evidence of strong internal motivation unrelated to the subject-matter under discussion, but predisposing them to the point of view they take up.

Science may have made enormous strides in recent years, but we are still a long way from being able to assign confident a priori probabilities to occasional phenomena. We may never be in a position to do this. This being so, any claim to have observed a new phenomenon must be judged by a procedure independent of our immediate ability to make it cohere within the structures that appear already to have been elucidated. The credibility of witnesses must be assessed as it is in a court of law, with the same scrupulous separation of the witness's report from his interpretation of that report.

It is in fringe areas like psychical research and the investigation of UFO claims that our ability as a species to make sense of our universe is under test, and it is my belief that if we are unable to prevent our psychological weaknesses from muddying the water we will fail that test.

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