

On Physics and Psi - I

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More than one century of scientific inquiry on paranormal phenomena has enlarged the knowledge of them defining a paradigm. The problems are that

- it failed to connect these phenomena to the others well *understood* by Science
- it failed *to control* them, i.e. to get them repeatable and find methods to enhance and "use" them in a non controversial way.

On the contrary, these phenomena "work" in a way that seems completely different from the standard physical (and biological) phenomena. For this reason, even if the proofs of their existence are overwhelming, the majority of the scientific establishment think that must be some errors in the experiments done until now and no genuine paranormal phenomena could exist.

Let us see some paradigmatic differences between a "standard" and a "anomalous" or "paranormal" phenomenon. Let us consider for the moment only the ESP or "cognition" phenomena. A "perception" is, in general, the acquisition of information on the external world, normally acquired by the five senses; the more classical hypothesis for clairvoyance and telepathy has been that there is a sixth sense, of possible "standard" origin, like ELF (extremely low frequency electromagnetic waves) or other, that is responsible of this information exchange. But every known perception (and perceptual channel) has the following paradigmatic peculiarities due not only to the physics of our world, but also to the information theory, i.e. to mathematics. All them are, in general, absent in ESP phenomena:

- **space** limitation: the interaction must decrease (except some particular cases) with the distance. The exceptions are when there is a particular artifact, like a telephone cable.
- **time** limitation: it is never possible to have information from the future.
- **noise** limitation: if I can receive a message telepathically from a friend at a distance of 1000 km, the same message must be received as "noise" by people nearer to him and I must receive as very high noises the messages of the millions of people that are nearer to me.
- **energy** limitation: it comes partially out from space limitation and noise limitation, it has different consequences, depending on the refinements of the model, for example, in the case of transmission model, the transmitted energy must be much larger than that of the received one and the received energy must be higher than the energy produced by many different noises. Another aspect of this limitation is the necessity of the existence of a "**screen**"; in fact what can be used as receiver (that is a device that subtract

energy from the radiation and uses it "usefully"), can be used as a shield (that is a device that subtract energy from the radiation and dissipates it). Note that no shield has been found for ESP.

- **cooperative enhancement:** if more "percipients" perceive something, the SNR (signal-to-noise ratio), i.e. the "clarity" or the "strength" of the information exchange, must be enhanced: if I present a Zener card deck to 100 people and take for each guessed card the card guessed by the majority, the number of hits must grow. In principle this type of experiments could achieve the repeatability; they have been carried on often in the past, but, as usual, with controversial results.
- **learning:** all types of perceptions and human (and animal) skills present a learning pattern, so normally the results improve with training. With a few exceptions, in ESP experiments a decay is always present, not only for a single subject, but also for an experiment or even for a full class of experiments.

Models not based on perceptual paradigm don't escape some of these features. I will discuss them in subsequent paper.

There are some other features that make paranormal phenomena particularly difficult to digest:

- the central role of the **experimenter** and of his **beliefs**
- the difficulty to define exactly **what is actually experimenting:** the same experiment sometimes can be interpreted as clairvoyance, telepathy, precognition or even psychokinesis.

If, as it seems likely, these features are confirmed, we must face that reality is deeply more complex than the today standard scientific view and we don't know if we will be ever able to *understand* and *control* it.

An important feature of "anomalous" phenomena is that they are intrinsically tied to **consciousness** or **volition**. It seems that a clairvoyance, a telepathic or a psychokinetic phenomenon make no sense if the agent is not a living being: one can say that the only way to determine the presence of a consciousness is by asserting that the observed thing has paranormal capabilities. A computer that uses PK to achieve its goals, has a *goal* and a *will*. A computer that uses telepathy to know something, really *knows* something. (I don't believe that something like a today computer can *want* or *know* anything). Today science is yet very far to understand will and consciousness. I think that the study of "anomalous" phenomena and consciousness can progress only if done together.

A theory that, in principle, can explain easily anomalous phenomena is that of **synchronicity**. It may be a natural theory of consciousness. The problem is that it is very much more, it is, in my view, the most revolutionary perspective of the world, even if the basic ideas are much older than science. Another problem is that it is intrinsically unscientific and if it is true, may mean that we shall never know anything about these things. This may be a theory whereof one cannot speak, and thereof one must be silent. Or not ?