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part of everyday experience. Perhaps the most extensive work in this area was conducted in the 1950s by Ronald and Lyndon Rose among Australian aborigines, Maoris and Samoans. The Roses did both ESP and PK testing, with divergent results: the ESP tests almost invariably gave very high scores (except in Samoa), but the PK tests were uniformly completely unsuccessful. What these findings do reflect is the effect of social beliefs and attitudes on psi, the sheep-goat effect in cultural guise. The Roses' aborigines were adamant that only the 'clever men' of the tribe could possibly influence the dice used to test for PK; they were certain they could not, and so they couldn't, or rather didn't. A little PK testing was done, unsuccessfully, with the 'clever men', but very few were tested and their attitudes to the task were unclear.

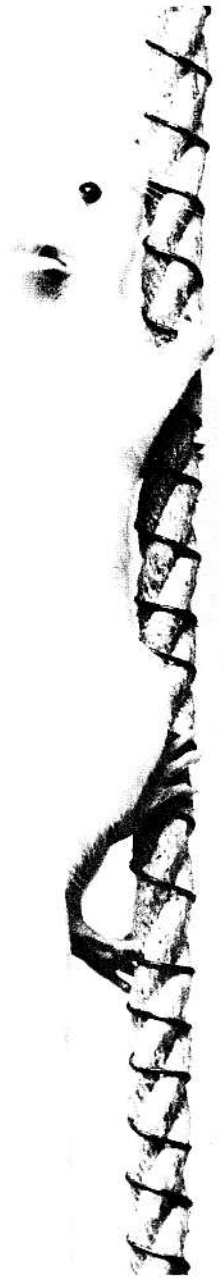
Other research has been conducted with so-called 'primitive' cultures, in Liberia and Panama for example, often with quite good results. But there is really no need to spell out the details, for the Roses' findings show quite clearly that different people have different cultures which either facilitate or inhibit the development of psi abilities. Whether the abilities of Australian aborigines are basically any different from those of Central Europeans it is impossible to say.

Animal psi

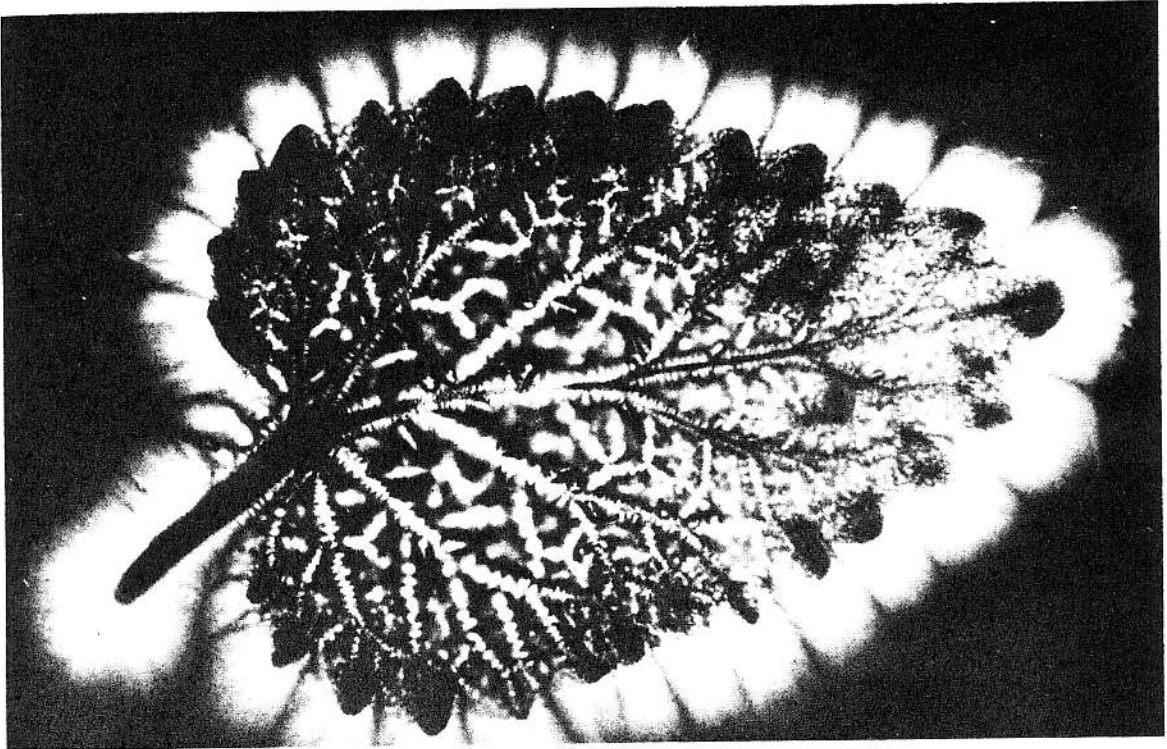
Finally, there is the question of psi in non-humans. If ESP is evolving out, one might expect to find ESP more strongly in animals than in humans. It is perfectly possible to devise psi experiments for animals; much of this work has involved PK rather than ESP testing, but one can do both. For an ESP test, one can place an animal (a rat, say) in a cage divided into two halves which can be independently electrified to give the animal a weak shock. If the animal can use ESP (precognition), it might be able to avoid the half to be shocked more than 50 per cent of the time. Do animals score better than 50 per cent in such experiments? Sometimes they do and sometimes they don't. Though the picture which has emerged from numerous experiments of this kind is complex, one thing is very clear: animals do not display stronger or more reliable ESP and PK than humans. If anything their psi faculties are less reliable.

Vegetable psi

It has been reported by one researcher, who shall remain anonymous, that plants 'react' to human emotions and to the killing of other plants and small animals (like shrimps). Some authors, notably Lyall Watson, have enthusiastically taken up the cause of Plant Lib. But it has now been shown, quite conclusively, that the measuring techniques used in this work are faulty. Careful research in a number of laboratories has shown that when artefacts in the measuring equipment are eliminated by controlling such factors as draughts, temperature changes, vibration, and so on, no trace of evidence of psi in plants can be found.



Can animals be tested for psi? Yes they can, but as yet there is no evidence to support those who swear that their pets understand everything they say!



Root-and-branch Plant Libbers have made large claims for the existence of ESP in plants. Careful testing, though, has nipped that idea in the bud.

To return to our original question, is psi evolving in or out? The only honest answer is, we don't know. Studies with children suggest that ESP may be stronger in the first few years of life than later, but this could be a function of socialisation, not of biology. Similar comments apply to work with 'primitive' cultures: the findings seem to reflect social and cultural beliefs rather than any differences in innate psi ability. And research with animals has failed to produce clear evidence that psi effects become more marked or more reliable as one moves down the evolutionary scale.

Intelligence, sanity, madness, and psi

Although Spinelli's results have been put down to social factors and to his gift for working with children, his suggestion that rational intelligence may interfere with psi, particularly with ESP, certainly seems plausible. 'Intuition', presumably part and parcel of ESP, appears to be qualitatively different from 'intelligence'. If IQ is negatively related to ESP, might not the breakdown of rational functioning in extreme cases of mental illness (the psychoses) lead to increased expression of ESP?

The relationship between IQ and ESP is easily summarised: none exists, or at least not on the present evidence. However, it is often difficult to separate intelligence from other factors. The results of an ESP experiment conducted by a young American researcher, Bob Brier, with members of Mensa, the high-IQ club, showed strong psi-

even more important, specifically. Mason went on to clear up some 90 per cent of the affected areas of the boy's body in this way. Hypnotic suggestion had effectively cured an 'incurable' and crippling disease.

Testing a healer

How, then, to dispose of these problems – of diagnosis, evaluation, the long-term effects of previous treatment, the role of suggestion? For until we can rule them out, it will be very difficult to isolate an effect which we can be sure has been brought about by faith-healing and by no other cause. Bernard Grad, Professor of Psychiatry at McGill University, proposed an ingenious solution to the problem. He designed an experiment whereby relatively painless wounds were inflicted on laboratory mice which were then 'treated' by a faith-healer, Oskar Estabany.

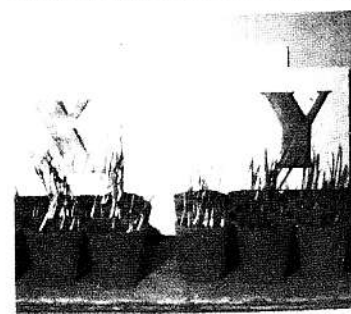
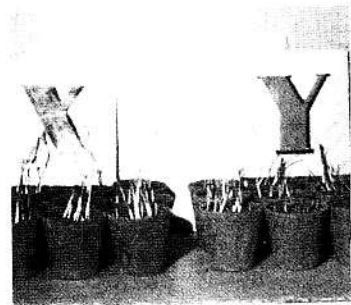
Grad took a number of mice and, under anaesthetic, removed a small portion of skin from the back of each animal. The mice were then divided into a control group (whose wounds were allowed to heal naturally, without treatment) and the experimental group to be treated by Estabany. During the treatment, Estabany was allowed to do no more than touch the cages in which the mice were held. This is important, since it is known that handling and stroking will influence the physical processes of healing in wounded mice.

Under carefully controlled conditions – including a 'blind' measurement of the rate of recovery of both groups of wounded mice – Estabany's mice recovered notably faster than the control group. In another experiment, however, in which the cages were insulated under heavy bags, Estabany had no significant effect on the mice.

So far the evidence for any special powers possessed by Estabany was inconclusive – although the experimental method showed that it was, theoretically, possible to test for psi (PK) in a way that eliminated any psychosomatic factor in faith-healing. Much clearer results emerged from other experiments in which Estabany's effect on plants was tested. Grad prepared two groups of plants which were to be grown in chemical solutions. The control batch of plants was grown in a solution which was favourable for growth. The other batch was planted in a saline solution which might normally be expected to inhibit natural growth.

The plants were watered at regular intervals. In the case of the plants in the saline solution, Estabany 'treated' the water by holding the sealed flasks which contained it. The object of the experiment, of course, was to find out if the plants in the adverse growing medium would grow faster than might otherwise be expected. Grad was able to show, quite conclusively, that this is indeed what happened. Interestingly, Grad analysed samples of the 'treated' solutions and found no chemical changes which could explain the results: yet, clearly, Estabany *was* boosting the growth of plants in an environment which would normally be hostile to such growth. Here was sound evidence for a PK effect – not on the solution itself, but on the plants, *with which Estabany had no direct contact.*

Top to bottom: Day 10 and Day 14 of Grad's experiments with plants treated by Estabany. The batch marked with X contains the treated samples, the Y batch is the control.





Oskar Estabany, a faith-healer who demonstrated PK effects under laboratory conditions.

Estabany was again involved in a remarkable series of experiments conducted by Sister Justina Smith, head of the Chemistry and Physics departments at Rosary Hill College, Buffalo. These were designed to find out if Estabany could exert a PK effect on a very simple physical system, the activity of human enzymes. Enzymes are a category of proteins which, in the human body, subserve many vital functions. Essentially, they influence the rate of certain chemical reactions. Many enzymes speed up such reactions, while others are inhibitors: in general the system is one of delicately poised checks and balances. Enzymes are not themselves broken down by chemical reactions, but act as catalysts. To give an idea of how important enzyme activity is, if a few key enzymes stopped functioning in your body NOW, you would be dead before you finished reading this page.

Smith tested Estabany on his ability to influence the activity of one enzyme in particular, *trypsin*. This is a gut enzyme, involved in breaking down food: it is fairly easy to study since it can readily be prepared in a pure form, and the biochemical measures (*assays*) needed to evaluate its activity are relatively simple. Smith found that Estabany was able to influence the trypsin solution by increasing the activity of the enzyme. This was the case even though Smith had been careful to monitor the immediate environment of the trypsin for changes in temperature or magnetic field, both of which are known to affect the operation of the enzyme. No such changes took place, although Smith found that the PK effect on the trypsin was similar in power to that of a 13,000 gauss magnetic field.

Further evidence

In view of the clear-cut results obtained by Sister Smith, it is odd that there is only one reported attempt at replicating her experiments. This was by the American researcher Hoyt Edge, working with a faith-healer called Anne Gehman. In a series of rigorously controlled experiments, Edge obtained results that, while varying from experiment to experiment, nevertheless showed a definite, positive overall PK effect. As in Smith's experiments, Edge made careful comparisons between the effect on the trypsin solution of an artificially induced magnetic field, with that of the healer. He found, like Smith, that both magnetic fields and PK effects could influence the activity of an enzyme, a crucial chemical in the metabolism of the body. His healer did not produce results as strong and reliable as those Smith had obtained with Estabany, but they were still too strong to be attributed to chance alone.

As a footnote to Edge's work, it is interesting to note that on one occasion he found that the magnetic field he was using as a controlled effect completely failed to influence the trypsin activity. In other words, the normal effect of a simple physical variable was not repeatable on demand. When sceptics allege that findings in parapsychology are 'not repeatable', results like these are worth bearing in mind!