

## NEWS AND VIEWS

**Believing without Seeing**

THE letter from Drs Pratt and Stevenson on page 394 is the latest and, it is to be hoped, the last contribution to an unproductive argument that has continued ever since the appearance, more than a year ago (*Nature*, **220**, 89; 1968), of an article describing the results of a series of experiments in what is called parapsychology. Nobody will dispute that this is a contentious matter, and that is as it should be. A successful demonstration that people—even some people—can identify remote objects without receiving from them known sensory signals would plainly stand on its head a good deal of modern science. That, indeed, is probably the incentive for a good many of the experiments that have been attempted in this field. With such a prize in prospect, is it not honourable not to be cast down by repeated failure? That, at least, is one charitable explanation of why people keep trying.

On the face of things, the experiments of Dr Pratt and his colleagues with their subject called Stepanek have something to commend them. Mr Stepanek seems to be able to identify particular envelopes when they are mixed in with a series of similar objects. To be sure, he seems to have lost his original ability to identify the upturned colour of a two-coloured card concealed within the envelopes, but the constancy of his performance in the identification of the envelopes themselves is on the face of things sufficient to need some kind of explanation. This certainly was the opinion of one referee, more than a year ago, who suggested that the experiments with Stepanek were the most convincing of their kind to have been carried out.

Whatever the truth may be, there is evidently a long way still to go. In matters like these, there is always plenty of room for arguments about the detailed interpretation of the statistics, or about the possibility that the experimental design may include some mechanism for providing clues, unconscious or even conscious, to the experimental subject. The correspondence of the past few months has shown that the experiments of Pratt *et al.* are not free from objections on these grounds. But the more serious objection to the interpretation which they put on their work rests on broader grounds. Several correspondents have rightly pointed out that experiments like these should be designed in such a way that the results can be verified independently. It is always disturbing when a statistically small effect has to be spirited out of a collection of data which has had to be obtained by the use of an experimental subject trained to be proficient in his task and by an observer or observers who know what results will look best. (To say this is not to accuse anybody of dishonesty but simply to remark on a well known principle of experimental psychology.) But it is also disturbing, to those who are not instinctively falling over themselves to believe in parapsychology,

that so many of the experimental successes in this field entail such artificial procedures.

Why do people never find themselves guessing at really useful things—the sterling exchange rate, perhaps, or tomorrow's weather? In brief, the weakness of parapsychology is not merely that what purports to be evidence is very much in dispute, but that the situations from which that evidence is derived are so artificial that it would neither convince the doubters nor stimulate the believers. Given the useful experiments that cry out to be done, there is unlikely to be much profit in seeing whether a few individuals are better than chance at guessing at upturned playing cards.

## GEOLOGY

**Arctic Norway**

from a Correspondent

A MEETING held in Cardiff from January 9 to 12 confirmed the opinion recently expressed by Professor Cristoffer Oftedahl that it would be necessary to travel to Britain to understand the geology of north Norway. Organized by the University of Wales and the Norwegian Geological Survey, the meeting was concerned with the Caledonian geology of Arctic Norway.

In a session on structural and metamorphic geology Dr M. R. Wilson (University of Oxford) aroused considerable interest when he reviewed recent research into the tectonics of the Caledonian fold mountain chain in the area straddling the Arctic Circle. Swedish geologists have for some years held that the eastern edge of the mountain chain is characterized by thick sheets of much travelled metamorphosed rock overthrust on each other and originating from the west in Norway, where Norwegian geologists had failed to recognize any major thrust surfaces. Wilson was able to show that only one thrust surface occurs in the western Norwegian area and that the thrust units of the Swedish geologists thin out successively towards the west. The thinning predates the earliest recognized folding in a complex deformational sequence which was also described by other speakers in areas further north.

A session on igneous geology was brought to a climax by Dr B. A. Sturt (Bedford College, London), who described the plutonic history of part of the Seiland Igneous Province in the far north-west of Norway. He demonstrated that plutonic igneous bodies had been intruded at all stages during the complex deformational sequence in the surrounding Caledonian rocks and that there had been a gradual change in the composition, from gabbros in the early intrusions to alkaline syenites, carbonatites and ultramafic rocks in the latest. This zone of basic igneous intrusions, representing an extension of the crustal layers by up to 400 per cent, was invoked by Dr P. N. Chroston (University of East Anglia) as the cause of a large positive gravity anomaly of +120 mgal running from the Lofoten Islands in the south-west to Sørøy