physics. Even though Dingle may say that an abandonment of strict relativity in the sense of Einstein's essential postulate would not necessarily imply the end of Lorentz transformations, it is exceedingly hard to believe that a postulate which seems entirely helpful in most of its applications should nevertheless lead to a real inconsistency, and it is no surprise that the resolution of the paradox which McCrea has provided is in a sense semantic. But in circumstances like these, where a theory is lent conviction by the sheer breadth of its agreement with experiment, it would seem incumbent on those who would overthrow it to produce not merely a contradiction but a constructive alternative.

There is also the problem of whether Dingle is right in saying that there has been a breach of professional concern for professional integrity in the way in which his original assertion has not been answered in the detail which he himself considers to be necessary. This raises interesting questions about the function of the scientific literature as a whole. It is, in particular, important to know just to what extent the profession of science should come smartly to a halt when somebody cries scandal and says that there is something wrong with the essential character of an important theory. Dingle is right to seize on the importance of propaganda. The man who first spots an inconsistency has a duty to bring it to the attention of others, if necessary with vigour. But, especially now that most people are disciples of Popper, an inconsistency is more likely to be welcomed than ignored. Science may not be conspicuously more free from self-deception than other kinds of intellectual activity, but everybody knows that it flourishes by upsetting apple-carts. If, in these circumstances, an allegation of scandal should be ignored, that in itself is an entirely proper reason for asking whether the allegation can be well founded. It is immodest of Dingle to have plumped for the alternative supposition that the profession of science is at fault.

Can Learning be Transferred?

THE function of learning and memory would be much more easily understood if there were some chemical structure in the brain in which information could be reckoned to be stored, and this no doubt is why there has been such interest in the past two years in experiments with the object of determining whether learned behaviour can be transferred by injecting brain extracts from trained donor rats into untrained recipients. As yet, however, there is no positive evidence to suggest that transfer really occurs and there is nothing to suggest what the responsible substance might be—protein, RNA or some other. One obvious difficulty in experiments like these is that of measuring with some semblance of precision the degree to which learned behaviour can be supposed to be transferred from one animal to another by the injection of brain extract or of RNA. Another is, of course, the problem of knowing what materials are being transferred in any series of experiments.

In the circumstances, it is no surprise that experiments so far have been in many ways conflicting. Some people claim that various learning schedules can be transferred by means of brain extracts. Others have failed to replicate these experiments. Adám and Faiszt have now (p. 198) carried out a series of experiments designed to define conditions under which training and habituation should be carried out if transfer effects are to be recognized most easily. Although the new experiments do nothing to define the chemical nature of transfer factors if these exist, there is at least the possibility that they will help to reconcile some of the conflicting reports that now appear in the literature. There is no doubt that, in this field, more accurate attention to the objectives and the significance of the experiments which are carried out cannot fail to be a boon. Whether in the long run the reality of transfer factors is established is, of course, another matter and a more problematical one.

Materials in Archaeology

from G. F. Freeguard

PRIMITIVE man was essentially unable to alter the properties of those materials which were naturally available to him, and therefore his development rested on his ability to learn by practical experience to adapt them to his requirements. Subsequently, in establishing further his mastery over his environment, man began to make new materials on an empirical basis, a process which eventually led to the manufacture of materials on a scientific basis. The annual meeting of the Materials Science Club at Banbury (September 22–23) was entitled "Materials in Archaeology" and presented an opportunity for a distinguished group of archaeologists to discuss with materials scientists the specialist knowledge which can help to unravel some of the secrets still held by the past.

The understanding of natural material may be illustrated by the building of the brochs—stone, round, tower-like structures which only occur on the northern and western coasts and islands of Scotland and which were probably built from 100 BC to AD 100. They represent the highest development ever reached in building with dry, undressed stone. The hollow wall construction which is tied together by lintels—also used extensively over the entrance of mural cells and internal wall openings—illustrates well the adaptation of a structure to the availability of materials, sandstone and metamorphic rock slabs. Observation confirms that the lintels have been able to withstand severe stresses imposed either by differential settling of the massive stone walls into which they are locked at both ends, or by imperfect horizontal alignment of the beds on which the lintels were being placed. The