resulting animal thus had a new central nervous system and had been removed from experience with hydrae by 15 generations. And yet it accepted a hydra and appropriated the nematocysts or "stingers."

This research has convinced me that life persists and is purposive.

Were I to have made this claim fifteen years ago, I should have had difficulty finding support in biological literature.

But times have changed. There appears to be a drift away from mechanism in modern biological thought. Haldane gives "freedom of the will" as one of four factors of evolution. Jennings says, "Emergent evolution does away with that monstrous absurdity that has so long been a reproach to biological science; the doctrine that ideas, ideals, purposes have no effect on behavior." Wells, Huxley and Wells, in "The Science of Life," record that, "Human purpose is one of the achievements of evolution" and that "Modern biology is steadily moving towards the conception of a single world-stuff with both material and mental aspects."

In modern biological thought, therefore, purposiveness is coming to be recognized. Mind is no longer the clatter of machinery but an entity placed upon a par with matter. Less is heard these days of the cerebral cells secreting thoughts as the liver secretes bile than was the case twenty years ago. Biologists may come to realize that mind (life) is an entity with which they must deal as do physicists and chemists deal with matter. They may come to agree with Jeans when he says, "To-day there is a wide measure of agreement, approaching almost to unanimity, that the stream of knowledge is leading towards a non-mechanical reality; the universe begins to look more like a great thought than like a great machine."

The cosmic test-tube of the mechanists seems to have boiled over, and we find the purposiveness of Aristotle threatening to displace the mechanist's idea of chance survival.

SCIENTIFIC EVENTS

THE BRITISH NON-FERROUS METALS RESEARCH ASSOCIATION

LORD RUTHERFORD opened the new headquarters of the British Non-Ferrous Metals Research Association in London on June 8, near Euston Station. The building provides space for the collection of machinery to assist the staff in carrying out its work. The following summary of his address is given in the London *Times:*

The quantity and quality of the work of the association in the past ten years, Lord Rutherford said, were surprising when the early difficulties of the organization were considered. It seemed to him that in future they must divide the work of the association under three categories: (1) *ad hoc* researches or special investigations bearing on the difficulties of the industry at a particular moment, which might help to improve a product or get over some technical difficulty; (2) long-range fundamental research bearing on matters that lay at the foundation of the industry; and (3), finally, the steady accumulation of knowledge that would lead to the creation of new industries or the development of existing ones. An association of that kind could not take short views.

Referring to the need for close liaison between scientific men and industrialists, Lord Rutherford noted how much had been done by the association to simplify the results achieved by research to the industrial mind. He regarded this as an important matter, because it restricted the inevitable time lag that occurred between scientific discovery and its use in industry. In estimating the results of scientific research there was always a danger of taking too narrow a view of the work. They could not expect in research work a certain definite return every month. One of the marvels of the age was the development of the motor-car since 1900, on which tens of thousands of men were engaged to-day and for which special steels, special alloys and many other materials were required, each of them representing a great deal of research work. Of the 60 or 70 metals available for research only six or seven had been investigated by the association. What about the other 60? It was obvious that an enormous amount of work remained to be done.

There was probably not a single process that was going on in the industrial world that would not be capable of improvement if it were studied scientifically. He was quite sure that 90 per cent. of the processes used in industry could be improved by the application of science. In the new building there would be no lack of work in research for years to come, even if they multiplied the staff 10 to 20 times. The future of the metal industry, as of many others, was ultimately dependent on the application of science to industry. He thought that in the years to come only those industries would survive in the world which had shown their power of applying scientific knowledge to improve their methods of production.

RESEARCH RESERVES IN THE NATIONAL PARKS

A DEFINITE policy of preserving research reserves inside national park areas has been adopted by the National Park Service. The national parks themselves are areas preserved in as nearly as possible