

SCIENTISTS URGE WIDER USE OF SEISMIC EXPLOSIONS  
TO EXPLORE NATURE OF THE EARTH'S CRUST

More systematic use of seismic explosions to obtain a truer picture of the profile of the earth's crust has been recommended by an international meeting of scientists at Unesco House in Paris.

The meeting was of a working group on investigations of the earth's crust convened for the International Committee for Geophysics by Dr. Markus Båth of the Seismological Institute at Uppsala, Sweden. It was attended by twenty-six scientists from Czechoslovakia, the Federal Republic of Germany, Italy, Japan, Sweden, the Union of South Africa, the United States and the U.S.S.R.

Shock waves produced either by earthquakes or explosions using charges of TNT travel at different speeds within the earth, depending upon the composition and the physical state of the material through which they pass and also upon the depth. Interpretation of seismometer recordings of these waves can indicate the nature of this material.

But, it was brought out at the meeting, the picture obtained of the earth's crust through measurements of explosions is incomplete at present and probably inaccurate in detail. There has been a tendency to visualize it as being formed of regular, horizontal layers, but it now appears that the thickness and nature of these layers may vary very much from one region to another.

To answer this question, the meeting recommended the international exchange of seismic explosion parties so that scientists may be able to extend their research across national boundaries, especially in regions where discordant results have been obtained up to now.

Such free exchange already marked this meeting. It was brought out that methods of investigating the earth's crust in the United States and the Soviet Union are basically similar since both countries have huge continental regions in which to work.

One of the purposes of the meeting was to ascertain if certain apparent differences found in the structure of the earth's crust in various parts of the world are due to basic differences in research methods. Following the working group's five-day session, the consensus was that this is not the case, and that these differences are real.

In another recommendation, the working group recognized that geophysical methods - such as seismic explosions or measurements of gravity and magnetism - cannot answer all questions concerning the earth's crust. It recommended the drilling of deep wells to explore the crustal layers down to the base of the crust, on a national or international basis.

The United States has already begun an experiment in drilling into the ocean floor off the coast of California in the Pacific. The Soviet Union is planning to drill on land at several different places down to a depth of ten to fifteen kilometres. These drillings will be spread over a period of ten years.

The meeting also recommended drilling to measure the natural radioactivity of rocks below the earth's surface. Little is known about this radioactivity, but it is believed to explain the sharp rise in temperature (roughly 1 degree centigrade every 100 metres) encountered as one descends below the surface. The rise is too sharp to be explained on the basis of heat transmitted from the earth's core.

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ARTHUR C. CLARKE, BRITISH SCIENCE WRITER,  
IS SELECTED AS WINNER OF KALINGA PRIZE

Mr. Arthur C. Clarke, British science and science-fiction writer, has been selected as the tenth winner of the international Kalinga Prize of 1,000 pounds sterling for the popularization of science, it was announced at Unesco House in Paris.

The Kalinga Prize, awarded by an international jury appointed by Unesco, is a personal donation by Mr. Bijoyanand Patnaik, an Indian industrialist, who is Chief Minister of the State of Orissa and a director of the Kalinga Foundation, named after the empire ruled by the peace-loving Asoka in India twenty-two centuries ago.

Mr. Clarke, whose home is in Ceylon, was nominated by the Ceylon Association for the Advancement of Science. The jury which awarded the Kalinga Prize this year was composed of Professor I.I. Artobolevski of the Academy of Science of the U.S.S.R., Professor Giuseppe Montalenti of the Institute of Genetics of Rome University, and Dr. M.S. Randhawa, adviser on natural resources and scientific research to the Planning Commission of India.

Previous winners of the prize, founded in 1951, have been Louis de Broglie (France), Julian Huxley (United Kingdom), Waldemar Kaempffert (United States), Augusto Pi Suner (Venezuela), George Gamow (United States), Bertrand Russell (United Kingdom), Karl von Frisch (Germany and Austria), Jean Rostand (France) and Ritchie Calder (United Kingdom).

Mr. Clarke might be called the first Kalinga Prize winner to be chosen from the space age. He is a former chairman of the British Interplanetary Society and he is now president of the Ceylon Astronomical Association. Interplanetary flights, spaceships and expeditions into the cosmos are among the subjects of his twenty-eight books; both fiction and non-fiction, which have sold two million copies in fifteen languages. He has also written extensively for magazines.

The ocean depths, that other great unknown, have also challenged Mr. Clarke. Since 1954, he has been actively engaged in underwater exploration and photography along the Great Barrier Reef of Australia and the coast of Ceylon.

Among the books he has published are Interplanetary Flight, The Exploration of Space, Voice Across the Sea, The Challenge of the Spaceship, The First Five Fathoms, The Challenge of the Sea, The Other Side of the Sky and A Fall of Moondust.

Mr. Clarke, who is forty-four years old, has made numerous radio and television appearances in the United Kingdom and the United States.

### Scientists Study Seas' Salinity

How much salt is found in sea-water was the question studied by scientists from seven countries meeting at Unesco House in Paris last week. The question is more than academic, the scientists pointed out, because it can affect the construction of harbours, the design and construction of ships, the prevention of coastal erosion, the behaviour and migration of fish, as well as many other oceanographic problems.

The scientists, representing a number of international oceanographic organizations, are associated with Unesco in a project to determine new methods and standards for measuring the salt content of sea-water.

Five hundred tests on sea-water samples from all over the world have been made at the National Institute of Oceanography, Wormley, England, under the direction of Dr. R.A. Cox, one of the scientists participating in the Unesco meeting. Dr. Cox explained that, sixty years ago, the first international efforts were made to establish a standard "measuring-stick" for salt in sea-water. This measurement, made by a chemical method which isolated the chloric content, enabled scientists to determine the salt content. The standard for this measurement is known as "Copenhagen Sea-Water".

A new method of determining the salt content in ocean waters has been developed during the past five years. By testing the electrical conductivity of a given sample of sea-water, scientists are able to determine its density and to calculate more accurately its salt content.

This new method was used in the 500 tests made at the Wormley laboratories. The tests will continue and the Unesco meeting has recommended that oceanographic laboratories around the world continue to co-operate by providing samples for testing by this new technique. The scientists have also recommended that the method now be used to establish the Copenhagen "International Standard", in addition to the former chemical method.