Urey cites changes in man's philosophy due to science

June 14, 1963

Scientific ideas are changing man's entire philosophy, including his view of his place in this universe, Nobel Prize-winning chemist Harold C. Urey said here last night (Thursday).

"I believe that the purely intellectual. aspects of science will modify the lives of men more than all the applications of science to the material welfare of men," he declared.

Professor Urey spoke to a group of 500 scientists and laymen attending a session of a University of California-sponsored conference in La Jolla which is probing the impact of the physical sciences on the State of California. The conference is one of seven which the University will hold this year to mark the occasion of California's becoming the most populous of the 50 states.

Urey emphasized that the many practical applications of science are close to dominating all considerations of government and economics, and that the purely intellectual aspects of science are beginning to dominate our philosophical and religious ideas as well.

Science, he observed, will continue to exert an important effect on our thinking. "As we go forward to the rest of the century and the next," he said, "it is well to bear in mind that this influence exists and will exist."

Urey, Professor of Chemistry-at-Large at the University of California who has his offices on the San Diego campus, is an internationally famed and much-honored scientist. He received the Nobel Prize in 1934 for the discovery of the heavy isotope of hydrogen called deuterium, and has been awarded the Willard Gibbs Medal, the Davy Medal of the Royal Society, the Franklin Medal and the J. Lawrence Smith Medal of the National Academy of Sciences.

In his talk, he cited a number of scientific intellectual developments of the past centuries that have influenced and profoundly altered the ideas of man.

He pointed out that the structure of the solar system as developed by Copernicus, the development of calculus in the field of mathematics, and the proposal of biological evolution "greatly modified men's ideas in regard to the importance of the planet Earth and perhaps of the importance of man himself in the scheme of things."

Geology has greatly increased our ideas in regard to the history of the earth, Urey said. Likewise, the development of physical discoveries such as electricity, magnetism and the fundamental laws of thermodynamics "laid the basis for much of our exact knowledge of the physical sciences."

Urey described what science knows about the structure of the atom as it one of the magnificent intellectual developments of all history," and said that the quantum theory and the theory of relativity have enabled science to understand in principle the origin of all chemical phenomena.

The development of rockets, Urey continued, has offered "the possibility of understanding phases of the history of the solar system that are perhaps not recorded anywhere else.

"To those of us who spend our lives working on scientific problems, science is a great intellectual adventure of such interest that nothing else we ever do can compare with it," Urey said, "We are attempting to understand the order of a physical universe, vast in extent in space and time, and most complicated and beautiful in its details.

"In this universe we find living things of which we ourselves are a part, and these living things, constituting in bulk only a minute fraction of the whole, are yet some of the most amazing and most fascinating parts of the whole."

While scientific developments in the past have modified the most fundamental ideas of ordinary people, science is not a substitute for religion, Urey stated.

"Science gives us no purpose in living beyond having a pleasant existence in one way or another," he said, "Scientists themselves are inspired by the magnificent things which they study, but science does not provide the ordinary man, whose daily life is often drab, with any objective that gives him a feeling of dignity. Such a feeling is essential if he is to rise above the disappointments and temptations of life and if he is to do the best of which he is capable.

"Religiously speaking, most scientists are skeptics," said Urey, "They do not subscribe to the dogmas of Christianity, Judaism, or any other religion. They tend to regard the supernatural aspects of these religions in the same light as they do those of the religions of ancient Egypt, Greece, and Rome. It seems to me that these attitudes have resulted from their scientific studies.

"It is my opinion," he stated, "that these attitudes have already spread to the general population to some extent and that this will occur to an even greater degree in the future.

"Speaking morally, however, scientists are mostly close followers of the precepts of Christianity and Judaism. These moral precepts were acquired from the religions of their communities."

Urey believes that the enormous growth in government activities since 1900 is due, in the United States and Europe, to the importance of applied science. He predicted that this growth will continue.

"The great increase in the budget of the government of the United States and the budgets of other countries is largely due to the development of war machines by applied scientific methods," said Urey.

"In a way we have at least reached a limitation in the art of making war which has never been attained before. The limitation in range is the dimensions of the planet Earth, and in capacity, the ability to destroy all."