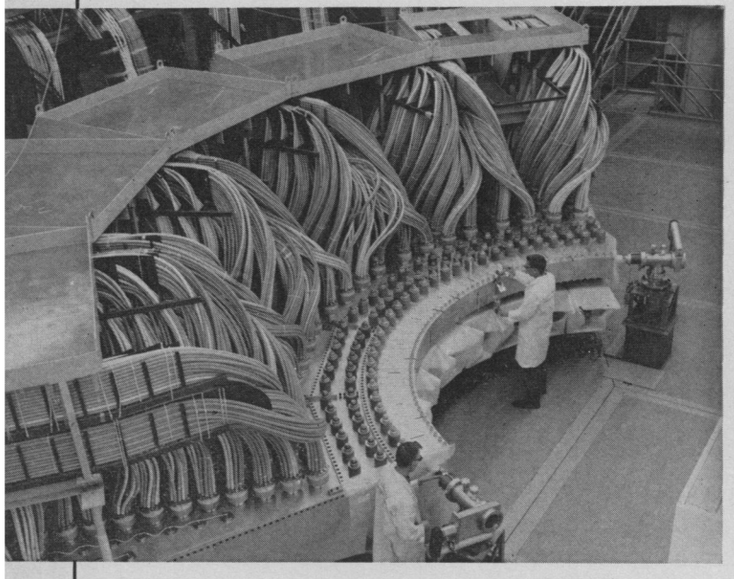
27 December

Energy Production from Nuclear Fusion

A group of four experts in controlled fusion research, headed by Roy W. Gould (assistant director for Controlled Thermonuclear Research, Division of Research, U.S. Atomic Energy Commission) will present a survey of the present status and future prospects for fusion power. Joining Dr. Gould in the symposium entitled "Energy Production from Nuclear Fusion" will be Harold Furth (Princeton Plasma Physics Laboratory), Fred Ribe (Los Alamos Scientific Laboratory), and Harold Forsen (University of Wisconsin).



The Scyllac device. Shown here is the first operational portion. A 5-meter sector of the compression coil (foreground) is connected to the main capacitor bank (not shown) by miles of high-voltage cables. The final Scyllac configuration will be a 15-meter torus, designed to produce a 20,000,000°K plasma and contain it for 250 microseconds. [Los Alamos Scientific Laboratory]

The long-term goal of controlled fusion research is the development of a source of energy, both compatible with the environment and capable of supplying the world's foreseeable needs for energy. The fusion process promises a source whose primary fuel is deuterium, the heavy isotope of hydrogen, and whose ash is the inert gas helium. There is an ample reserve of deuterium in the world's waters—one percent of it burned with only 10 percent efficiency would provide energy for 7 billion people for over three million years at a per capita consumption twice today's U.S. level.

A general introduction to fusion by Dr. Gould will precede reports on recent progress and future directions in the approaches to controlled fusion presently under investigation in the laboratories, and on developments in the growing area of fusion reactor technology. Dr. Furth will report on steady magnetic confinement research; Dr. Ribe on pulsed magnetic confinement research and on the prospect for laser fusion in which no magnetic field is needed; and Dr. Forsen will discuss reactor technology.

ROY W. GOULD
U.S. Atomic Energy Commission, Washington, D.C.

27–28 December

Astronomy from a Space Platform

An unusual symposium on "Astronomy from a Space Platform" will be held 27–28 December 1971 during the AAAS annual meeting. This symposium is special not merely because of its subject matter, which ranges from tiny photon detectors to giant telescope modules and from astronomical studies of our planetary neighbors to studies of the most distant galaxies and quasars, but because of its objectives and organization.

Normally, scientists in a discipline tend to talk mostly to one another. However, for this symposium an attempt has been made to mix and encourage interaction among the groups actively interested and concerned with the future of astronomy. Thus, even within a given morning or afternoon session, one will find talks by one or more leading astronomers, space mission program planners, electronics specialists, optical designers, and operations researchers. Hopefully, this forced interaction will tend to break down the normal barriers between the different disciplines.

Much has been said about the merits and efficiencies of earth-based research in astronomy versus space-based astronomical observations. Both are needed. This symposium will offer a unique opportunity to examine the advantages versus the limitations of space astronomy platforms, and will help arrive at a balanced national astronomy program.

A third concern is for the future of astronomical research programs. There has been growing apathy and questioning by the public of any research program that does not seem immediately relevant to earth society problems. A coherent, long-range program in astronomy, including data from space platforms, is important not merely for the inevitable spinoff of high technology to more applied fields, but because astronomy is basically an integral part of the culture of mankind to be developed just as art, music, and literature. Astronomy and related geophysical sciences will help man understand his solar system, his earth home, and his evolutionary future.

How will the symposium accomplish these goals?

The first morning session will concentrate on planetary and solar astronomy. Carl Sagan (Cornell University) and Frank Orrall (University of Hawaii) will discuss the planetary and solar astronomy objectives, respectively. Gordon Newkirk (University of Colorado) will discuss the necessary solar instrumentation to accomplish these objectives. NASA Skylab program director William Schneider will present the plans for solar astronomy experiments aboard Skylab, and George Ludwig