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CENTRAL INTELLIGENCE AGENCY

OFFICE OF CURRENT INTELLIGENCE

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FEATURE ARTICLES
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FEATURE ARTICLES

FRANCE'S FIRST ATOMIC EXPLOSION

Summary

On 13 February 1960, France conducted its first nuclear weapons test at Reggan in the Sahara Desert, the culmination of fifteen years of effort by the French in the nuclear energy field. This effort has required the exploitation of numerous uranium ore deposits and the establishment of four major basic research centers, two uranium metal plants, a plutonium production facility, three principal supporting weapons development installations, and an extensive weapons proving ground.

Background

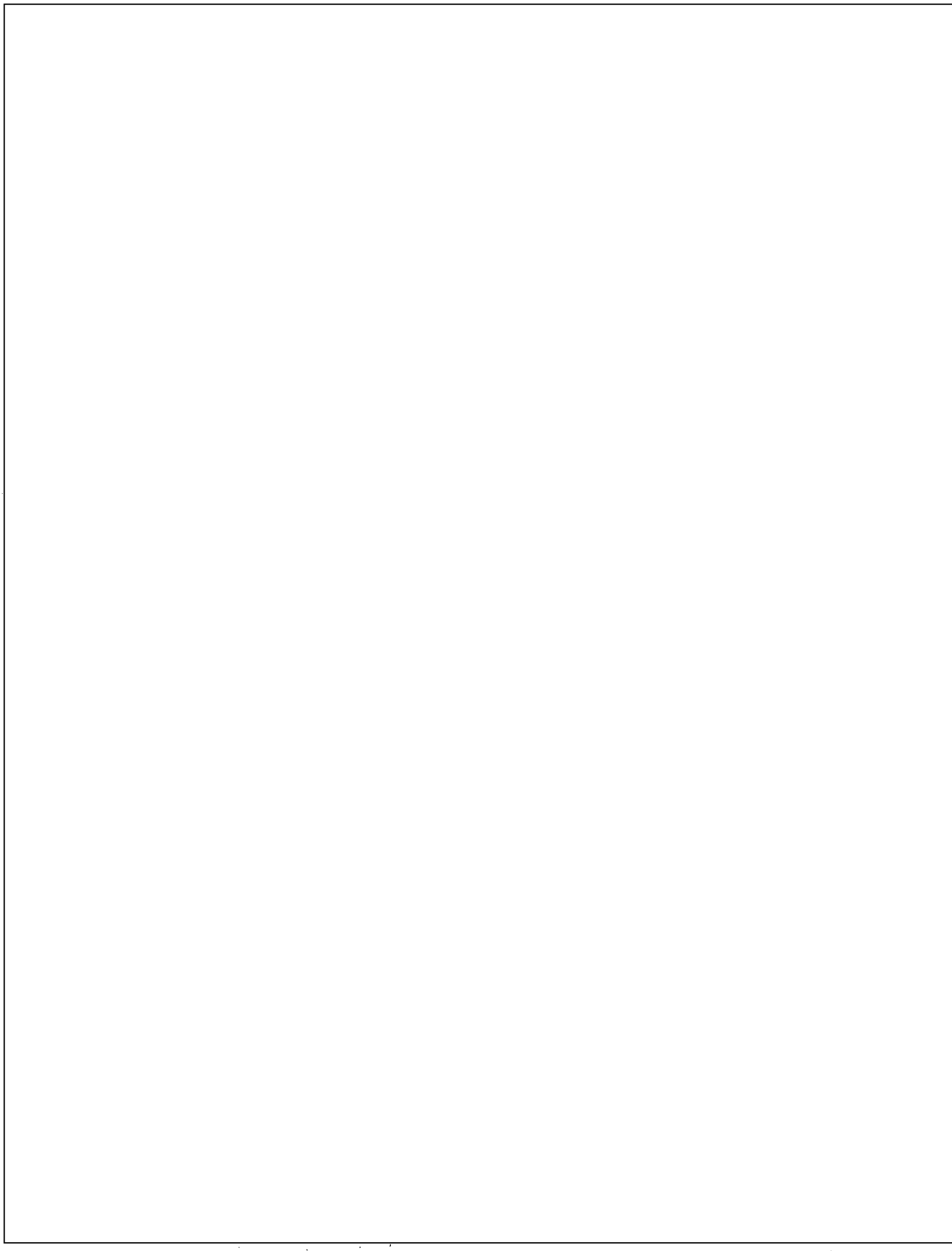
The French Atomic Energy Commission (CEA), created in 1945, has established a comprehensive program for the development and utilization of nuclear energy. The first task of the CEA was the production of natural uranium, the basic raw material. Extensive prospecting led to the discovery

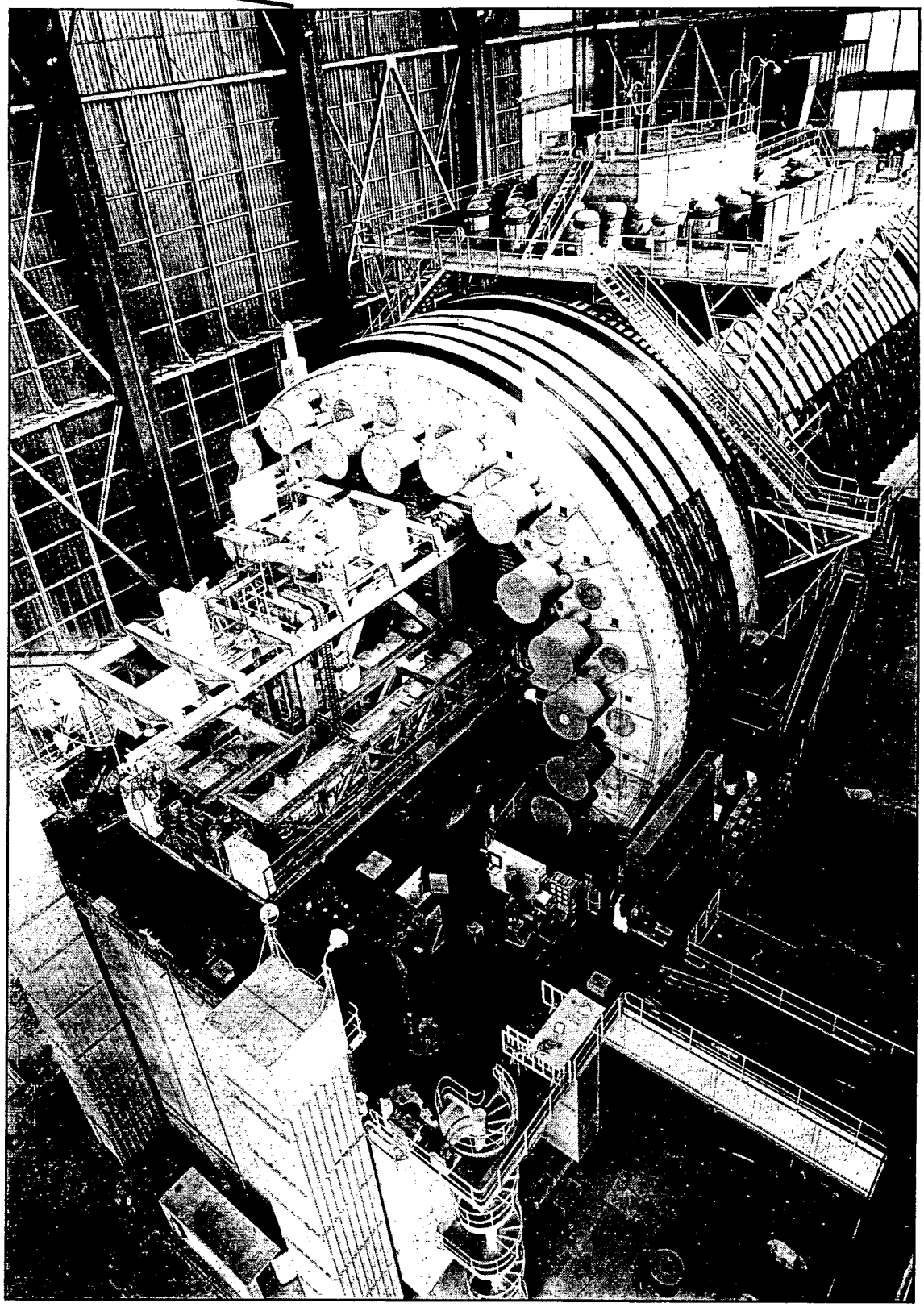
of uranium ore deposits in several areas in metropolitan France capable of supplying sufficient uranium for the presently envisaged nuclear energy program. All of these deposits are currently being exploited, and the ore is concentrated in nearby processing plants. Metallic uranium has been produced from these concentrates at a plant at Le Bouchet since 1947 and at Malvesy since 1959. Facilities for the production of other necessary raw materials have been put into operation.

The first nuclear research center was established at Fort de Chatillon, where the first French research reactor went critical in 1948. A larger research center was set up at Saclay shortly thereafter, followed by two other centers at Grenoble and Cadarache. These facilities are equipped with both research reactors and particle accelerators and are engaged in an extensive nuclear research program. In addition to the study of the basic nuclear sciences, this program includes research in reactor technology, plutonium metallurgy, isotope separation processes, and controlled thermonuclear reactions.

In 1952, the First Five-Year Atomic Energy Plan (1952-57) was inaugurated. The major objective of this plan was the construction and operation of a nuclear center at Marcoule for the production of weapons-grade plutonium with by-product electric power.

In September 1958, the CEA announced its intention to build a gaseous diffusion plant for the production of uranium-235 enriched to 3 percent for use as reactor fuels. This plant is being constructed at Pierrelatte and is





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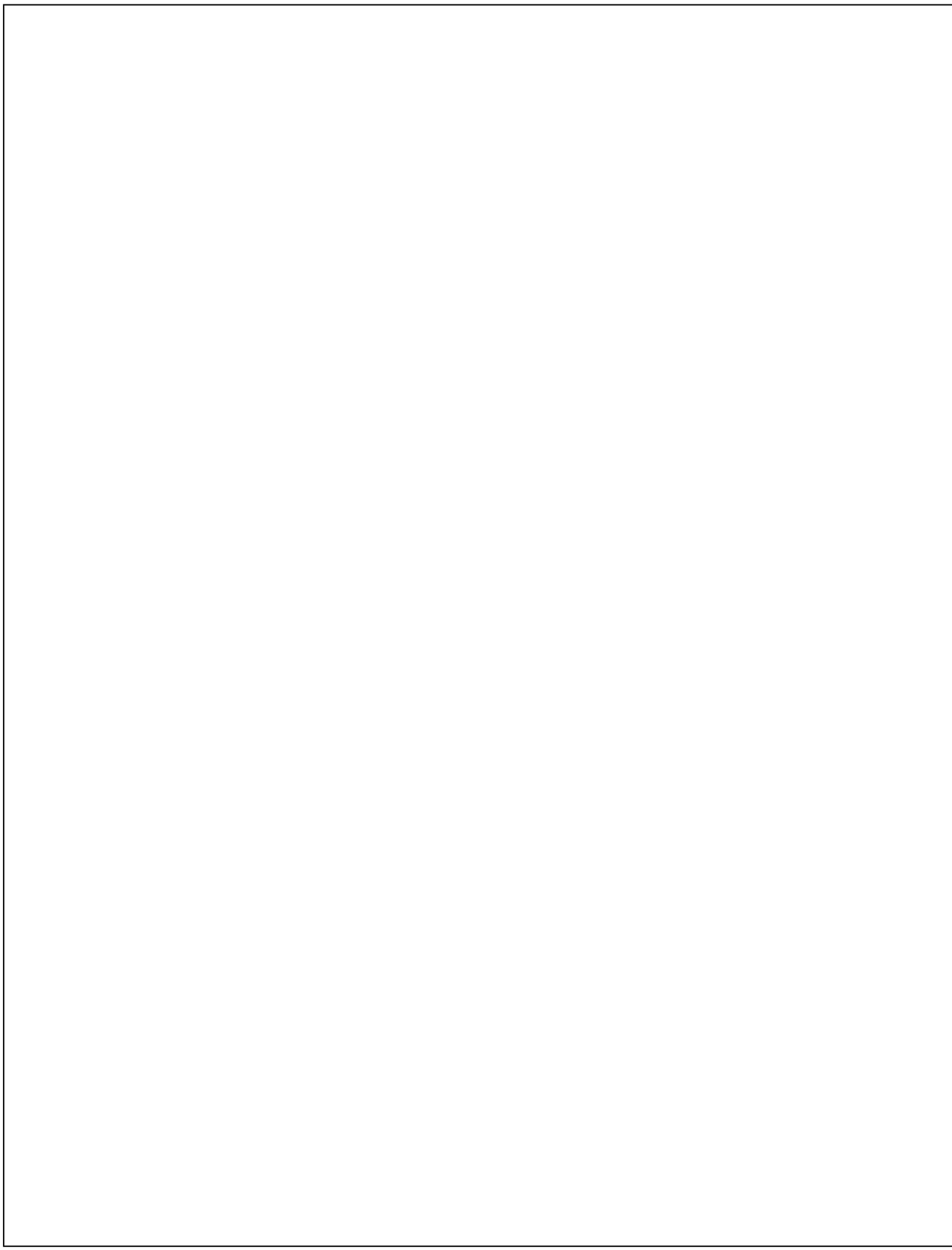
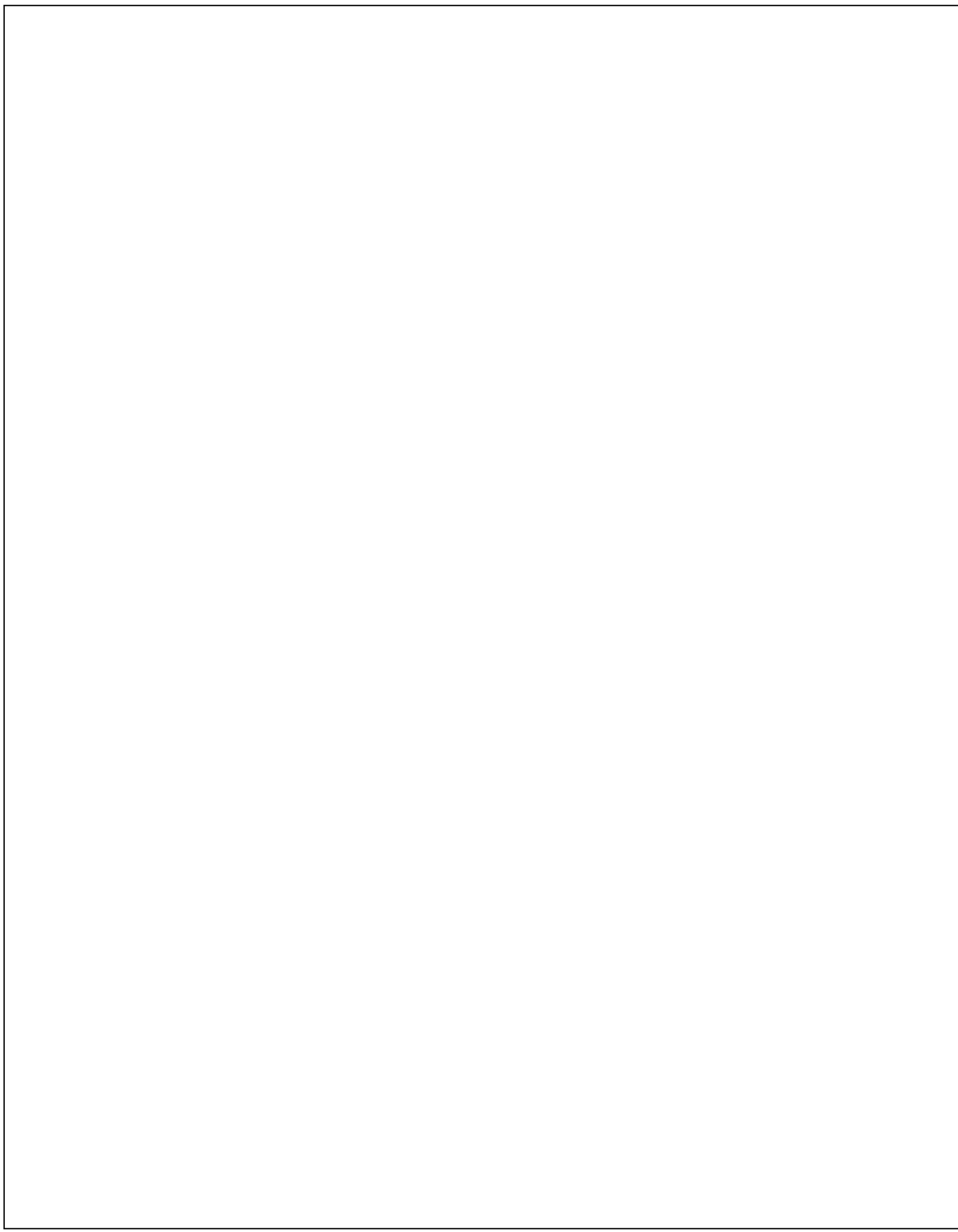
MARCOULE: Vessel of "G-2" reactor seen from the loading face side.





expected to begin operation by 1962 or 1963. Research in support of this project has been carried on for several years at Saclay where two pilot plants (12- and 16-stage cascade models) are in operation. The original French announcement stated that the output of the isotope separation facility would be employed for peaceful purposes.

The French nuclear weapons program dates from 1955 when the Prime Minister issued a directive providing for cooperation between the CEA and the Ministry of Armed Forces in the development and testing of nuclear weapons. The Division of Military Application (DMA) of the CEA was assigned responsibility for the development and fabrication of a fission device,

The armed forces are responsible for the construction and operation of the proving ground and the execution of the weapons tests. The General Staff of the Ministry of the Armed Forces is responsible for overall planning of the requirements for and deployment of nuclear weapons. A Special Weapons Joint Command discharged the General Staff's responsibilities in connection with the recent test, including the determination of a wide range of weapon effects information.