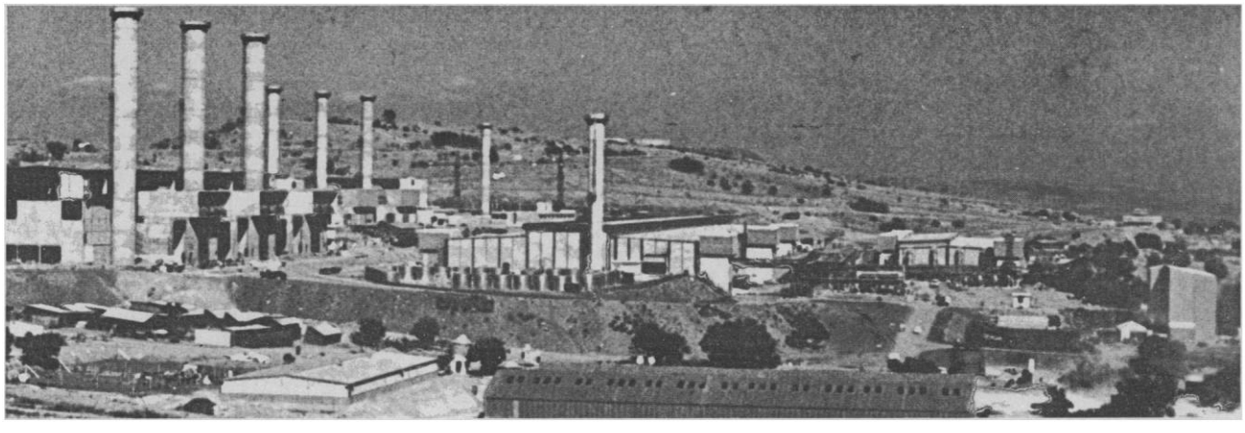
mittee on Atomic Energy (JCAE), and said that the U.S. pilot plant now being constructed would have a greater capability than the one being built by Urenco in the Netherlands. The U.S. plant is being built at Oak Ridge at a cost of $27 million.

Members of the European community have clashed repeatedly over the question of how to build up their capacity for enriching uranium. Rather than make the large investment required for a diffusion plant, West Germany, the Netherlands, and Britain pioneered the work of perfecting the centrifuge technique during the 1950's and 1960's. France favored the diffusion technique, and built a plant at Pierrelatte, in southeastern France, where uranium for the French atomic bomb was produced. France began negotiating for Italian support for another diffusion plant in 1969 and the British-Dutch-German partnership was made official in 1971, but neither group appeared to be planning to have plants completed within the decade until the AEC raised prices drastically and stiffened contract terms last year.

Last April, France offered to supply West Germany with a very large order for uranium enrichment in 1980 from the French plant at Pierrelatte. It was an obvious move to corner a large share of the market just before the Urenco partners expected to be able to fill such an order themselves. Within days, the Urenco consortium responded by announcing that their own schedule would be advanced to be producing more than 2000 tons of separative work by 1980 and 8000 tons by 1985. France hurriedly drew together a consortium including Italy, Belgium, Spain, and Sweden, and by October formed Eurodif, the company that will build its plant. The large West German order was reportedly filled by the Soviet Union, which is also seeking uranium enrichment markets in Europe.

French officials say that the Eurodif plant will have a capacity of 9000 metric tons when it begins operation in 1979. Some observers doubt that the plant can be completed that soon, and in any case the capacity of both plants could easily exceed unmet demands. The French decision raises the specter of potentially disastrous competition between the two European suppliers in the 1980's. But in early March France announced that a site had been chosen for the plant at Tricastin, near Pierrelatte, and that four nuclear plants would soon be ordered to supply electrical power for the Eurodif facility, which will require 2400 megawatts.

Should European efforts to develop an independent capacity for uranium



South Africa's pilot plant for enriching uranium under construction at Valindaba.

South Africa's Process May Not Be So New After All

More than 3 years after the South African government first claimed it was developing an "entirely new principle" of uranium enrichment, the South African nuclear agency is said to have a pilot plant in production. The government is still being as cagey as ever about the nature of its "unique" and "competitive" process, but there is good reason now to believe that it's not quite so novel as the South Africans first claimed.

Informed speculation in the United States now leans toward the so-called "nozzle" process, an aerodynamic technique attributed originally to E. W. Becker and his co-workers in West Germany in the mid-1950's. In the basic process, a high-speed jet of uranium-bearing gas (such as uranium hexafluoride) is squirted through a nozzle into a low-pressure tank. The nozzle is aimed at a small "paring tube" on the opposite side of the tank which captures the central portion of the jet stream. Lighter atoms of uranium-235 stray to the outside of the stream, miss the paring tube, and thus are separated.

In another variant of the nozzle process, a stream of uranium-bearing gas collides with a stream of helium gas. Collisions between the helium molecules and uranium atoms do the separative work, sending the two different isotopes of uranium flying at two different angles.

According to testimony published recently by the congressional Joint Committee on Atomic Energy, relations appear to have been established between South African nuclear officials and a West German firm cooperating with Becker's laboratory. Karl P. Cohen, a General Electric scientist, told the JCAE last October that "we also know a lot of South Africans visited Becker's laboratory."—R.G.