

## THE GERMAN DOCUMENT RETRIEVAL PROJECT

September 20, 1977

It is a historical fact, that in 1943 Germany produced almost three million metric tons of gasoline by hydrogenation of coal. Diesel fuel, lubricants and aviation fuel were also manufactured from coal. The scientific and technical development work, which made it possible for Germany during World War II to satisfy approximately 75 percent of its fuel demand through coal conversion processes, and the actual plant design and operation data have been preserved in meticulously kept records. These records were collected by special teams attached to the allied forces, brought to the United States and stored in various depositories. Knowledge preserved in these documents has for all practical purposes not been available to industry, government, educational institutions or the public at large. There has never been a similar opportunity in modern history to investigate the industrial synthetic fuel records of any country, much less those of a country whose scientific and industrial expertise on this subject was advanced and to make this knowledge available at a time when it is urgently needed.

Texas A&M University's Center for Energy and Mineral Resources initiated in October 1975 a project to locate, retrieve, abstract and index the German World War II industrial records pertaining to fuel technology with the objective to make available the information about the processes which were used to manufacture such a major part of Germany's military and domestic supply of fuels and lubricants from 1939-1945.

In spring 1977 the project personnel was increased through employment of two full time and two part-time abstractors. The project staff consists now of 12 full- and part-time members assigned to document retrieval and acquisition, oral verification (interviews with German scientists and members of the document collection teams during the war), abstracting and indexing, project administration and clerical support.

Project members have already brought to Texas A&M approximately 310,000 pages of documents, mostly on microfilm. These documents include the 305 Technical Oil Mission microfilm reels and 25 microfilm reels from Air Force Intelligence, as well as various hardcopy documents. The search for documents within the United States will be completed within the next few months. Foreign depositories have been contacted. There are purportedly vast collections in the Imperial War Museum and the National Lending Library in England and the federal archives in Germany.

Whereas the search for and the retrieval of documents has been underway for about two years, the preparation of abstracts and indexes has been initiated only four months ago. Members of the abstracting team prepare a one page abstract and an index sheet containing category numbers and keyword descriptors for each document abstracted. The abstracts and indexes are forwarded to the Technical Information Center of the Energy Research and Development Administration for inclusion in their national ERDA/RECON data base.

Although only a small fraction of the documents thus far discovered have yet been abstracted, a preliminary survey of the documents has indicated that approximately 75,000 to 100,000 pages contain data on coal liquefaction processes; another 75,000 to 100,000 pages are devoted to coal gasification and 35,000 pages are English translations of German documents and summary reports in English describing the German processes which were written by Allied scientists. The remaining pages contain German documents on other topics related to fuels and chemicals, as well as wartime intelligence reports in English.

The abstracting and indexing efforts have been concentrated in the area of direct coal liquefaction. Reports abstracted thus far dealt with experiments concerning effective reaction conditions, reaction chambers, catalysts, starting materials and transformation of products. There are many detailed blueprints of apparatus, equipment, plants and process flowsheets. A blueprint index is now in preparation. Samples of the subject matter encountered thus far are: preparation and properties of coal-oil pastes; hydrogenation over a fixed catalyst; gasification in the vapor phase at 700 atm., development of coal hydrogenation at Leuna; high pressure hydrogenation of brown coal; operation of a coal extraction plant; steels for high pressure reactors; hot separators for liquefaction products; gas equilibria in the coal conversion reactors; comparisons of medium and high pressure reactors; material balances as a function of operating parameters; production of aviation fuel; prevention of coking-up of separators; preparation and effectiveness of catalysts; molybdenum and iron catalysts; catalytic actions of ash and unreacted coal; thermal control of reactions; recovery of catalysts.

A detailed picture of the development of coal conversion processes including apparatus design, catalyst use, product characteristics and operational failures and successes will emerge after more documents have been abstracted. The large number of telephone and written inquiries about the project received by the Technical Information Center at Oak Ridge and the Center for Energy and Mineral Resources at Texas A&M University attest to the importance of the project. It is our goal to make the data contained in the documents easily accessible to all parties interested in coal conversion.