West Germany spends more on coal research than on fast breeder research

WEST GERMANY produces 190 million tonnes of hard coal and brown coal a year, and reserves are so great that, at this rate, it is estimated there will be enough to last 400 years. One of the most pressing problems for German energy policy therefore, is to increase the uses of coal.

Research efforts are being concentrated on how to use coal as a substitute for mineral oil and natural gas. The main projects are: production of electricity from coal; production of gas from coal; coal liquefaction; coke production and direct carbonisation; new methods of mining; underground gasification.

Last year, government funds for coal research amounted to DM276 million and will rise to DM380 million in 1978. In the years ahead up to 1981, about DM450 million of government money will be provided. There are also joint projects within the EEC and through the International Energy

Agency, and various agreements with other countries for cooperation on coal research.

West German experience on coal gasification goes back to the Second World War when the bulk of petrol was obtained from coal.

Staff with experience are still available to contribute their expertise. German industrial firms have also built a large number of coal gasification plants all over the world.

One drawback is the high price of German hard coal, so government-sponsored research is being directed at developing economic gasification processes. This year three small coal gasification plants go into operation, one of them a private venture by Shell and Krupp in Hamburg, the other two using government aid. With thoughts of building much larger gasification plant at the beginning of the 1980s, it is highly probable that imported coal will become important. Gasification

plants will be built at German ports to gasify imported coal.

Researchers are also looking at the use of high-temperature nuclear reactors to assist gasification. Reactors could be an economic source of heat for coal gasification. With present methods, more than 40% of the coal used goes in producing the heat necessary for gasification. A reactor could also generate electricity.

Funds for coal research are being channelled through the Federal Research Ministry to a state-controlled management organisation, which selects the projects and grants research funds. Industry's share is small—about 20%—because of the risky nature of coal research, and with very long-term developments the state often bears 100% of the research costs.

Funds for coal research are now greater than those for the promotion of fast breeder reactors. A large number of scientists and engineers are being trained in the new coal research project. The results, though, will not be seen for several years.

Werner Gries

Two reports from the USSR

DURING the past few years, reports of the political misuse of psychiatry to 'cure' symptoms of dissidence, have become frequent. So far, however, it has proved impossible for any western psychiatrist to examine the alleged sufferers—with the notable exception of the 'dissident' who interrupted an international psychiatric symposium in 1974, and was, in fact, genuinely psychologically disturbed (an incident which most western participants regarded as staged).

Recently, however, Dr Gary Low-Beer, a prominent member of the Working Group on the Internment of Dissenters in Mental Hospitals, visited Moscow, *incognito*, as a tourist. While there, he examined nine former psychiatric detainees. In some cases, he says, he found that there was the possibility of some degree of personality difficulty, but in none of them was there any evidence of mental disorder warranting compulsory detention. An example of such a case of mild disorder is that of Petr Starchik, who in the five years preceding his detention had twice voluntarily consulted a psychiatrist for symptoms of depression—a fact which, in Dr Low-Beer's opinion, may have prompted the authorities to choose hospital, rather than prison, as a means of repression.

Others, like Yurii Shikhanovich, the Moscow mathematician, showed no signs of ever having suffered from a mental disorder. Yet, when committed,

Shikhanovich was diagnosed as a "psychopath with the possibility of the onset of sluggish schizophrenia" (the latter 'disease', of course, being unknown to non-Soviet diagnosis).

Dr Low-Beer was unsuccessful, however, in interviewing any current 'patients', although in the case of Evgenii Nikolaev, an associate of the (illicit) First Free Trade Union, now interned in the Kashchenko Hospital near Moscow, Dr Low-Beer was accompanied to the hospital by Mrs Nikolaeva, who was only too willing for him to examine her husband.

The medical director, Dr Murovkin, said that such a visit would be possible only with the permission of the Ministry of Health, an idea which Dr Low-Beer found somewhat ludicrous, because, as he told *Nature*, even if he had pronounced Nikolaev completely sane, this would entail nothing more than a difference of professional opinion.

Dr Low-Beer's interviews with former 'patients' were arranged through the illicit 'working commission on the political misuse of psychiatry', the parallel Soviet organisation to Dr Low-Beer's own. The commission is headed by Aleksandr Podrabinek, a *fel'sher* (paramedic); other members remain anonymous. It is known, however, that several Soviet psychiatrists have now joined the ranks of those who protest against this misuse of their profession.

Shikhanovich: no signs of mental disorder

● Also back from Moscow is John Charap of Queen Mary College, London, who, with three other western scientists, recently visited the Sunday seminar for *refusnik* scientists, now entering its seventh year. Dr Charap assured *Nature* that the seminar is more than a mutual support group—judging from the abstracts of forthcoming papers, some genuine theoretical work of considerable interest is going forward. In particular, the work of Yurii Gel'fand in particle physics (Dr Charap's own field) is well worth the attention of scientists abroad.

He also brought back disturbing news about Leonid M. Borukhin, a metallurgist, formerly at the Research Institute of Nonferrous Metals and