NEWS AND VIEWS

Natural Gas

CHOOSING an awkward moment, Phillips Petroleum Exploration have announced a new find of natural gas in the North Sea. The announcement came a few days before the Gas Council and the successful oil companies—Shell–Esso and Amoco—were due to resume negotiations about the price to be paid for the gas the companies have found. The new find, which Phillips put at 87 $\times$ 10^6 cu ft per day (twice as much as from any previous find in the North Sea), may strengthen the hand of the Gas Council in the negotiations. The Chairman of the Gas Council, Sir Henry Jones, has been consistently optimistic about the amount of gas which the North Sea field would produce, and is bound to feel vindicated by this latest find. Sir Henry believes that supplies of up to 4,000 $\times$ 10^6 cu ft per day may be possible if more wells are drilled; the wells already drilled, he says, could supply between $2{,}500 \times 10^6$ and $3{,}000 \times 10^6$ cu ft per day. The Ministry of Power still quotes a figure of $1{,}000 \times 10^6$ cu ft per day, although the Phillips find may induce it to think again.

The battle over price now enters a new and fascinating phase. For the first find, by British Petroleum, the Gas Council has agreed to pay 5*d*. a therm (1 therm = 100 cu ft) for 100 $\times$ 10^6 cu ft per day. This contract was awarded as a stop-gap measure, with an eye towards encouraging other companies to explore. Those who were encouraged would have been naive to expect comparable rewards, and in fact the original Gas Council offer to Shell–Esso and Amoco represents 1·8*d*. per therm for 500 $\times$ 10^6 cu ft per day. This offer, described as "woefully inadequate" by an Amoco spokesman, now begins to look more reasonable. The oil companies cannot offer to sell the gas direct to industry unless they can satisfy the Ministry of Power that it has first been offered to the Area Gas Boards at a reasonable price. The minister, Mr. Richard Marsh, is presumably to be the judge of what is reasonable. In the past week, agreement on a compromise figure of between 2·25 and 2·75*d*. per therm has seemed likely, but price is not the only factor. The load factors of the pipelines, rate of build-up of supplies and the duration of supplies have also to be negotiated.

To compete with fuel oil, the Gas Council says that it must supply gas at the factories at a rate of 4*d*. a therm, which implies an onshore price of about 2·5*d*. to 3*d*. Low prices, it says, would provide a great stimulus to the British economy, and would help to bring down the price of other forms of energy. It points to the situation in the United States, where natural gas accounts for a quarter of heat generation, and one fifth of electricity generation, and natural gas from Texas and Louisiana sells at 1·7*d*. per therm. The Ministry of Power, on the other hand, has also to consider the National Coal Board, to which fears of unemployment are a powerful emotional weapon, and which is unwilling to accelerate the process of eliminating uneconomic pits. The Gas Council, however, has a final trump card; it points out that increasing use of natural gas at the expense of oil would favourably affect the British balance of payments.

Men for the Machines

THE British Government has been provided with a prediction of the balance between the supply and demand for skilled men to operate computers which is partly cheerful and partly alarming. The report of the Interdepartmental Working Group now published by the Department of Education and Science and the corresponding bodies in Scotland and Northern Ireland (*Computer Education*, H.M.S.O., 4*s*. 6*d*.) says that on present tendencies there will be a "crucial shortage" of systems analysts and systems designers in 1970. The group seems, however, to have satisfied itself that those who use and manufacture computers will be able to train on the job the programmers and machine operators they are likely to need.

The estimates of future demand are based on forward projections of the numbers of computers likely to be in service in the United Kingdom in 1970. The 1,000 computers in service in Britain in 1965 are expected to be joined by a further 2,000 by 1970. Although there is likely to be a need for an extra 19,000 programmers by 1970, the computer manufacturers trained 4,000 people in 1964, are expected to have trained 6,000 in 1966, and appear confident that they will be able to meet all foreseeable needs and also to make up for wastage. Machine operators seem equally easy to come by and to train quickly. The computer manufacturers seem also confident of being able to recruit and train the maintenance men they will need in the next few years. But where systems designers and systems analysts are concerned, the group has calculated that there will be a need for an extra 12,000 of them by 1970, and that at least 500 of those will have to be senior people. Even now, the group considers, employers are finding it so hard to recruit systems analysts that existing computers may be used less efficiently than they might be.

The potential shortage of systems analysts provides, in the language of the report, "one specific urgent call on the educational system over the next few years". The group would like to see an integrated programme of education and training with successive periods of experience at work and in full-time instruction at some college or university. It suggests that students on courses should usually be sponsored by potential computer users. The report points out that the Industrial Training Boards could do something to help, principally by providing cash incentives to industry, but it is also recognized that the training of the more senior people thought to be necessary will have to come by greater provision of postgraduate courses at universities and elsewhere. The group considered that planning of courses on this pattern, at present being discussed with universities, was a hopeful sign but was unlikely to cater for the whole demand.

In practice the group was dismayed to find that the postgraduate courses at present available with what is called a "substantial computer element" are not fully used by students. In 1965, for example, there were 165 postgraduate students on 19 courses at various universities and colleges of advanced technology. This represented an increase of nearly 25 per cent compared