

gallery on the upper level. By dividing this into two storeys with a false ceiling and floor, an additional 2,400 square feet of office space has been provided but at the expense of the room's character.

The new false floor, carried by two steel girders, has the virtue of being sound-proof. As befits a home for chemists, all sorts of new building materials have been used in the sound proofing—polystyrene bags filled with sand, quilts of rock-wool, fibrous plaster and a nylon carpet. The library users will not be disturbed by the typists above them, but they will have to learn to live with less elegant surroundings and the obtrusive false ceiling. The architects admit that "there is no attempt to achieve a spurious stylistic unity by copying Victorian details. The new work stands in clear contrast separate and distinguishable from the original fabric".

#### COUNTRYSIDE

### Developing the Countryside

A SPECIAL commission of inquiry to look into all aspects of the exploration of natural gas in Britain is called for by the newly designated Countryside Commission in its annual report, just published (HMSO, 10s 6d). The commission was disappointed by the decision of the Minister of Housing and Local Government to allow the development of shore terminals and processing plant at Bacton in Norfolk. It says that its fears that other development might follow have been realized, and in July this year planning permission was given for a chimney 175 feet high on the coast. To stop further development of this sort, the commission calls for a national policy which would ensure that all future developments could be considered in a national rather than a local context.

The commission, formerly the National Parks Commission, is also discouraged by a lack of money and restricted executive powers. It reports that several projects have had to be postponed and it has been able to take on only about half the number of technical staff it wanted this year. Despite these setbacks, however, the commission is enthusiastic about its enlarged responsibilities under the new Countryside Act, which became law on August 3. It reports several important achievements—the designation of four new areas of outstanding natural beauty (South Hampshire coast, Norfolk coast, Kent Downs and Anglesey); a start on the restoration of the Monmouthshire and Brecon Canal; the completion of the purpose-built youth hostel and national park information centre at Once Brewed in Northumberland; and progress on the establishment of the first national park day visitor centre at Brockhole in the Lake District. The director of Brockhole has now been appointed and the centre should open to the public in the summer of 1969.

The commission is facing the possibility that two reservoirs will be built within the Dartmoor National Park—in the Meldon Valley near Okehampton, and at Swincombe, near Princetown. Despite several public inquiries, petitions, and alternative suggestions by the commission and others, the Meldon site has now received approval from the Minister of Housing. So far no decision has been made by the Government about the Swincombe site, which has the approval of

the Water Resources Board (see *Nature*, 219, 888; 1968). The commission is strongly opposed to this site, believing that alternative sites exist outside the national park. It says that a reservoir at Townleigh would not only supply Plymouth, south-west Devon and east Cornwall, but that in addition it could also supply north Devon, obviating the need for the controversial site at Meldon in the northern part of the park.

#### ASTRONOMY

### More Pulsars Slowing Down

from our Astronomy Correspondent

READERS of Professor Fred Hoyle's *The Black Cloud* will be glad that meetings at the Royal Astronomical Society can be just as stirring as they were when perturbations in the orbits of Jupiter and Saturn which heralded the approach of the Black Cloud were announced. On that occasion, incredulous astronomers were visibly fuming in the meeting room at Burlington House. The reaction was more controlled when Professor F. G. Smith mounted the rostrum last Friday evening to report that four pulsars seemed to be running down. For one thing, the news was not entirely unexpected. In May this year, Professor T. Gold had predicted that if pulsars are rotating neutron stars it might be possible to find a slight slowing down of the repetition rate (*Nature*, 218, 731; 1968). Because the range of pulsar periods which have been discovered so far—from thirty times a second to once every two seconds—is hard to explain in terms of star pulsations, astronomers have lately been leaning toward the view that rotation is the time keeping mechanism. In November, Cornell University reported that the fast pulsar which seems to be associated with the Crab nebula is slowing its pulsing rate by about one part in 2,000 per year. But what is remarkable about the new measurements is the minute lengthening in the period of the four pulsars which it has been possible to detect over the short interval, astronomically speaking, of one year.

Mr T. W. Cole of the radio astronomy group at the University of Cambridge is credited with the first detection of the lengthening of the period of the pulsars. (His investigation is on four Cambridge pulsars, including three of the four announced by Cambridge in February (*Nature*, 217, 709; 1968).) Jodrell Bank soon followed, and was able to improve on the accuracy of the Cambridge measurements, Professor Smith said. Only the figures for CP 0834 were written on the blackboard at the Royal Astronomical Society. On April 1, 1968, its periodicity was  $1.2737631515$  s, and the change of period per period is  $5.0 \pm 0.8 \times 10^{-15}$ . This implies an increase of roughly 200 ns per year in the periodicity.

The fact that no pulsar has been found to be speeding up, rather than running down, seems to be significant. A rotating neutron star is expected to slow down gradually as it loses energy. On the other hand, it is by no means clear what kind of behaviour to expect from a vibrating star as it ages. One view is that it is just as likely to show an increase in its pulsation rate as a decrease. On the vibrating star hypothesis, one might therefore expect just as many pulsars to be speeding up as slowing down.