

at Foulness, and, at the other extreme, a new national airport at Thurleigh. Cublington and Nuthampstead occupy intermediate positions. Differences in the travelling costs incurred by airport users—critical items in the Roskill Commission's study—are related to these differences in function. If Foulness were London's third airport, for example, the commission should consider the development of Elmdon or Castle Donington as an airport for the Midlands and, in such circumstances, the commission would need to reconsider airport users' travel costs.

At present, the PEP report says, the Foulness region is the most extensive dormitory area in Britain—more than 45,000 people travel daily from there to work in London—and it has an employment deficit of some 50,000 jobs. London, on the other hand, has a surplus of some 400,000 jobs. It follows that if London's third airport went to Foulness, tens of thousands of people would be given an opportunity to live nearer their place of work. For this and other reasons, most of the local authorities in Essex favour the siting of the airport at Foulness, whereas at the three inland sites there has been widespread opposition from the authorities to the siting of the airport in their area.

PEP cannot say which of the four sites is the best—it urges further research on the estimates made for critical cost-benefit items. It does, however, attempt to estimate the benefits which would accrue to the region where the airport is situated, taking into account changes in commuting patterns and the probable reductions in the levels of unemployment and under-employment. When these benefits are added up, Foulness is favoured over the other three sites by a capital sum of more than £100 million at 1968 prices.

Further sums have been calculated by the South-East Economic Planning Council which reported to the Roskill Commission last Monday. The council believes

that the choice of Foulness as the site for London's third airport would cost the British taxpayer £35 million less in capital costs than would inland sites. The council's decision in favour of the coastal site, taken after a study of the regional and economic implications of a new airport there, follows the PEP and other bodies in recommending Foulness. Altogether, the evidence should provide the commission with an argument which has the air of impregnability.

POLLUTION

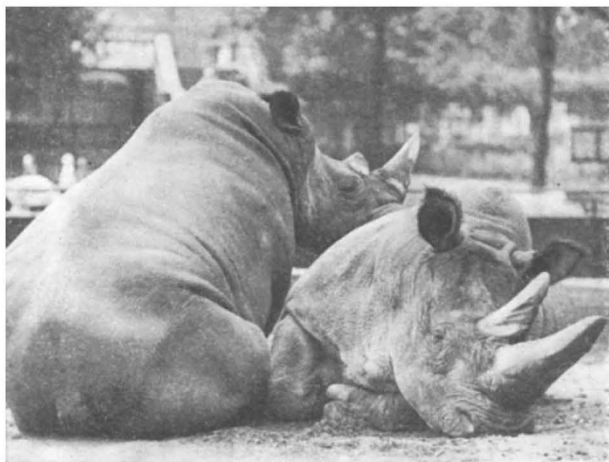
Knock at Lead

RECENT announcements of lead-free petrol have been prompted not because of fears that lead is a hazard to health but because it shortens the life of the catalysts used to treat automobile exhaust fumes (see *Nature*, 225, 990; 1970). The catalytic treaters oxidize such compounds as waste hydrocarbons, carbon monoxide, and oxides of nitrogen, which are more serious pollutants, at least in the first degree, than is the tetraethyl lead that is added to petrol to inhibit knocking. Concerning the health hazard presented by lead, the Shell News Service, for example, says "at present levels there is no danger to health in the use of lead in gasoline". This view is contested in a Swedish report now published in English which concludes that "the safety margin between the present lead absorption for a person living in the city and that absorption which gives rise to chronic damage in man is apparently very small, possibly completely non-existent" (*Gasoline Containing Lead*, Lennart Danielson, Natural Science Research Council, Stockholm, S.kr.10).

Prepared for a Swedish Royal Commission on Natural Resources, the report seems to have encouraged Sweden to limit the amount of lead in petrol to 0.7 μg per litre from January 1 this year. Although this is a lenient limit that nicely corresponds to the average amount of lead already added to petrol in Sweden, there is talk of reducing the level in future.

According to the report, the amount of lead in the atmosphere—typically about 3 μg per cubic metre for a city such as Stockholm—is keeping step with the increase in the number of motor cars. As an extreme example, Danielson cites a single measurement of 71.3 μg per cubic metre on the Hollywood Freeway on a Saturday, and about 25 μg per cubic metre seems a typical value for rush hour in Los Angeles. The question is how much of this material, which is chiefly in the form of micron-sized particles that can remain suspended for about a month, is absorbed by man. Danielson claims that about half of the inhaled lead is absorbed. But the absorption of lead from food is already close to his estimate of the maximum permissible daily dose of about 5–10 μg of lead, which means that there is a good case for reducing the contribution of lead from petrol to nil. The adsorption of lead from inhaled air is estimated by Danielson as about 22 μg per day for a person breathing a concentration of 3 μg per cubic metre.

Danielson also finds fault with the conclusions of Dr R. A. Kehoe, formerly medical consultant to the Ethyl Corporation which pioneered the introduction of leaded petrol. Dr Kehoe carried out a series of experiments on the prolonged consumption of lead



Twenty white rhinoceroses are coming to Whipsnade Zoo from the Hluhluwe reserve in Natal to make up the first European breeding herd. They are of the southern square-lipped species (*Diceros s. simus*) which until recently was in danger of becoming extinct but has now joined the select number of conservation success stories. By 1966, according to the International Union for the Conservation of Nature, there were about 800 southern square-lipped rhinoceroses in the Hluhluwe and Umfolozi reserves in Natal, and about 150 more in national parks in southern Africa.