tures in spring may reduce the energetic costs of hinds maintaining body temperature and improve their nutritional plane for this reason (see Moen, 1973). In either case, this result agrees with the finding that, in domestic animals, it is nutrition during the latter stages of pregnancy that has the greatest effect on intra-uterine growth and birth weight (Sadleir, 1969; Robinson, 1977).

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Attachment of a radio tag to the fur of seals

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The problem of how to attach a radio transmitter to a Grey seal, *Halichoerus grypus* is a formidable one. Not only do Grey seals spend a great deal of time in salt water, but also they haul out on rough rocks which are often encrusted in barnacles, and their streamlined shape offers a few obvious points for attachment. There is not even a constriction at the neck or ankle where a bracelet could be strapped on. However, the fur of phocid seals is

made up of short, strong hairs which are firmly attached to the skin, except during the annual mouth. It was therefore decided to solve the problem by gluing the transmitter directly to the fur using epoxy glue. Grey seals are most easily captured during the breeding season and a transmitter attached at this time should stay in place until the next moult, 3–5 months later for adults and 15–17 months for pups. This technique has been found to be effective for Grey seals and it holds promise for other species as well.

The top of the head of the seal was chosen as the attachment area because a transmitter fixed here is unlikely to be damaged in locomotion over rough terrain and is most likely to be exposed when the animal is in the water. The transmitter (Plate I) was encased in a short cylinder of PVC, 5 cm in diameter and 3·0 cm deep with a 24 cm aerial of flexible wire projecting from it. The cylinder has a base plate flange 6·5 cm diameter and 0·5 cm thick with eight 2·5 cm holes drilled equidistantly 2 mm in from the edge. Strong nylon thread passed through the holes attached the PVC container to a 8 cm circle of 0·5 cm square cotton mesh of the type used for carpet or tapestry making. A quick setting "5 minute" epoxy, supplied by R. S. Components Ltd, PO Box 477, 13–17 Epworth Street, London, was used.

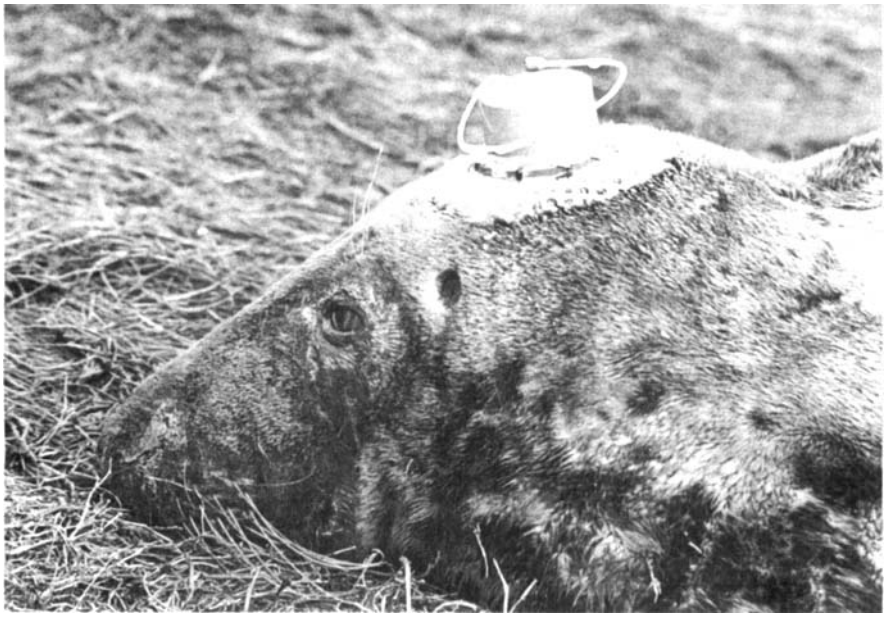

PLATE I. Radio transmitter attached with epoxy to the head of a female Grey seal.

Seals were anaesthetised at the breeding site on the island of North Rona (lat. 59°07′, long. 05°48′) using techniques described in Parry *et al.* (1981). The top of the head was dried with towelling and an area large enough for the transmitter was cleaned thoroughly with acetone to remove grease. About 100–150 cc of resin and hardener (total volume) was mixed and about half of this was poured in a small (8–9 cm diameter) puddle on the seals head and worked well into the hair. The transmitter attached to its matting was then embedded in this and the remaining epoxy poured around the base of the transmitter covering the flange. The transmitter was pressed downwards gently and the seal's head was supported, so that

the attachment area was horizontal until the epoxy set (3–8min). The animals were then left to recover.

The resulting attachment is very strong because the transmitter matting and hair are all embedded in the epoxy producing a huge area of contact. The limitation of the strength of the attachment is that of the hair to the skin, and in non-moulting Grey seals this seems a very strong attachment indeed. The strength of the bond was made dramatically obvious when a bull seal copulated with a cow equipped with a transmitter only 30 min after application. Male Grey seals usually restrain the females they mate with, by taking a firm grasp of the skin on the females neck. In this case the bull used the new "handle" available to him, the transmitter, and took the radio tag between his jaws. He held the female so clasped for the 20 min or so of copulation during which the female occasionally struggled. The transmitter came through this unscathed, still firmly attached.

Animals which returned to the rookery in 1981 after being equipped with trial dummy transmitters in 1980, showed no signs of the attachment. A sample transmitter attached to a seal and removed by shaving the hair away from the skin was soaked in salt water for three months and showed no signs of weakened attachment. Attempts to remove the transmitters fail unless the hair is cut away. Animals show no signs of being bothered by the attachment and do not make any effort to remove the transmitter. This appears to be a particularly effective attachment technique for Grey seals and it is believed that it holds much promise for other seal species. A similar technique has been used for hedgehogs (Reeve, 1980) and bats (Stebbings, pers. comm.). However many other species have very different moulting patterns and these must be borne in mind when the method is considered for use.

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Note on movement of stones by the Common shrew, *Apodemus sylvaticus*

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During routine trapping of *Apodemus sylvaticus* in a glasshouse between January and April 1980, observations were made on the filling of traps with stones by mice. Stones were moved into the tunnels of Longworth traps on seven occasions and on two of these there were many stones moved.

The traps were set on "safety" for four nights per week and it was during this time that the largest stone accumulations occurred. The largest weight of stones moved was 192·7 g made of 33 individual stones. The heaviest of these stones was 8·3 g. This represents some 31% of the weight of the mouse which most regularly visited the trap. One week later, after another four nights on "safety", the trap contained 39·5 g of stones. There were nine stones and the heaviest was 5·6 g. In each case the stones were in the tunnel of the trap (Plate I).

It is common to find leaves and vegetation pulled (or pushed) into traps when trapping