BRIEF COMMUNICATION

BIRTH OF LAMBS AFTER STORAGE OF SHEEP EGGS IN VITRO

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Previous experiments (Hancock, 1963) have shown that sheep embryos can survive to the 25th day of gestation following the transfer to recipient ewes of fertilized eggs which have been stored for up to 48 hr at room temperature. This communication records the birth of live lambs at full term following the transfer of eggs after this treatment.

The technique used was that described previously. Briefly, eggs at the four-to twelve-cell stage were stored in heat-treated sheep serum, with added streptomycin, in stoppered tubes in the dark and transferred to recipient ewes after storage for 24 or 48 hr. Transfers were made 72 to 96 hr after mating of recipients.

The donor Welsh sheep were mated to a Welsh ram; the twenty recipients were mixed Blackface, Soay, Wiltshire, Lincoln and Merino crosses sixteen of which were mated to a fertile Blackface ram. Most of the transfers were made as part of an experiment which will be reported separately (in collaboration with Dr J. Slee) to attempt to induce placental fusion between sheep of differing genotypes. Stored eggs were used for transfer when insufficient ova were obtained on the day of transfer to meet the needs of the experiment.

At laparotomy the number of potential native embryos in recipient ewes was estimated by counting the corpora lutea. In sixteen ewes sufficient eggs were then transferred to bring the total complement of embryos to four with as many as possible in one uterine horn, i.e. in recipient ewes ovulating from only one ovary, all the embryos (‘natives’ and ‘aliens’) were in the same uterine horn at the start of pregnancy. A total of seven eggs was transferred to the remaining four ewes which were not included in the experiment referred to above. The parentage of lambs born was judged from their breed type at birth.

Of twenty-two native eggs shed by recipient ewes, twelve developed to term. Of twenty-eight eggs transferred on the day of recovery, seven developed to term. Of seven eggs transferred after storage in vitro for 24 hr, two developed to term. Of fourteen eggs transferred after storage for 48 hr, one developed to term.

Factors other than duration of storage are likely to have affected the fate of transferred eggs. First, sixteen ewes started their pregnancies with four eggs so that a higher than normal mortality rate would be expected (see Moore & Rowson, 1960); second, eggs transferred to mated ewes may be at a disadvantage as regards survival compared with native eggs. Whatever the cause of the

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apparently lower viability of the stored eggs, the attempt to supplement the
supply of available eggs by using stored eggs was unsuccessful in this situation
from the point of view of lambs born. However, the results do not enable one
to draw firm conclusions about the relative viability of freshly recovered eggs
and of eggs stored in vitro; they do show that eggs stored in vitro for up to 48 hr
can develop to term. This finding may be of practical importance for the
transport of sheep germ plasm.

REFERENCES

MOORE, N. W. & ROWSON, L. E. A. (1960) Egg transfer in sheep. Factors affecting the survival and
development of transferred eggs. J. Reprod. Fertil. 1, 332.