animals, there being no significant differences between the various groups receiving oestrogen.

The observations recorded in this experiment clearly show that removal of the gonads significantly reduces survival against large doses of highly virulent infection in both sexes. In the human male it is known that considerable quantities of oestrogen are produced by the adrenal cortex and testes, and that, following orchidectomy, there is a marked fall in the urinary excretion of oestrogen[7]. In the human female, increased production of oestrogen by the adrenal cortex compensates, to some extent, for the removal of the ovarian sources of these hormones[8], but the increase is not sufficient to restore body defence to pre-operative levels[4]. Furthermore, it has been shown that, following ovariectomy in women of pre-menopausal age, there is a significant increase in the susceptibility to certain diseases[9]. Thus, it appears that gonadal oestrogen plays an important part in maintaining body defence in both sexes.

We have previously demonstrated that diethylstilboestrol prolongs survival against a wide variety of virulent Gram-positive and Gram-negative organisms in intact male mice[1]. The present results show that diethylstilboestrol is equally effective in prolonging survival in both intact and gonadectomized animals of both sexes.

The present results provide additional evidence in support of our earlier postulate that oestrogen is the principal natural stimulant of body defence in both the male and the female; and, further, that oestrogen treatment would seem to be of clinical value in the treatment of acute bacterial infections.

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BIOLOGY

Stimulation of Spawning in *Xenopus laevis* by Fowl Manure

SAVAGE[1] found that pondweeds in the presence of light stimulate spawning in *Xenopus laevis* in the laboratory. This finding prompts me to report my own experience with this amphibian under more natural conditions in the Transvaal.

At the Provincial Fisheries Institute, Lydenburg, fishponds that have been dry for the winter are filled with water and fertilized with fowl manure in spring for the breeding of fish. Within 2 or 3 days after fertilization such ponds usually contain large numbers of *Xenopus*, which immediately start spawning, so that by the time plankton has developed the pond is teeming with larvae.

On such a station, these frogs are usually spread over numerous ponds, but fertilized water is so attractive to them that they can be collected simply by fertilizing a pond and netting the frogs from it after a few days. They come from adjacent ponds overnight even when these are not receiving seepage from the fertilized pond. It is suspected that they are able to detect fertilized water by scent when coming up for air or while travelling overland at night.

The fact that they are attracted by fertilized water and spawn before an algal bloom develops suggests that the primary stimulus for spawning under these conditions could be the fertilizer rather than an algal metabolite.

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Coat Structure in Soay Sheep

EARLIER work on the coat of the Soay[1,2] was carried out with "mainland" Soays which stem from stock removed from St. Kilda some 50 years ago. Apparently, all these animals have a woolly, chocolate coloured coat. The designation of St. Kilda as a National Nature Reserve has enabled an investigation to be made of the sheep remaining on the islands by a team organized by the Nature Conservancy[3]. Many of the sheep have a hairy coat, and only 75 per cent are dark brown in colour; the remainder are light brown. The coat structure of these primitive domestic sheep throws light on fleece evolution. This study reveals a lack of heterotype hairs, and a higher secondary/primary follicle ratio (S/P ratio) in the hairy than in the woolly type.

Mid-side coat and skin-snip samples were taken in August 1963 from twenty-four animals removed from St. Kilda that year, and in May 1964 from twenty animals on Hirta, St. Kilda.

Despite gradation in the type of coat, it was possible to divide the samples into hairy and woolly types by eye. Of the dark animals 63 per cent had a hairy coat, compared with 60 per cent of the light animals. The hairy type was characterized by straight hairy fibres projecting beyond the rest of the coat, whereas the woolly type had more definite staples with a curly tip. Most rams had a hairy coat. The hairy fibres are apparently kemps, and although these are finer than those of the wild sheep[4], the coat often resembles that of the Mouflon. No evidence was found for heterotype hairs, that is, hairs that are kemp-like in summer but narrow and non-medullated in winter. Hairy sheep had a longer coat than woolly sheep, and there was a tendency for the dark animals to have a longer coat than the light ones, so that the coat lengths in August (grown since the spring moult) ranged from a mean of 22·5 mm in the light woolly sheep to a mean of 35 mm in the dark hairy ones. This trend was not obvious in the animals with a year's growth of wool (sampled in May); this may have been the result of equalization of hair lengths through wear at the tips, and of shedding of the longest hairs. In only one of these animals did the coat length (80 mm) exceed 50 mm. The maximum length found in mainland Soays was 50–60 mm.

The mean fibre diameter was about 25μ in the woolly sheep, and about 30μ in hairy ones, ranging up to a mean of 35μ in dark, hairy animals. This compares with a mean in some mainland Soays of 23·5μ. There was a "skewed-to-fine" distribution, and the overall diameter range in woolly animals was 12–48μ in August, although some animals had a few hairy fibres up to about 70μ in diameter. In May the range was similar with little apparent reduction in the diameter of either the wool or the hairy fibres. The diameter range in the hairy animals was 12–144μ in August and 10–106μ in May. This contrasts with some spring measurements in the Mouflon