would appear to negative the assumption that the infertility rests with the bull. Further, on most farms the same bull is able to get all cows in calf by the late summer.

Temporary Physiological Derangement.—This aspect of the problem would appear to offer much useful information which might have a direct bearing on infertility. Deficiencies in the pasture may lead to a temporary physiological derangement of function, and more especially so at the time of the year when the bull is required to furnish 100 per cent. successful services in the short period of six weeks to two months. As has been discussed in connection with the female, the diet of the male may be far from satisfactory at least as regards the requirements for fecundity. An 80-per-cent. success is generally accepted as a reasonable estimate of first-service conceptions, but in herds with contagious abortion, where service follows too soon after parturition, the percentage would possibly be much lower.

Professor Folmer Nielsen has offered several interesting facts concerning the male as an etiological factor in sterility, which are worth recording. Excluding those cases where the male is manifesting a demonstrable genital or extragenital disease, and considering only the clinically normal male, Nielsen submits evidence, confirmed also by Saunders in England, that in stallions, and in males generally, the animal is neither fertile nor sterile, but that there are periods of both low and high fertility governed by factors as yet very indefinitely known. Stallions which have always been healthy and have mated normally have been known to vary from 10 to 60 per cent. fertility over a period of years, with a drop from the maximum to the minimum and back again to the maximum.

Overcondition and lack of exercise are well-known causes of reduced fertility in the male, whereas malnutrition and excessive use are equally important. The position may be summarized by stating that apparently normal males vary among themselves, and the individual animal may also vary from season to season, month by month, and even day by day. The cause of this variation will probably not be demonstrable, but it would appear to be physiological and not pathological.

Spermatogenesis may proceed at a variable rate, and the conservation of the power of fertilization may also vary, so that a definite number of services may lead to infertility in one animal more rapidly than in another. Valuable information regarding the intensity of spermatogenesis may be obtained by several test matings in rapid succession, whereas the estimation of the spermatozoa—their viability and morphology—would give much useful data regarding the incidence of diminished fecundity in the bull. An intensive study of the part played by the bull in herds suffering from temporary sterility has been recently undertaken by the research officers of the Department of Agriculture in New Zealand, but detailed information of the findings is not yet available.

Conclusion.

Before concluding this survey of the problem of temporary sterility the writer would wish to state that many facts here submitted are not