70 j, une phase de masculinisation (développement de certaines caractéristiques masculines du tractus génital interne et différenciation de structures testiculaires dans la gonade).

L'analyse du chimérisme XX/XY, effectuée chez les fœtus freemartins durant la phase initiale d'inhibition (jusqu'à 70 j), ne montre aucun parallélisme entre le pourcentage de cellules XY dans le foie (très probablement des cellules hématopoïétiques) et le degré d'inhibition des gonades et des canaux de Müller, et il ne semble pas y avoir de chimérisme dans les tissus somatiques autres que les tissus hématopoïétiques.

De plus, lorsque dans les gestations multiples, on laisse s'établir les échanges cellulaires qui sont précoces (à partir de 30 j), et que l'on empêche expérimentalement les passages hormonaux en séparant chirurgicalement *in utero* les foetus jumeaux avant l'apparition des premières anomalies sexuelles (50 j), les jumeaux femelles peuvent montrer (à 60 j) un important chimérisme XX/XY dans le foie (jusqu'à 56 p. cent de cellules XY) sans être affectés par l'inhibition caractéristique des gonades et des canaux de Müller.

Ces résultats indiquent que la phase initiale du freemartinisme chez les Bovins ne dépend pas du chimérisme XX/XY mais plutôt d'une hormone; peut-être le facteur testiculaire d'inhibition des canaux de Müller.

Single-born XX/XY chimaeric bulls with normal phenotype

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In repeated blood cultures of a *German Simmenthal* × *Hungarian Simmenthal* A.I.-bull out of 1363 cells evaluated 98,61 p. cent female and 1,39 p. cent male were found. His sperm-production and fertility is out-standing (65,7 p. cent from 4 525 first inseminations; the average of the other 113 bulls was 51,3 p. cent in the same period). The sex-ratio of calves born from this bull as well from his father was found as normal. His dam, three paternal half-sisters, seven half-brothers and eight sons were found as karyotypically normal. In one single-born paternal half-brother out of 125 lymphocytes investigated 98,7 p. cent were XX and 2,4 p. cent XY. This second chimaera was producing also sperm and was found as normal according to the necropsy and histological investigation of the testis. In his bone marrow two XX, in the kidney six male and one female, in the testis one male mitoses were found. The two bulls were born in two well-known cooperative-farms, so their birth data are acceptable. The two dams were not relatives. No singleborn intersexes were observed in the mentioned groups. No blood-chimaerism was detected using the direct methods; the blood-type of the XY-cell-line of the A.I.-bull was reconstructed on the basis of his normal sons accepted according to the blood-type of their paternal grand-parents. All of the blood-factors (blood-group, Tf, Hb) of the XX- and XY-cell-lines agree at least one allel.

It is supposed, that these consequently identical alleles in the blood-type of both XX- and XY-cell-lines are of maternal origin and this suggests to the fusion of two early embryos originated from the fertilisation of the ovum and the second polar body (both originating from the same meiosis II and so having the same gene complements). The fact, that these two bulls are paternal half-brothers suggests to the possible role of a factor being in the sperm in the polocyte fertilisation and early embryo-fusion.

A freemartin calf with XX/XXY mosaicism

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The *friesian* heifer was born twin to a dead bull calf. The vulva was aplastic and the long anogenital distance was unusual for the classic freemartin condition. Neither clitoris nor penis were palpable, but the urethral orifice lay just above the level of the mammary gland. At laparotomy neither gonads nor Wolffian nor Mullerian structures could be found in the broad ligament. The level of circulating testosterone was extremely low (200 pg/ml). Cytogenetic and blood typing work showed erythrocyte chimaerism and XX/XY/XXY lymphocytes. Skin cells showed XX/XXY mosaicism and a small number of cells with a translocation anomaly. There