the cow with the bull at the commencement of rut, a female calf is produced; by serving at the middle or end of the rut, a male is ensured. In further proof of his theory, he said that queen-bees always lay female eggs first, and males afterwards. Applying this theory to the human female, it has been argued that if the ovum which is discharged from the ovary at time of menstruation, is impregnated shortly after the conclusion of the menstrual period, a female will be the result; but if impregnation do not take place for ten days or a fortnight, the child will be a male. This rule has been briefly formulated thus: Female offspring result from post-menstrual, male from præmenstrual impregnation.

The relative age of the parents seems to have some influence upon the sex of their offspring. Mr. Sadler, from an investigation of nearly 15,000 cases, concludes that on an average the sex of the child is that of the parent whose age is in excess, In England the husband is usually older than the wife, and the proportion of live-births is 104.7 males to 100 females. Among illegitimate children, the proportion of males is somewhat higher, 106.3 to 100, probably for similar reasons.

Recently, Mr. Starkweather has published a book on the "Determination and Causation of Sex in Man and the Lower Animals," in which he lays down the law that sex is determined by the superior parent. In deciding this superiority, numerous factors are to be taken into account, such as temperament, activity, energy, will, intellect, features, color, physique, health and nutrition. This sexual superiority does not necessarily coincide with superiority as generally understood, nor does it necessarily imply superiority in mental and moral qualities. This theory is an expansion and extension of Hippocrates' dictum, that the parent who is physically more vigorous at the time of conception gives his or her sex to the offspring . or, as Cuvier puts it, "To obtain an excess of female offspring, the father should be young and ill-fed, and the mother of mature years and highly fed."

In 1863, Frankenhauser and others propounded the theory that the rapidity of the foctal heart varies according to the sex of the child, being greater in the female than the male. In 50 cases he succeeded in diagnosing the sex correctly, find ing :

124 = mean male footal heart-beat.144 = "female " " " Steinbach followed with 45 successful cases out of 57, finding:

131 = mcan male fœtal heart-beat. 141 = " female " "

Devilliers in France and Cumming in Edinburgh denied the truth of this theory, and maintained that the frequency of the foctal heart-beat depends upon the size and weight of the child rather than upon its sex. As it is usually slower in large and well-nourished children, and as males are generally larger and heavier than females, a slower pulse-rate in males is usually to be expected. Opinions seem to be contradictory respecting the truth of this theory; my own experience does not corroborate it. One strong argument against it is, that if the pulse-rate of a considerable number of children be taken within one hour after birth, the difference of rate in the sexes will be too slight to admit of any rule being deduced therefrom.

## Remarks by DR. CAMERON :

In 1879-So-81 I made some observations which tend to confirm Frankenhauser's theory. Mc-Clintock, in the Sydenham Society's edition of Smellie's Midwifery, quotes some observations made by Dr. Frauk C. Wilson of Louisville, which are so similar to my own that I tabulate them together as follows :---

Dr. Wilson's Cases. Dr. Cameron's Cases.	<u>ب</u>	0	0	ŝ	10	16	29	3
	M.	15	14	61	ŝ	3	J	40
	No. Cases. M.	15	14	7	15	61	30	100
	Remarks.	Almost certainly male	Probably "	Doubtful-chances of "	u u female	Probably "	24 Almost certainly "	
	.н.	61	8	4	S	2	24	44
	M.	35	13	ŝ	61	61	6	63
	No. Cases.	37	15	ü	2	6	26	106
	0	1						ř
μ		1	125-130	130-134	134-138	138-143	143-170	Ĭ
р		Fretal heart-beat, 110-125			" 134-138	" 138-143		