

Editorial

Hypothetical Sperm Bank and Artificial Fertilization in Ancient Greek Literature

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The story line of Euripides' (485-406 B.C.) tragedy HIPPOLYTUS is – in few words – the following: in Theseus' royal palace in Troezen, Phaedra, the second wife of the king, falls madly in love with her stepson Hippolytus, who is a young and bald hunter, who despises not only all the women but even Aphrodite, the Goddess of love, beauty and fertility. By contrast he only praises Artemis, the Goddess of wood and hunting. Phaedra's wet nurse takes pity of her miserable condition caused by Aphrodite's revenge on Hippolytus' contempt and decides to inform him about. Phaedra hears not only the violent reaction of the youth and his terrible anathema on all women in general and on her in particular, but also his threat of informing Theseus about, and feels on the one hand ashamed, on the other hand injured in her own womanliness. Therefore she decides to commit suicide. However, in order to take vengeance on Hippolytus, she writes a letter falsely informing her husband Theseus that Hippolytus has raped her. Theseus curses his son and asks his own father – the God Poseidon – to punish him. While Hippolytus is going into exile on his cart along the seaboard, Poseidon makes come out from the waves a monstrous bull, which frightens Hippolytus' horses. The youth is hurled out of the cart, has his head broken and dies.

Hippolytus' anathema begins with a passage that, although brief, nonetheless is exceptionally interesting under the point of view of the History of Medicine. It reads as follows (cf. v. 616 ff.):

“Oh Zeus, why did you bring at the sunshine the women, this terrible bane for the men? If you wanted to sow the human descent it was not necessary to produce it from the women! The men could purchase the semen of their children by offering according to their social rank an amount either of gold or of copper or of iron in your temples and by consequence become able to live freely in their homes without any woman...Woman is a terrible damage!”

Apart from Hippolytus' violent misogyny and his hypothetical foundation of a sort of “sperm bank” consisting of top, lower and lowest quality semens, the passage raises a problem: which kind of “semen” Euripides/Hippolytus is alluding to? He is surely not alluding to the male sperm, because there cannot be any doubt that the young and bald Hippolytus abounds in it!

In order to solve this problem we must have recourse to a brief historical survey of “generation” and mainly of the ancient ideas about the anatomy of both the male and female urogenital apparatus.

We must start from Hippocrates (460-399 B.C.), to whom the female womb was “horned” and the female genital organs were considered as the turned out inside male ones. By consequence those we know to be the “ovaries” were mistaken for “female testicles” and the female orgasmic emission was supposed to be the “female semen” whilst the menstrual blood – it too regularly emitted monthly unless the female is pregnant – was thought to be the necessary “matter” to give origin to the formation of a foetus. On the basis of the theory of the “four humours” (blood, phlegm, yellow and black bile), of the “four qualities” (hot, cold, moist and dry) that characterized all the phenomena – humours included – and the erroneous opinions that:1) the formation and growth of a foetus was caused by the joining of both the male and the female semen, 2) every right part (the right male and female “testicle” included) is hot and dry and the left one is always cold and moist, the anonymous author of chapters 26th-29th of the first book of the Hippocratic treatise Regimen maintains that the development of the embryo derives from the male semen (inclining to fire, i.e. to hot and dry) and the female one (inclining to water, i.e. to cold and moist). These being the supposed facts – that may be illustrated by the figure of the so-called “two squares” (Figure 1)

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Rec Date: July 18, 2017, **Acc Date:** August 03, 2017, **Pub Date:** August 03, 2017.

Citation: Sergio Musitelli and Ilaria Bossi (2017) Hypothetical Sperm Bank and Artificial Fertilization in Ancient Greek Literature. BAOJ Urol Nephrol 2: 008.

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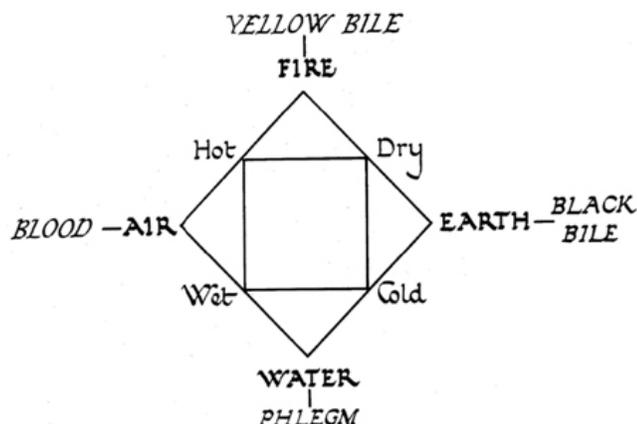


Fig 1: The correspondence between humours, elements and qualities

the joining of the two “semens” gave origin to the generation of offspring that were male or female according to the predominance of the male or the female element. Therefore the idea of the anonymous author may be summarized as follows:

Male from man and male from woman > brilliant man;

Male from man mastering female from woman > brave man;

Male from woman mastering female from man > androgyne;

Female from both man and woman > lovely woman;

Female from woman mastering male from man > bold but modest woman;

Female from man mastering male from woman > brazen woman.

Could it be possible to speak of “prophecies” in the History in general and in the History of Science in particular, this summary would be considered just as a faint pre-intuition of “Mendel’s (1822-1884) laws”.

As for the problem of the origin and the task of both the male and the female “semen” none of the treatises of the *Corpus Hippocraticum* deals with it.

In spite of Aristotle’s (384-322 B.C.) really outstanding statement (cf. *De Generatione animalium* (Generation of animals), I, 20, 727b34 ff.) that: “There are some, who think that the female contributes semen during sexual intercourse because women sometimes derive pleasure from it comparable to that of the male and so produce a fluid secretion. This fluid, however, **is not seminal; it is peculiar to the part, from which it comes in each several individual**; there is a discharge from the uteri, which though it happens in some women, does not in others. Speaking generally, this happens in fair-skinned women of a masculine appearance. When it occurs, this discharge is sometimes on quite a different scale from the semen discharged by the male, and greatly exceeds it in bulk”, Hippocrates’ erroneous idea of

the correspondence between the male and the female urogenital organs and about the male and female semen were inherited and developed at length by Galen (c. 129-199 A.D.).

He starts from a scrupulous and exceptionally verbose comparison of the male and the female genital organs and writes: “Although we cannot succeed in explaining clearly all the works of Nature... nonetheless we must at least try to understand all of them and, first of all, discover the cause why the uteri are associated with the mammae and then explain why the males stay into their right cavity and the females into the left one...and first of all these things which is the nature of the male and that of the female. Aristotle pointed out correctly that the female is more imperfect than the male, but did not conclude his treatment, or rather it seems to me that he neglected the main question, which I shall try to deal with according to Aristotle’s and Hippocrates’ correct statements and to add what is still missing. The female is less perfect than the male owing to one main cause, i.e. because she is colder. Indeed if it is true that hot is more active than cold in the animals, what is colder will be more imperfect than the hotter. Autopsy reveals the second cause... All the parts the males are provided with are also present in the females and the only difference is that...the female ones are inner whilst the male ones are outer and emerge from the region of the so-called perineum. First of all consider the parts you prefer: should you turn the female parts inside out and the male ones outside inwards, you will find that they are quite the same. Imagine first the male ones turned inwards together with the tracts between the rectum and the urinary bladder. Should this occur, the scrotum will necessarily occupy the place of the uteri and the testicles will lay outwards at both their side whilst the male penis will be the neck of the uteri and the skin at the top of the penis, which is now called “prepuce” will become the vagina. At this point imagine the contrary occurrence, i.e. that the uteri be turned and prominent outwards. Will it not be necessary that the testicles transfer outwards and that the uteri themselves become a sort of scrotum around them and that the neck, which was earlier bidden into the perineum and now hangs outwards, becomes the male member and the vagina, which is an epiphysis similar to the skin of this neck, transforms into the so-called prepuce? By consequence it is obvious that also the position of the arteries, of the veins and of the seminal ducts will change. One cannot find any exceeding part in the males. Only the position changes: the inner female parts are the same as the outer male ones”.

As for the blood vessels that reach the testicles Galen maintains against Aristotle that “A characteristic that is common to all the animals is that from the venous branch that inserts into the left kidney departs a branch that reaches the left testicle. A particular and proper characteristic is the following: sometimes this branch that reaches the left testicle proceeds from two branches, one of which starts from the left kidney vein, whilst the other starts directly from

the vena cava after having forked. Finally sometimes one may even observe one only branch, which proceeds from the left femoral vein. By contrast the vein that reaches the right testicle branches out from the vena cava”.

As for the male and the female “semen” Galen argued with Heróphilus of Calcedon (still living in Alexandria in the 2nd half of the 3rd century B.C.) and wrote: “Such meatus (i.e. the uterine tubes) do not insert either into the cervix of the bladder or into the cervix of the uteri and, although these are much nearer than the fundus vesicae, nonetheless one can see them inserting neither into the cervix of the bladder, nor into the fundus vesicae, but rather into the two sides – right and left – of the uteri, at the top of the two horns and effusing the semen inside. Should the female be pregnant the semen remains in that place, whilst in the case of an ejaculation during the sleep it first flows into the uteri, then falls out. And I could also observe recently that a very abundant and very thick semen flowed first inside, then outside in a woman suffering from uterine troubles. It is clear that such a considerable amount of semen had accumulated simply owing to the fact that the woman had been left a widow since a long time. Moreover she suffered from cramps of the loins, the hands and the feet to the point that she appeared as if she were in the grip of convulsions, during which semen was ejaculated and she told me that she perceived a pleasure quite similar to that she enjoyed during a sexual intercourse. And this semen was thick and abundant owing to the simple fact that it had not been ejaculated for a long time. By contrast, in other women the ejaculated semen is scarce and fluid and **flows from the front tract of the vulva, just from the place, through which they pass water”.**

In spite of this exact and unequivocal description, Galen, as a faithful follower of Hippocrates, ignored Aristotle’s outstandingly perfect statement and went on mistaking the orgasmic emission for ejaculation of female semen!

Conclusion

Apart from the fact that Hippolytus’ opinion that men **could purchase the semen of their children... according to their social**

rank could be considered as a faint allusion to the modern concept of “eugenics” with the consequent and dramatic aberrations that occurred during the 20th century, as everyone knows, on the basis of the passages we have quoted above and the undeniable fact that both Plato (438/27-348 B.C.) and Aristophanes knew Hippocrates and his theories, and Euripides himself could not surely ignore them, we can reasonably conclude that there cannot be any doubt that the “semen” Euripides/Hippolytus is alluding to is just the erroneously hypothesized and purchased “female semen”, which would be joined with the male one – obtained by Hippolytus by masturbation – into a sort of test tube, so that the necessary “fecundation” could only be a sort of “fertilization in vitro”, although Hippolytus does not – and clearly could not! – specify this particulars and the necessary recourse to the female womb in order to have offspring, because Euripides’ aim was not writing a medical treatise, but a tragedy the purpose of which was emphasizing Hippolytus’ stubborn and tragic misogyny as well as Phaedra’s and Theseus’ no less tragic psychological dramas.

References

1. In order to facilitate the reader, all the references can be found either in the text itself or in the pertinent notes. At any rate the most important are the following (in alphabetical order) Aristotle, De Generatione animalium (Generation of animals), I, 20, 727b34 ff.
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