

SEX IN BIRTH AND SEX AFTER DEATH.

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This paper consists of two parts. 1. Sex in Birth and 2. Sex after death. The subjects of these two parts were suggested to me by the following two articles:—

1. An article, headed "In the learned world", in the *Academy* of 15th August 1914, pp. 207-8, wherein the author speaks of the "Influence of War on the future Population."
2. An article, entitled "Sex after Death", in the *Nineteenth Century* and after of September 1914 (pp. 616-30) by Mr. Norman Pearson.

On the question of the "Origin of Sex" from the Scientific point of view, Mr. Pearson speaks thus:—
Mr. Pearson on the Origin of Sex. "Nowadays sex is associated with reproduction, and is regarded merely as part of the machinery for the perpetuation of a species. As a matter of fact, however, the process from which it sprang had no direct connexion with reproduction, and aimed at the benefit rather of the individual than of the race. Reproduction in its simplest form, as it appears in unicellular organisms, is merely division. The parent cell, when it has attained its limit of growth, breaks into two halves or daughter cells, each of which possesses an independent existence. The daughter cells, in their turn, break up into other cells, and so the species multiplies. In cases of this kind the cells and the reproductive process are alike asexual, and the reproduction may be regarded simply as a growth beyond the limits of the individual organism. There is however another process which takes place between unicellular organisms, and which is known as Conjugation. Essentially

this consists in a fusion between two full-grown single-cell organisms, which range themselves alongside of each other for this purpose, and gradually coalesce. After the union has become complete, and the two organisms are enclosed in a single cell-body, a separation once more takes place by single division, and two new organisms are formed, between which the germ-plasms of the two original organisms are divided. This is the process from which sex was originally evolved.”¹

After thus dwelling on the question of the Origin of Sex, Mr. Pearson thus speaks of the cause, principle, or influence which determines the sex: “We now have to face the equally difficult question of its (sex’s) determination. What is the principle or influence which regulates the sex of the offspring? Or, as we are here chiefly concerned with the human race, what is that which determines the sex of each human child? Various explanations have been suggested, such as the time of fertilization, the age of the parents, their comparative vigour, or the influence of nutrition. None of these, however, are entirely satisfactory, and Mendelism has recently suggested an explanation which seems to be nearer the truth.”²

The above Mendelism, which has received its name from Mendel who chiefly experimented with peas, is thus explained by Mr. Pearson: “Excluding parthenogenesis,³ every multicellular individual, be it plant or animal, is the product of a combination of two distinct sexual cells, the male sperm-cell and the female egg-cell. These cells are called ‘gametes’ (paring cells), and the individual produced by this union is called a ‘zygote’ (the product of a yoking together). Now the zygote is obviously a compound structure in which the constituents contributed by each of the parental gametes will remain, during the zygote’s existence, linked together in partnership.

¹ The *Nineteenth Century* of September 1914, p. 616.

² *Ibid.*, p. 620.

³ “Lit. a virgin generation. The production of young by a female without intercourse with a male; one of the phenomena of alternate generation.”

But in due course the zygote will itself begin to form gametes out of its own germ-plasm, and then 'the partnership is broken up and the process is reversed. The component parts of the dual structure are resolved with the formation of a set of single structures, the gametes¹ The theory by which these facts are explained is that, though opposite characters are combined in a zygote, the gametes formed by that zygote *can carry one of them only*. The opposed characters are called 'allelomorphs'—that is to say, they are alternative to each other in the constitution of the gamete, and where one is present in a gamete the other is not. They are believed to be due to a definite something (or perhaps rather the presence or *absence* of a definite something) in the gamete which is called a 'factor.' The characters due to these factors are called 'unit characters.' Accordingly, when the zygote begins to form its own germ cells, these divide into two equal communities, one of which carries throughout the factor (say) of tallness, the other the factor, say, of dwarfness. And now, turning once more to the question of sex determination, the opinion is fast gaining ground that sex is not determined by environment, or parental conditions, or any external influence of a similar kind, but is an allelomorphic character following the above law. Dr. Saleeby, in his 'Woman and Womanhood,' tells us that, among the higher animals at any rate, sex seems to be a quality originating in the *mother*. The gamete of the father (spermatozoon or sperm-cell) is always male, and wholly male; but the gamete of the mother may carry either maleness or femaleness. The mother, in fact, in forming her ova, forms them of two kinds—one bearing maleness, the other femaleness. When an ovum bearing maleness is fertilised by a spermatozoon—which always carries maleness, and maleness only—the result is a male individual. If however, an ovum carrying femaleness be similarly fertilised, the result is a female individual; for though this zygote will be a combination of maleness and femaleness,

¹ *Ibid.* pp. 620-21.

femaleness is dominant to maleness. But mark the difference between the male and the female. 'The female is not female all through as the male is male all through. So far as sex is concerned, he is made of maleness *plus* maleness. In Mendelian language the male is homozygous, so called 'pure', as regards this character. But the female is heterozygous, 'impure' in the sense that her femaleness depends upon the dominance of the factor for femaleness over the factor for maleness which is also present in her.'¹

Proceeding in his scientific treatment of the question, Mr. Pearson, on the authority of Mr. Havelock Ellis and Miss Jane Harrison, who have "collected much valuable information as to the distinctive secondary qualities of men and women," describes "woman as more 'resonant' than man, more subject to induction from the social current; and man as better insulated, more independent, more individualized. Deep down, as Mr. Havelock Ellis points out, there is in men and males generally, an organic variational tendency to diverge and to progress; in women, as in females, generally, an organic tendency, notwithstanding all their facility for minor oscillations, to stability and conservatism, involving a diminished individualism and variability;"

I have quoted Mr. Pearson at great length to show, what the different lines of thought are with respect to the question of Sex in birth.

Now, coming to the writer of the *Academy*, he also, speaking in plain untechnical language, points to the comparative vigour "of the male or female as the cause determining the sex in the offspring." He then speaks thus of the influence of war upon population in general and male population in particular:—

"Apropos to the actual situation, also, is the effect that so widespread a war as the present is likely to have on the future population of the world. It appears at first sight as if the

¹ *Ibid.* pp. 621.22.

cutting off in their prime of so many of the flower of the male population would increase the present numerical supremacy of the female over the male. As a fact, however, all researches show that the effect will be the exact contrary. Every great war has hitherto been followed by a rise in the birth-rate and by an increase of the number of male infants in excess of the female. Why this should be is one of the standing puzzles of science; but it is probable that the privations which all soldiers have to suffer on a campaign have much to say to it. Dr. Krizenecky (of Prague), in the *Biologisches Centralblatt*, has lately drawn attention to the increase of the activity of the sexual function in the lower animals which accompanies fasting, if the fasting be intermittent and not too prolonged. This is particularly noticeable among fish like the salmon, which, so far as is known, do not feed at all during the season of sexual activity. It may partly, too, account for the fact that this season in the higher animals is always the spring, following thus on the heels of winter, when food is for most of them hard to come by. As for the disparity in the sexes, the problem is harder to solve, unless it is connected with the phenomenon of 'prepotency' which assigns predominant characteristics to the influence of one parent. Such a predominance might well be shown in the return to civil life of a body of young men hardened by spare diet and violent physical exertion, and strengthened by abstention of all kinds. Perhaps it is not only morally that war exalts a nation." ¹

What the writer means is this :—

1. War, instead of decreasing the birth-rate, as one may expect from the fact of the flower of the male-population being killed in prime of life, increases the birth-rate.
2. War increases the birth of male infants and decreases that of female infants.

1. "The *Academy*" of 15th August 1914, pp. 207-8.

Why these results follow, is "one of the standing puzzles of science." But the writer says, that the probable reason for the increase in the birth-rate is, that war hardens the surviving soldiers, by hardwork, privations, fasting, &c.

(a) Men engaged in war are hardened by abstention.

(b) They are hardened by physical exertion.

This view, on the one hand, seems to explain some old beliefs, and, on the other hand, is itself supported by those beliefs.

The first point is, that men engaged in war, whether as actual combatants or non-combatants, are hardened by abstention—abstention from too much of food, abstention from too luxurious a food, and abstention from the company of women. The second point is, that they are hardened by hard work during the war. Instead of an easy life, they have a regular hard busy life. Men are hardened by spare diet. In war, men take food, not frequently, but at regular intervals, occasionally at long intervals. At times, they have to observe fasts and to go without food for hours together. With reference to this point, we know, that nowadays there is a new school of medicine which recommends a little fasting, now and then, for the good of health. This school has its home in America. We begin to see even in Bombay advertisement boards announcing "Drugless Doctors." This school says, that during the first stage of fasting one loses in weight a little, but that loss is more than made up when the fasting is gradually given up. But, even laying aside the question of the influence of a little fasting on one's health, the main point stands, *viz.*, that war hardens the fighters.

Now, as procreation depends upon strong healthy procreators, if the males are strong and healthy, they procreate a large number of offsprings. Again the progeny being strong and healthy, it, in its turn, procreates a large number of healthy offsprings. Thus population increases rapidly after a war.

pavan hangām mūn barā zarhūnēt shīr bēt avash parvarēt
chīgūn hamāk shīr min tōkm-i narān bēt, khūn zak mātakān.

6. Denman IV mindavam nar mātak yemlelūd, āsmān
ayōkshūst vāt ātāsh zakar, akarj javītar lā yehevūnēt. Zak
mayā va zamīk orvar māhīk vakad, akarj javītar lā yehevūnēt,
avārik dahīshn nar vakad val yehevūnēt.

7. Chīgūn zak-i māhīk rāe yemlelūnēt āigh pavan hangām-i
pus-khvāēshnih pavan zak tachāk mayā ayōk hāsar darānāe
mūn aēt chehār-ayōk-i farsang dō dō pavan mayā yāyēnd
va lakhvār yātūnd. Daēn zak yātūntan vazlūntan adīn karap
farāj sāyēnd. Azshān khēyē āēnīnak miyān barā naflūnēt kolā
dō āpustan yehevūnd.

Translation.

ON THE NATURE OF GENERATION.

1. It is said in religion, that when a woman is free from her menses, if (the male) goes before her during (the first), ten days or nights she becomes pregnant. 2. When she bathes after (*i. e.* is free from) menstruation and when the time of conception arises, if the seed of the male is stronger, a boy is always born; and if that of the female is stronger, a girl is born; and if the seeds of both are equal, twins or triplets are born. 3. If the seed of the male advances first towards the female, it increases and fructifies; if the seed of the woman advances first, it turns into blood and pain results therefrom to the woman. 4. The seed of the woman is cold and damp. It flows from the side-waist and is white, red and yellow in colour; and the seed of the male is hot and dry. It flows from the brain of the head and is white and pale.

5. The seed of the females always goes forward. It takes its place in the womb and the seed of the males rests over it and fills up the womb. What remains aloof (*i. e.* what does not go to form the child) becomes blood again, enters into the veins of the woman and at the time when she gives birth

becomes milk and nourishes it (*i. e.* the child), because all the milk results from the seed of the male and the blood from that of females.¹

6. These four things are called male and female. The sky, the metals, wind and fire are male; they are never others (*i. e.* female). Water, land, trees and fish are female; they are never others (*i. e.* male). Other creations are males or females.

7. In the matter of fish it is said, that at the time of their desire for young ones, they go forward and backward in pairs of two in running water for the distance of a *Hâsra* which is the length of the fourth part of a furlong. They rub their bodies in these movements, forward and backward. Therefrom comes out a kind of perspiration and both become pregnant.

The "Grand Bundeshesh," which in my opinion, is a later development of the original Bundeshesh, goes further into the question of conception among other animals also. Now, what we learn from the Bundeshesh is this:—

1. There are greater chances of conception if there is cohabitation within 10 days after the period of menses.
2. There are greater chances of the children born being males, if the males are stronger than the females at the time of cohabitation and conception and *vice versa*.

¹ The meaning of the sentence is this: milk is formed from the seed of the male, and blood from that of the female. Justi renders the sentence thus: "All milk arises from the seed of men and from the blood of the women (alle Milch vom Saamen der Männer und vom Blute der Weiber entsteht) (Der Bundeshesh p. 22). Anquetil Du Perron renders the sentence thus: "All the milk comes from the germs of the males changed into blood in the females (Tout le lait vient du germe des mâles, changé en) sang dans les femelles meres (Zend Avesta, Tome II, p. 382.)

Of these two statements, the second seems to support the above view of what is called the "phenomenon of prepotency." The first statement corresponds to the following statement of Pliny: "Conception is generally said to take place the most readily, either at the beginning or the end of menstrual discharge."¹ In connection with this view, Mr. Bostock, a translator of Pliny, gives an illustration and says: "It is generally admitted, that the female is more disposed to conceive just after the cessation of each periodical discharge. We are informed by the French historians, that their king, Henry II., and his wife Catharine, having been childless eleven years, made a successful experiment of this description, by the advice of the physician Fernel; see Lemaire, Vol. III, p. 83."²

The above view of the effect of War upon birth-rate, suggests to us an explanation of the variation of birth-rate in the different parts of the year. Birth-rates varying in different months of the year. The subject was suggested to me, by more than one conversation with Dr. Sir Temulji Bhicaji Nariman, the founder and the chief Physician of the Parsee Lying-in-Hospital, who said, that in certain months of the year, there was a greater demand for beds in his Hospital, than in others. I give below the statistics of births in Bombay in the different months of the year, for the five years 1909 to 1913, kindly supplied to me by our Health Officer, Dr. Turner. I also give different figures, giving the average of each of the months, derived from the above statistics. We find, that the monthly average, as derived from these figures, varies. The monthly average of births during the months, August to January, is higher than that of the other six months. This shows, that during certain months of the year, the number of births is higher than during the other months. This difference is ex-

¹ Pliny Bk. VII, Chap. XIV. Bostock and Riley's translation (1855), Vol. II, p. 153.

² *Ibid.* p. 53 n. 95.

plained by the above-mentioned fact, that in strong healthy periods of life there are greater chances of conception. The months that are healthy, when people feel stronger and when they have greater "sexual activity," are the months when there are larger numbers of conception; and consequently, there are larger numbers of births in the corresponding periods, nine months after the months of conception.

SEX AFTER DEATH.

Coming to the question of Sex after Death, as said above, it has been suggested to me by a paper on the subject by Mr. Norman Pearson in the *Nineteenth Century* of September 1914. One cannot speak on this subject with any certainty, however small, akin to that with which he can speak on the question of Sex in Birth, because there is no field for actual observation and there can be no statistics or figures however few. The above writer postulates for the purpose of his article "a personal existence of some sort for mankind after death," and then proceeds to discuss the questions: "Can the distinctions of sex, which figures so largely in our present life, be retained in any such future existence, and if so, within what limits? Are they transient features or permanent elements of a human personality? Are they vital and spiritual, or merely physical and physiological characters of our race?"¹

The writer enters, as described above at some length, into the subject of the origin of sex from a scientific point of view and concludes thus: "If it be true therefore that male and female qualities are alike indispensable to the due course of evolution, it is reasonable to suppose that the sexual distinctions which give these qualities fair play by separating them from each other will be found in succeeding stages as they are found here. So far, the soul's development has proceeded in association with a material body; and it is likely enough that, for many a stage yet in its upward

¹ The *Nineteenth Century* of September 1914, p. 616.

evolution, *some such* body may be needed for the due exercise and growth of its capacities. Under such conditions the preservation of something like the existing distinctions of sex would present no particular difficulty.”¹ The writer then proceeds to show, that in further future stages of evolution, though physical reproduction should cease, the distinctive qualities of sex cannot perish. “Even here the friendships and affections of our earthly life are not centred on the bodily presence of those whom we love, but on the mental and spiritual qualities with which their presence is associated. The bonds are woven not round body and body but round soul and soul; and unless—which is almost unthinkable—intercourse between discarnate spirits is precluded, soul will still call to soul, though bodily form should be swept away. Every hope which we may fashion for the life to come is bound up with this belief. We cannot but think that the affections and friendships will survive as we survive.”²

Then further on, the writer discusses the question of recognition of one soul by another in the future and says: “If, however, the soul of man were to lose its masculine and the soul of woman its feminine elements, even recognition would be barely possible, and the affection, friendship, or love which once knit them together must vanish beyond recall. Such an outcome as this would stultify the whole scheme of soul-evolution, if we rightly discern its trend from the history of the past.”³

The scientific and philosophical view which the writer has taken of the question of Sex after Death in an Iranian view of the Question. an interesting and instructive way is convincing. He believes that, even after death, *some* body may be needed for the due exercise and growth of the soul’s capacities. I beg to submit here a few points on the subject from an old Iranian point of view.

(a) According to this Iranian view, whatever may be the case in the distant future of the evolution of a particular soul

¹ *Ibid.* p. 627.

² *Ibid.* p. 628.

³ *Ibid.* p. 629.

in the early stages of progress after death, the soul is supposed to have some kind of rarefied body or what is called the spirit of the body or spiritual body (*minôï tan*). The Pahlavi *Dadistân-i-Dinî*¹ refers to this subject and says that it is in such bodies that the soul entertains happiness or hope.

(b) Again the Avesta and Pahlavi books, while speaking of the Destiny of Soul, represent the souls of men as seeing before them on the third night after death a picture of their past deeds in the form of a woman. If the soul is that of a virtuous man he sees all his good actions in the form of a handsome maiden and if the soul is that of a wicked man, he sees his evil actions in the form of an ugly woman. Whatever signification may be attached to this representation, it shows that the idea of Sex after Death was entertained by the ancient Iranians.

(c) The *Ardai Virâf-nameh* speaks of *Virâf* the Irânian Dante, seeing in heaven and hell, the souls of the deceased in their distinctive sex forms. Not only that, but their rewards or punishments for good or bad deeds are pictured in a way which indicates the continuance of sex after death.

¹ The *Dadistân-i-Dinî* Ques. XV. *Ervad Tahmuras's Text*, p. 35. *S. B. E.*, Vol. XVIII, p. 38. Chap. XVI. 8.

Table showing the total number of *live* Births registered in the City of Bombay during 1909, 1910, 1911, 1912, and 1913, arranged by months:—

MONTHS.	1909.		1910.		1911.		1912.		1913.		Total.	Average of 5 years.
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.		
January ...	879	887	893	808	929	882	1,050	1,021	879	918	9,146	1829.2
February ...	733	775	803	724	806	766	920	873	734	745	7,882	1576.4
March ...	807	835	785	711	869	848	972	839	738	706	8,110	1622
April ...	733	721	789	726	757	781	848	795	662	638	7,450	1490
May ...	776	721	772	703	758	751	869	800	651	638	7,439	1487.8
June ...	693	699	766	786	814	778	835	717	687	665	7,440	1488
July ...	800	695	824	806	897	835	853	831	790	743	8,074	1614.8
August ...	772	765	841	850	950	835	900	854	861	820	8,448	1689.6
September ...	821	798	900	785	979	956	907	839	913	823	8,721	1744.2
October ...	956	952	942	928	1,020	1,031	959	905	1,004	989	9,686	1937.2
November ...	1,014	957	962	913	1,078	1,011	959	972	1,064	949	9,879	1975.8
December ...	1,036	1,014	1,013	906	1,025	1,020	1,001	999	1,023	1,004	10,041	2008.2
Total ..	10,020	9,819	10,293	9,646	10,882	10,494	11,073	10,445	10,006	9,638		

TABLE OF BIRTHS.

The Parsi Lying-in Hospital.

	1909.				1910.				1911.				1912.				1913.				1914.				1915.				Total.	Average of 7 years.
	Live		Still born		Live.		Still born		Live.		Still born		Live.		Still born		Live.		Still born		Live.		Still born		Live.		Still born			
	Males.	Females.	M.	F.	Males.	Females.	M.	F.	Males.	Females.	M.	F.	Males.	Females.	M.	F.	Males.	Females.	M.	F.	Males.	Females.	M.	F.	Males.	Females.	M.	F.		
January	39	27	1	1	33	36	3	3	32	33	...	...	34	33	1	1	39	36	4	2	40	18	1	2	32	28	...	...	460	65.7
February	30	22	...	...	18	19	...	3	28	21	...	...	26	25	...	1	43	35	1	...	16	16	1	...	21	29	...	3	349	49.8
March...	22	20	4	1	30	24	...	1	22	12	...	...	25	19	1	2	40	34	4	...	19	22	...	...	27	10	2	...	326	46.5
April ..	30	23	3	4	28	25	1	1	31	19	2	1	25	19	3	...	17	19	1	1	31	18	1	1	17	14	...	...	316	45.1
May ...	32	34	...	...	28	23	1	...	27	18	1	2	30	20	2	1	23	30	1	...	22	22	...	1	33	19	1	...	361	51.5
June ..	26	34	1	2	23	33	1	2	28	29	3	...	25	25	...	...	34	22	2	1	23	26	1	1	28	18	1	2	376	53.7
July ...	22	28	...	...	30	29	...	...	27	21	1	1	39	29	3	...	25	20	1	1	25	30	1	2	31	19	...	...	375	53.5
August	37	24	...	...	36	32	3	3	36	31	...	...	30	25	1	...	33	32	...	...	42	33	3	1	32	26	...	...	449	64.1
September	30	44	...	...	35	33	2	1	37	32	4	...	23	30	1	2	34	22	1	...	26	27	2	1	39	20	1	1	432	61.7
October	29	30	2	2	36	34	...	...	27	24	2	2	35	27	1	...	28	33	2	1	28	51	...	2	50	34	3	4	466	66.5
November	21	26	2	1	31	33	2	1	29	34	...	...	35	31	...	...	31	23	4	...	32	31	1	1	25	36	2	1	418	59.7
December	32	38	3	1	32	22	1	1	33	27	1	...	36	33	...	4	23	27	...	...	33	36	3	1	33	33	...	...	438	62.5
	Grand Total..																										4,766			