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SEX *Facts* for WOMEN

SEX FACTS FOR WOMEN

BY

RICHARD J. LAMBERT, PH. G., M. D.

The material contained in this booklet was selected from the author's book, "Sex and Marriage," which gives a complete discussion of sexual knowledge.

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INTRODUCTION

It is amazing when one considers the number of people who know absolutely nothing about their own bodies. They go through life, through childhood, puberty, marriage and old age and when they die, they know as much about themselves as they did when they were first born. It is for this reason that most of our young girls go into marriage entirely ignorant of what is to be expected of them, except only in a hazy, general way. This they have picked up surreptitiously from giggling girl sessions. Whatever information they garnered, was leering and lurid and put entirely an erroneous color into the sex relationship.

This strange condition is accounted for, in part, by the fact that the parents of the girl are either ignorant, themselves, of the functions of the sexual organs of the body, which is startling when one considers their years of married life, or else they are too timidly embarassed to enlighten their daughters as to the facts of life. The latter reason is the most common. It is a throwback to the Victorian days when sex was taboo and men were not supposed to know that women even had legs.

But, fortunately, ours is a modern day and age. Most of the sexual taboos have been thrown off. Where, at one time, it was a crime to publish honest, enlightening books on the sex question, nowadays, even the churches are sanctioning a form of birth control and the reading of books on the subject is advised rather than discouraged. They have come to realize that sex is the key of life and that a preliminary education in sex matters is an absolute essential to ensure continued marital happiness. With such a book as this, a young girl may be advised in a clear, concise and intelligent manner of the functions of the various parts of her body and of their work in all of the aspects of married life. Instead of being mystified about certain physical phenomena, instead of being driven by fear

and ignorance into nervous prostration, instead of becoming a sexual neurotic, as many women have become because of a neglected sexual education, she can now become a normal woman, entirely cognizant of her sexual functions and definitely on the road to a happy, married life, as all normal girls should be.

This present pamphlet is but a condensation of a larger book on the subject "Sex and Marriage."* written by the eminent Dr. R. J. Lambert. The chapters, in themselves, are complete but the subject is gone into more thoroughly in the larger book which should be read after this pamphlet has been digested. If read intelligently, the chapters in this book should be the means of preparing the young girl for those all-important years of married life and love and should, perhaps, serve as a basis for her to enlighten her own daughters as to their understanding of sex.

For instance, the first chapter deals with the anatomy and physiology of the female generative organs. Everything is explained in simple language. Nothing is prudishly avoided. The second chapter, puberty and menstruation, is an excellent dissertation on this all-important subject and should put many a bewildered young girl on the proper road to sexual happiness. The physiology of reproduction is clearly explained in the next chapter, without the subterfuge of referring to the birds and flowers, so that any young girl can understand it. The last chapter on pregnancy should clear up many a disturbing question in the young bride and climaxes this valuable, educational pamphlet.

THE PUBLISHERS.

* Readers desiring a copy of the 256-page book, "Sex and Marriage," by Dr. R. J. Lambert, may secure same by sending $2.00 to the publishers. See address on first page.

ANATOMY AND PHYSIOLOGY OF THE FEMALE GENERATIVE ORGANS

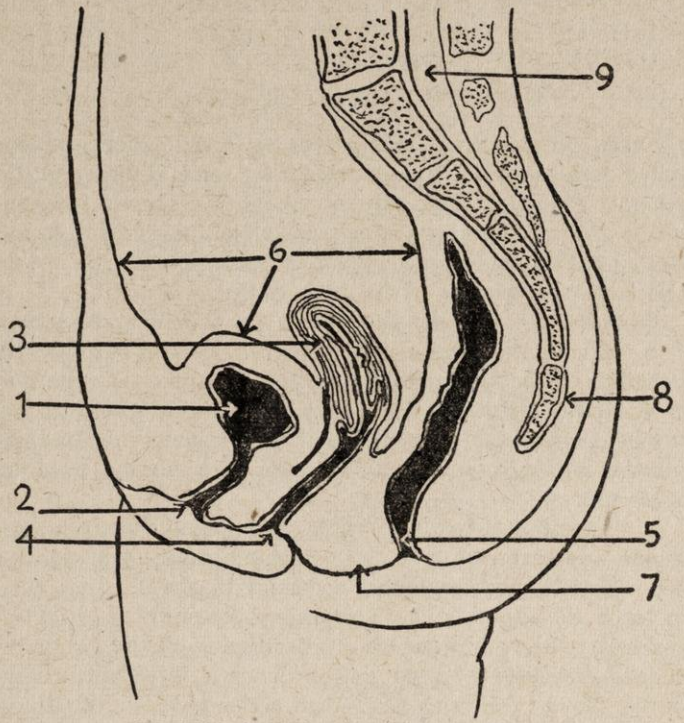
EVERY physician who has a general family practice is consulted frequently by women regarding some disorder of the generative organs. The only complaint may be an irritation of the external parts, or vague pains which are hard to locate. However, the majority complain of more severe pain in the pelvis or lower portion of the body cavity.

Whatever the disorder that sends the patient to her physician, it is quite necessary for the physician to explain the structure of the organs to the patient in order that she may have a clear picture of them, and of their relationship to one another and be able to understand the physiology and normal function of these organs and how they are affected by abuse or disease.

It is a strange fact that while girls and boys are blamed should any harm result to these organs because of thoughtless acts, yet it is not considered necessary in the average school to teach the growing youth anything regarding the structure and care of the organs which are developing into maturity and which have so great an effect upon the entire life. Fortunately, during the last few years health instruction has been introduced into the more progressive schools as a part of the required program and it is possible, and even probable, that within a few years we shall realize that the hygiene of the generative organs is as important to the welfare of youth as is the hygiene of the eye and mouth.

At one time I was asked to give a talk to a group of university students on the two common venereal or social diseases,

gonorrhoea and syphilis, but after I had commenced my talk I realized, from the questions asked me and from the answers to questions I asked the students, that they had no idea of the



VERTICAL SECTION OF FEMALE PELVIS

1. Bladder—2. Urethra—3. Uterus—4. Vagina—5. Rectum and anus—6. Peritoneum—7. Perineum—8. Coccyx or end of spine —9. Spinal canal.

structure of the organs affected by these diseases, and it was necessary, in order to make my subject understandable, to go back and give a brief description of the organs affected.

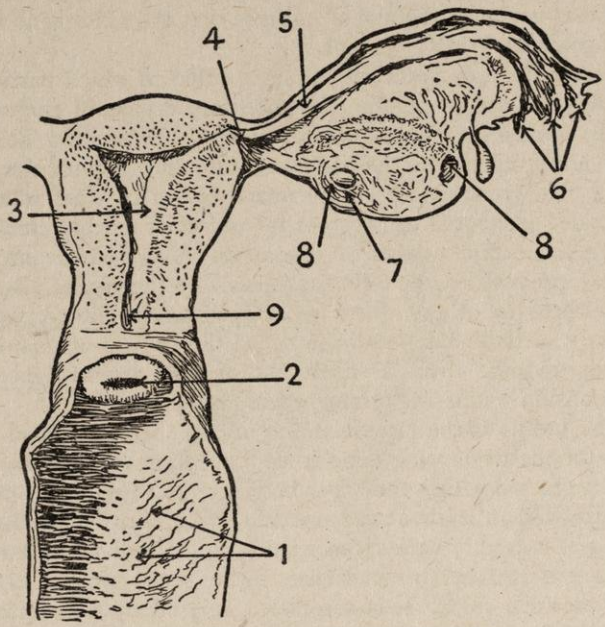
The organs of generation begin to develop very early in foetal life, so sex is determined long before a baby is born. Naturally these organs are small in early life as the strength of the body is given to developing the framework and muscles, and it is not until the age of puberty that the sex organs make any progress in development.

Fortunately, or unfortunately, according to which particular problem we are discussing, the important organs of generation of the female lie within the body cavity. Fortunately, because they are protected by the bony structure and its muscular covering to a great extent; unfortunately, because that which is concealed is ignored or becomes the object of morbid curiosity.

The important organs of generation in the female are the uterus, the ovaries, the fallopian tubes, and the vagina. Besides these there are others of less importance, as the clitoris and the vulva. To these also might be added the breasts or mammary glands and the thyroid which has such an intimate nervous relationship to the important organs.

The uterus is the largest of the organs. It is designed as a nest for the developing babe from conception to birth and lies well protected within the lower body cavity. The uterus of the mature woman is about the size and shape of a flattened pear. The size naturally varies somewhat with the individual, but the average is considered about three inches long, two inches wide and one inch thick. It is suspended in a nearly perpendicular position in the lower portion of the body cavity by means of ligaments which allow it considerable opportunity to bend forward or backward or even to become displaced downward. Hence it is not considered as a fixed organ such as those which are held in place more securely. The ligaments, being elastic, allow the uterus to change its position somewhat with the various movements of the body. Normally it is inclined forward resting on the bladder which is directly in front of the uterus; however, a full bladder tends to push it backward, while a full rectum will push it forward again.

This important organ, the uterus, consists of layers of muscles enclosing a cavity which is comparatively small on account of the thickness of the muscles, but this cavity has the



GENERATIVE ORGANS OF FEMALE

1. Vagina laid open—2. Mouth of uterus—3. Uterus showing small interior cavity—4. Opening into Fallopian tubes—5. Fallopian tubes—6. Fimbriated ends of tubes—7. Ovary—8. Follicle—9. Cervical canal.

power to enlarge as the need arises. The cavity is triangular in shape with the base of the triangle uppermost. At each of the three points of the triangle is an opening, the lower one leading into the vagina and the other two into the two fallopian tubes.

The vagina is a curved and distensible muscular tube about

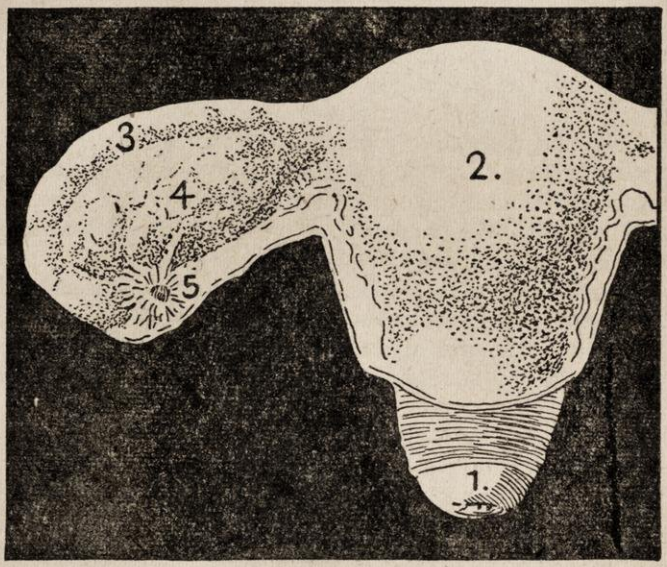
three inches long extending from the external surface of the body to the uterus, the lower portion of which projects into the vagina. Thus the lower end of the uterus is enclosed by the upper walls of the vagina, and it is through this passageway that the baby is forced during birth, hence the vagina frequently is called the birth canal.

Each of the other two openings from the uterus leads into one of the fallopian tubes, or oviducts, which branch to either side away from the uterus. Each tube is about four inches long, but the opening through the center in the largest portion is only about the size of a broom straw, while near the uterus it narrows down until it will admit only a fine bristle. The further end of each tube opens into the body cavity. The tube itself consists of muscular structure which form fimbriated ends surrounding the opening.

Near the end of each tube, but not directly connected with it, is suspended a small almond-shaped body called an ovary. Each ovary measures about one and a half inches in length, three-fourths of an inch in width and one-half an inch in thickness.

The ovaries have the power, and it is part of their function, to produce, develop and mature the eggs or ova and to discharge them one at a time into the body cavity so they may enter the open end of the tube and find their way into the uterus. Just how this is accomplished is a question not fully decided. Some investigators claim the loose end of the tube applies itself to the ovary at the proper time, while others claim that the ends of the tube keep up a motion which tends to suck the ovule into the tube. At any rate, at irregular times one of the ovules that has been developing in the ovary reaches a stage of maturity and leaves the ovary and by some means finds its way into the fallopian tube and passes along into the uterus. Considering the small size of the tube, it is easy to understand how any inflammation could close the tiny opening and so prevent the ovum entering the uterus.

After the ovum, or mature ovule, reaches the uterus its fate is decided by whether it is fertilized or not. If it is impregnated, or fertilized, it remains and attaches itself to the side of the uterine cavity and begins to develop. If not fertilized, it passes off with the menstrual flow.



NATURAL SIZE OF THE OVARIES, FALLOPIAN TUBES AND UTERUS OF A WOMAN OF 25 YEARS OF AGE

1. Mouth of womb—2. Uterus—3. Tube—4. Ovary—5. Fimbriated end of tube.

Nature has provided that every twenty-eight days large quantities of blood should be sent to the uterus, producing a natural congestion. The pressure of this extra amount of blood stretches the walls of the tiny capillaries and weakens them so the blood passes through into the uterine cavity, on to the vagina, and is discharged externally. This flow is called the

menstrual flow. If the ovum had been fertilized the extra blood would have been retained to provide nourishment for the developing ovum.

The average duration of the menstrual flow is four days, after which the lining of the uterus resumes its normal condition.

The external opening of the vagina is protected by two longitudinal folds of skin extending from the anus, or external opening of the rectum, to the rounded eminence in front. The outer surface of each fold is covered with protecting hair while the other surface is provided with glands which secrete a lubricating material. Within these folds are two smaller folds which meet at the anterior end. At the meeting point is a small structure, normally about the size of a pea, but similar to the penis of the male in structure. This organ is called the clitoris, while the two larger folds are called the labia majora and the smaller ones the labia minora.

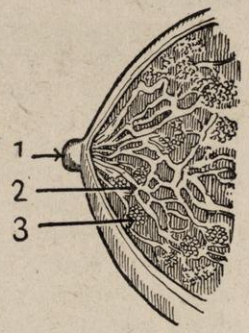
The clitoris has a tiny foreskin similar to that of the male, and like that of the male organ sometimes this foreskin is bound down too tightly and causes irritation. An operation similar to circumcision in the male must be performed to relieve the nervous irritation.

Within the folds of the labia, just anterior to the vaginal opening, is the meatus urinarius or opening into the small tube that leads to the bladder. This tube is about an inch and a half long. By its close association with the vaginal opening infection from the vagina not infrequently travels to the bladder.

The vaginal opening which lies between the meatus urinarius and the rectum is partially closed in the virgin by a fold of membrane called the hymen or maidenhead. The shape and size of the fold vary greatly with the individual. In some, it is normally absent, while in a few it entirely closes the vaginal orifice. In the average virgin there is only a small opening, but this is easily stretched by an examination and sometimes is torn by violent exercise, as horseback riding. The presence of

an intact hymen does not necessarily indicate virginity, nor does its absence or rupture always indicate defloration. Authentic cases are on record in which prostitutes have an intact hymen, and the use of vaginal astringents by a sophisticated gold-digger may deceive even a court physician.

Posterior to the vagina is the anus, or opening into the rectum. The surface between these two openings is called the perineum which not infrequently is torn during childbirth, as the vaginal opening does not always stretch sufficiently to allow the passage of the babe, and the great pressure which is being exerted by the abdominal and uterine muscles forces the head onward, causing a tear. If this tear is repaired at the time, no inconvenience ordinarily results, but if it is neglected it may be the cause of more serious trouble later in life.



SECTION OF THE MAMMARY GLAND SHOWING GLANDS SECRETING MILK AND TUBES LEADING UP TO NIPPLE

1. Nipple—2. Ducts or canals—3. Secreting glands.

While the breasts are not directly connected with the other female organs, yet there is an intimate relationship as is shown by the fact that the breasts frequently enlarge and become painful during, or preceding, the menstrual flow, and milk is secreted in them whenever pregnancy is present.

The breasts of a girl are no more developed in childhood than are those of a boy, but at the age of puberty when the other sex organs are developing, they gradually increase in size. The breasts consist of fatty tissue surrounding milk glands and ducts. These glands are inactive during the greater part of a woman's life, but during pregnancy they increase in size and become filled with milk. After the period of nursing has passed they again return to a smaller size.

PUBERTY AND MENSTRUATION

PUBERTY is the period of maturing of the generative organs in either male or female. It extends over a period of two or three years, commencing about the age of twelve in the female and fourteen in the male, although this age may vary one or more years according to the climate and mode of life. The tendency is for puberty to come earlier in warm climates and later in the northern or colder countries. The variation may be as much as four or five years.

Previous to the time of puberty the generative organs have remained about as small as they were at birth, but by the age of twelve the average youth has reached nearly mature height and the muscles of the body are correspondingly well developed. The generative organs now begin to develop and various changes take place in the entire body.

In the female the signs of approaching puberty are the appearance of a growth of hair on the pubes and in the axilla, the enlargement of the breasts, the development of the pelvis so the hips become more prominent and a general rounding and increased grace of the child. Frequently just preceding this period the girl passes through an awkward stage when she seems all arms and legs, and the entire body is angular and lacking grace. The girl is too large to be classed with the smaller children, yet she is not developed enough either physically or mentally to be classed as a woman. She is in the awkward, unclassified stage when she seems to belong nowhere, a difficult time, indeed, for both the girl and the family.

However, this awkward stage soon passes and the girl becomes more mature in appearance, but for several years while the generative organs are developing she passes through a difficult

mental period. She is liable to have an extreme "boy struck" stage, which unfortunately often causes her to idealize someone whom in later life she would not select as a companion.

Fortunate is the girl who has a wise mother to guide her in a quiet manner, for the girl of this age is inclined to resent advice, to argue at the slightest excuse. Probably the movements, such as the Girl Scouts, have done more real good for girls of this age than have all the moralizing of the critics. By providing an outlet for the nervous energy of the girl she is kept from using this nervous energy in unwise acts. In the training of a little child, the best way to correct a harmful habit is to substitute a better one, so for the girl of the difficult age of puberty, the best way to keep her from unwise acts and associations is to substitute good, wholesome companionship and healthful sports.

During the period of puberty there are great changes taking place in the girl's physical body. The changes and development require considerable of her strength and naturally influence her nervous system. It is for this reason that a girl should not be subjected to any great exertion, either physical or mental. She should have plenty of light, healthful exercise in the open air, but should not indulge in very violent exercise. Golf, instead of being an old man's game, might well be considered as one of the best for both girls and boys of this age.

Besides being a critical period in the health of the girl, this is a period that tests the confidence between mother and daughter. The girl's natural curiosity, if unsatisfied, becomes abnormal and she feels there is something shameful about sex. If the mother does not invite the confidence of her daughter, answering her questions truthfully, the girl will cease to consult her when she needs advice and guidance and may be led far astray by unscrupulous persons, either male or female. The growing freedom of association between boys and girls at the present time increases the danger of undesirable contacts if intelligent control is not exercised.

As the beginning of puberty manifests itself, the girl should be told about menstruation before her first period. She should be told in a simple manner that it is a normal function, and adequate information should be added so she will not be frightened at the first appearance of the menstrual flow. Instances are on record of girls becoming alarmed at the appearance of blood and applying cold, wet cloths to stop the hemorrhage just as they would treat a cut finger.

A little care at this age will save much suffering in later years. As the nervous system is greatly affected at this period, there should be no great mental strain. Wholesome, out-of-door exercise is more important than carrying an extra subject in school. The important thing in a girl's life during puberty is the development of her body. This does not mean that she should neglect her mental development, but it does mean that she should not overtax her strength trying to keep up with her classes. The mental ability of girls varies greatly and some can carry a heavy course in school without becoming nervous, while others would be better off if kept out of school for a year. On account of the nature of the changes taking place in the body it seems that girls are more interested in the domestic arts at this age than at any other period of life, and it would be far better if these were the outstanding studies during this time. Coöperation at home, allowing the girl to assume responsibility of planning and cooking meals, even though mother could do them better, will preserve the girl's interest in a wholesome life and keep her from allowing her nervous energy to run riot.

Menstruation, as explained to a girl, is the sign of the possibility of motherhood. The generative organs are developing and maturing and Nature is establishing the habit of sending an extra amount of blood to the uterus every twenty-eight days to be ready whenever it is needed. The fact should be explained to the girl that although this development shows the possibility of motherhood, yet she is not ready for it until she has pre-

pared herself to assume the responsibilities of a mother. The domestic arts, including the care of babies, should be included in the curriculum of every girl at the age of puberty.

If properly taught the fact that menstruation is an indication that the body is preparing itself for future motherhood and it is incumbent upon her to assist Nature in every way, every girl will be glad when the menstrual period is established and will not be frightened at the first appearance of this period nor take any unnecessary risks. On account of lack of instruction many girls form wrong ideas regarding the function of menstruation and look upon it only as a disagreeable function to be endured the best way possible. The girl who is taught properly will realize that menstruation is a sign that she is the possessor of extremely valuable organs and that they should be given as much care and protection as she would give a very valuable piece of jewelry or any other article of great value which she wishes to preserve for her future.

With this thought impressed upon her she will be willing to avoid unnecessary risk even though it did mean staying away from a football game on a cold day. The possible life-long invalidism that may result from exposure and congestion should be understood by the girl. Every girl and woman owes it to herself to take good care of herself during her menstrual periods. For only two or three days, at least, she should avoid any unnecessary strain, rest as much as possible and not worry over school and social duties. During these few days the body requires more energy to be given to the generative organs.

By menstruation is meant the monthly hemorrhage that takes place in the uterus during the child-bearing period of a woman's life, or from puberty to menopause. It is suspended during pregnancy and for some months afterwards.

In the average individual the menstrual flow appears, as a rule, every twenty-eight days, although the length of time varies with the individual. The average duration is five days, but this may vary from three to seven.

The flow consists of blood from uterine mucosa (lining of the womb) together with small quantities of mucous. The discharge generally is dark at first appearance but becomes more red, and then pale as the period progresses. Women in poor health often have a very pale discharge during the entire period.

There always is a faint odor to the menstrual flow which has been likened to the odor of marigolds. For this reason, as well as others, especial attention should be given to cleanliness during this period. Frequently the body secretions, such as the perspiration, have a more pronounced odor just preceding and during this period. The old idea that bathing was harmful during this period probably was due to the fact that in earlier days the houses and especially the bedrooms were insufficiently heated and any one taking a bath in the cold room was liable to become chilled. With our modern heating arrangements there is no reason why even a tub bath should not be taken. The girl should form the habit of taking at least a sponge bath morning and evening during the menstrual period and changing her pad several times during the twenty-four hours, sponging the genitals especially. The use of a deodorant powder also is advisable. The old fashioned bulky napkins have almost been replaced by sanitary pads which may be purchased or made at home and after use may be burned. No girl shows her lack of refinement more than she does by the careless disposal of these used pads. It is not uncommon for them to be thrown unwrapped in a public toilet to the disgust of those who must use this toilet later and of the one who must remove these when cleaning.

A girl or woman in normal health should not suffer at the menstrual period. She normally may have a feeling of lassitude and disinclination for either physical or mental exertion, perhaps accompanied by a sensation of uneasiness in the pelvic region. Girls often have a feeling of restlessness just preceding the period and if this has not been explained to them they are liable to take unnecessary risks of exposure. An interesting

book is the best medicine at this time to relax the nerves.

Because so many women and girls do suffer at this period, it frequently is considered as "natural" and allowed to continue. The symptoms often noted at the menstrual period are: pains in various parts of the body, hot flashes, chilliness and various hysterical signs. A few days before menstruation there may be various nervous symptoms, as irritability and a disinclination for any exertion. The woman may be inclined to be unreasonable and even quarrelsome. Much trouble can be avoided if the woman understands these symptoms and goes to her room and reads an interesting book or sits and listens to an interesting radio program. The average woman is inclined to be "blue" and worry over things that never will happen during the period of congestion just preceding the beginning of the menstrual period, and she should learn the cause and not make any important decision at this time.

Just preceding menstruation dark circles often appear under the eyes and the breasts may become enlarged and painful while a sense of fullness and dull headache are not uncommon. However, any severe pain or profuse flow during the period or a discharge between periods should not be neglected as these are inclined to be more severe as time goes on, while a little treatment may relieve the condition. Every girl at the age of puberty should be taken by her mother to the family physician for a frank talk. If this is done, the girl will feel free to go to him later if any unusual symptoms appear. Much of the pain and suffering of women is due to the fact that their false modesty prevents them from consulting a physician until the symptoms have become unbearable.

A woman suffering from any disorder of the female organs is unable to perform her work in the most efficient manner, and the pale skin, dark circles under the eyes and drawn, haggard appearance which usually accompany these conditions rob her of her charm of physical excellence and prevent her from achieving her ambition.

PHYSIOLOGY OF REPRODUCTION

WITH man, as with all living beings, the constant biological object of all sexual function and, consequently, of sexual love, is the reproduction of the species. It is, therefore, necessary in this chapter to treat the question from the point of view of the natural sciences, physiology, psychology and sociology.

From the biological standpoint, one of the most simple and clear explanations of the phenomena of reproduction is given in Dr. Lowry's little book, "Truths, Talks with a Boy Concerning Himself." This book contains the simple truths of life development that should be given to every boy and every girl approaching puberty, and, in many cases, at an earlier age. Simple explanations with frank discussions between father and son would avoid many of the unhappy events that occur in every day life.

Familiarities between immature children are among the many incidents that are brought to the attention of the family physician almost daily. Frequently girls of twelve or fourteen become pregnant without realizing their condition. The familiarity and freedom between the sexes and lack of parental supervision over the outings of boys and girls of the teen age is a just criticism of parents who do not take their responsibilities seriously enough and who fail to instruct their children in the rights and duties of sex hygiene, yet allow them to be exposed to the dangers of sex familiarities.

"How to present this knowledge to a boy depends upon his age, environment, and circumstances. With the very young child who lives in a world of imagination, the poetical fancies often can be used to good advantage. But when the boy has

reached school age and associates with older boys, things begin to assume more natural proportions and the world takes on a more real aspect. Then it is that the boy wants more material explanations, demands practical truths. A man can ill-afford to allow vulgar representations of these most sacred truths to be given to his boy by his companions, but he may rest assured they will be, and the boy will listen unless this has been forestalled by knowledge given by a wise parent. Fortunate is the boy whose father is a companion to him. The man who can break away from his business cares, become his boy's chum, take long walks with him, talking about the wonders of nature, gradually leading up to nature's method of reproducing her kind and teaching him the sacredness of the human body, will be fully repaid for his effort."—*From preface to Truths.*

In Dr. Lowry's little book, she leads the boy to understand that all nature reproduces by the union of the male and female elements. The method of fertilizing fish eggs is called to the attention of the boy, then a trip is made to the pond to study frogs. Later, the chickens in the barnyard are a further object of study.

Even preceding these talks between father and son might come the story of the mother part as given in the companion book for girls called "Confidences." Here the story begins with the plants and it is shown that even in the flower and vegetable kingdom there is a mother and a father plant, or a male and a female element which must be brought together in some manner if life is to be carried on through the coming generations.

Although these facts of nature are all about us, yet in our busy lives of today we seldom pause to consider them unless they are brought to our attention in some manner. Last summer a very eminent physician was visiting at a home in the country and his attention was called to a grape arbor formed by two very old and large wild grape vines. Even this wel.

read and unusually observing man was surprised to learn that only one of the vines bore grapes although both flowered in the spring. It is not uncommon for people moving to the country to set out grape vines and be disappointed that they have no grapes, not understanding that they probably had only male vines.

When eminent men overlook these wonderful facts of nature we can readily understand why it is necessary to bring these facts to the attention of the growing boys and girls in a systematic manner, so the wonderful facts of nature may be unfolded to them page by page, and not in a manner to produce a shock to the nervous system.

Reproduction in man, as in flowers and the lower animals, commences with the union of the male element or spermatozoon with the female element or egg. The latter is more commonly known as the ovum in the human being. As Forel has said, it is impossible to comprehend the deep meaning and lofty aim of an act like that of sexual union without knowing the details of conjugation and the origin of man.

The description of the generative organs of both male and female have been given in previous chapters, so it only is necessary to call attention to the fact that Nature has provided that the process of fertilizing should be pleasurable, otherwise the entire human race might be wiped out in a generation.

In the higher plants, the male cell, or pollen, is transported from one plant to the pistil, or female part of the plant, by means of the wind or by insects. Nature causes many flowers to form nectar that attracts bees and other insects so they may carry the pollen to other flowers and so complete conjugation or union of the two elements. In all higher animals the male germinal cells, or spermatozoa, are characterized by their mobility, for even after they are deposited in the vagina they must travel some distance in order to reach the female element.

In the vertebrate animals, including man, the spermatozoa resemble infinitely small tadpoles and their tails are equally

mobile. They travel by means of the movements of the tails until they pass into the uterus, and may even travel too far and pass into the fallopian tubes, or farther on into the body cavity through the open end of the tube.

Somewhere in their travels they meet the egg, or ovum, which has left the ovary and started on its journey to the uterus. As soon as a spermatozoon meets an ovum, it enters the ovum, and, at the same moment a coagulation is produced on the surface of the ovum which prevents the entrance of the second spermatozoon. This coagulation is called the vitalline membrane. If, from any pathological cause, the entrance of several spermatozoa takes place there results a double or a triple monstrosity.

In the higher plants the male cells, or pollen, are transported to the pistil by the wind or by insects; here they meet and unite with the female cells. As a rule, in all nature, the male element seeks the female element, which remains passive.

CONJUGATION. After the spermatozoa have been deposited in the vagina, they find their way into the uterus where they may meet the ovum and enter, but they usually travel farther before conjugation occurs. It is considered that the meeting and union probably take place in one of the tubes, after which the fertilized ovum continues on its travels to the cavity of the uterus.

OVULATION. The ovaries of a woman contain a considerable number of cells or ovules which might be termed the seeds while the ovary is called the seed pod. Although these ovules are many yet they are infinitely less than the number of spermatozoa contained in the testicles, just as the particles of pollen are infinitely more than the seeds of a plant.

From time to time one of these ovules enlarges and becomes surrounded by a vesicle with liquid contents which is called the Graffian follicle. At various times one of these enlarged ovules is discharged from the ovary, and this phenomenon is called ovulation. The emptied follicle becomes contracted or

cicatrized in the ovary and is called the corpus luteum or yellow body.

The egg or ovum (ripe ovule) after being discharged from the ovary travels to the open end of the Fallopian tube which, as previously described, opens directly into the abdominal cavity. Some authors claim that the end of the tube becomes applied to the wall of the ovary by the aid of muscular movements and apparently sucks in the discharged ovum, while others hold that the movements of the vibratile cilia with which the epithelium or lining of the tube is furnished are sufficient to draw the ovum into the tube.

Having arrived at the tube in some manner, the ovum moves very slowly in the almost capillary tube by means of the vibratile cilia, or hair-like projections from the lining of the tube, which keep up a constant motion. The ovum finally arrives at the entrance to the uterus and passes down into the cavity.

As previously mentioned, fertilization, or union of the male and female elements, probably takes place in the tube, perhaps at the uterine entrance or possibly farther along in the canal; union may, however, take place in the uterus. This observation is borne out by the fact that on some occasions a squad of spermatozoa is found in the tubes even as far as the abdominal cavity. This squad might be said to remind one of a hungry horde, competing in a race for a meal.

This conjugation, or union of the male and female cells, is only the beginning of reproductive activity. After the spermatazoon has united with the ovum, this fertilized ovum travels down into the uterus and attaches itself to the mucous membrane or lining of the uterus by means of little thread-like filaments which it projects. The mucous membrane is then stimulated to proliferate or grow until it becomes gradually detached from the uterus and envelops the ovum, forming the membrana dicidua. The ovum then begins to grow, dividing itself into portions that go to make the different parts of the body.

PREGNANCY

At one time in the history of classic Rome, the house of the pregnant woman was adorned by garlands; and in Athens it was an inviolable sanctuary where even the criminal might find shelter. Notwithstanding the mixed influences of the exuberantly vital times which preceded the outburst of the Renaissance, the ideally beautiful woman, as pictures show, was the pregnant woman.

It would seem strange that customs so established should be discarded, and that the pregnant woman should keep herself secluded and her condition a secret as long as possible, as though she had committed a crime, yet such would seem to be the case during the years just past. Havelock Ellis has noted this in saying: "Fundamental and elementary as is the fact of the predominant position of the mother in relation to the life of the subject it must be admitted that it has sometimes been forgotten or ignored. In the great ages of humanity it has indeed been accepted as a central and sacred fact. . . . But it has not always been so. At the present time, for instance, there can be no doubt that we are but beginning to emerge from a period during which this fact was often disputed and denied, both in theory and practice, even by women themselves."

During comparatively recent years considerable change is noticeable in the attitude of and to the pregnant woman. Even so short a time as twenty years ago, the woman who had become pregnant almost isolated itself for the entire period of nine months, going about the house in a most unbecoming "wrapper" and seldom venturing out on the street except under cover of darkness. Pregnancy, to many, was an unavoidable accident to be hidden from the neighbors as long as possible.

The present generation of expectant mothers seems to have taken an entirely different attitude, and they go about their club and social duties as calmly as at any other time of life. Dressed becomingly, the pregnant woman now attends her club parties even up to the day before confinement, while she probably plays golf and takes other active exercise during the greater part of the period. This change, no doubt, had its origin in the attitude of the manufacturers of women's garments. As soon as becoming maternity clothing was available, the pregnant woman found she could go about without the comments which her garb had called forth previously. The passing of the age of "false modesty" has caused the present generation of young women to talk more freely among themselves and also given the expectant mother an opportunity to continue her usual social life.

Pregnancy may take place at any time during the childbearing period of a woman's life, that is, from puberty to the menopause, or from the age of ten or twelve to the age of forty-five or a few years later. Of course the majority of cases of pregnancy take place during the early years of married life and it is the problems and conditions that confront the young expectant mother that concern us particularly in this chapter.

From the biological and community standpoint a woman enters upon the most important period of her life as soon as she becomes pregnant, for upon the care she gives herself at this time depends, to a great extent, the condition of her own future health, and the health, and possibly the life, of the babe that is developing.

Pregnancy begins with conception and is the result of the union of the spermatozoon, or male or fertilizing element, with the ovum, or female element. As soon as the union has taken place the process of development commences. With the human being this period of development is about two hundred and seventy-three days although it usually is spoken of as nine months. It is customary in estimating the time of confinement

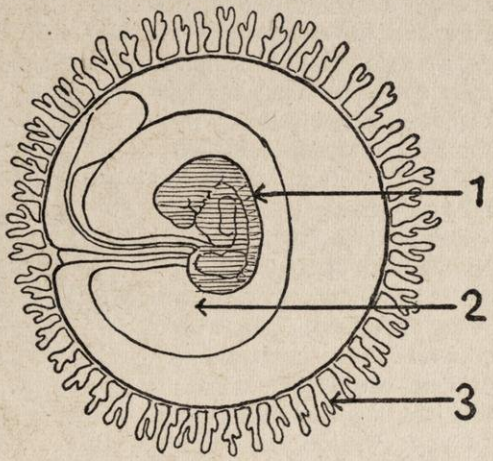
TABLE FOR CALCULATING THE DURATION OF PREGNANCY.

Directions—Find in the upper horizontal line the date on which the last menstruation ceased; the figure beneath gives the date of expected confinement (280 days). For example, if menstruation ceased on January 5, the confinement will take place on October 12.

Jan.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Oct.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	Nov.
Feb.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29			
Nov.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6			Dec.
Mar.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Dec.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	Jan.
Apr.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Jan.	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4		Feb.
May	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Feb.	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	2	3	4	5	6	7	Mar.
June	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Mar.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		Apr.
July	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Apr.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	May
Aug.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
May	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	June
Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
June	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7		July
Oct.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
July	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	Aug.
Nov.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
Aug.	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6		Sept.
Dec.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Sept.	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	Oct.

to count from the day of the beginning of the last menstrual period. Physicians usually count back three months from this day and add seven days which gives the approximate date of confinement.

The ovum at the time of fertilization is only about as large as the point of a pin, that is, about one one-hundred-and-



HUMAN EGG SECOND WEEK AFTER FERTILIZATION
1. Embryo—2. Amnion—3. Villi forming placenta.

twenty-fifth of an inch in diameter, while the spermatozoon is so tiny it cannot be seen without the aid of a microscope; yet in the combination of these two tiny elements there results the ability to develop day by day until a full sized babe is formed.

As soon as the ovum has become fertilized it attaches itself to the lining of the uterus by means of thread-like filaments which it projects. Through these filaments it is able to receive sufficient nourishment to enable it to grow, dividing itself into portions to make the different parts of the body. As soon as growth has started we cease to speak of the ovum and call the

growing mass an embryo. The growth and division takes place so rapidly that by the end of the third week after conception, the body of the embryo is quite well indicated and before the end of the second month the body and limbs are quite well defined. The limbs take definite shape the third month so that even the nails of the fingers and toes are distinguishable, while during the following month the sex even is indicated.

During the time the embryo (which later is called foetus) is developing, changes are taking place in the filaments which attached themselves to the lining of the uterus and these gradually develop blood vessels surrounded by fatty tissue which hold them together. This mass of blood vessels and fatty tissue is called the placenta or after-birth, as it is expelled after the birth of the babe.

EMBRYO OF FOUR WEEKS

The tiny blood vessels of the placenta have no direct connection with the blood vessels of the mother but lie close to them, and as the walls are so very thin, the blood elements are enabled to pass through the walls, thus allowing nourishment to pass from the mother to the babe which is forming. These tiny blood vessels of the placenta unite to form larger ones and finally form two veins and one artery which constitute the "cord" which attaches the foetus to the placenta, for in the process of division the body of the foetus is separated from the placenta and is attached to it only by the cord. This cord gradually lengthens until it is about a foot and a half long. While the placenta and foetus are being formed by division, a fluid is being manufactured which entirely surrounds the foetus, so by the end of the third month we have an almost perfectly formed foetus, or tiny babe, floating about in water and attached to the mother only by the cord which is fastened to the foetus at the umbilicus. As the artery and veins of the

cord are attached to the blood vessels of the babe, there is a free flow of blood to and from the foetus to the placenta.

All nourishment and oxygen enters the body of the foetus through this cord, for if the mouth or nose were to take in the water surrounding the babe, drowning would result. The baby does not breathe through the lungs until birth, the lungs until this time being collapsed.

Although the development of the foetus following conception is a natural condition, yet the changes taking place have a greater or less effect upon the entire system of the mother. Some, indeed, go through the entire period of pregnancy with no inconvenience and no alteration in their manner of living, but these individuals are the exception rather than the rule.

Some women begin to notice the disturbances almost immediately after conception, although the majority do not recognize the changes until several weeks have gone by. The first symptom noticed by many is the failure to menstruate at the regular period. Although the symptoms of pregnancy are annoying, they are not serious as a rule. However, one never can be certain which symptom is a warning of greater troubles and which is simply due to nervous reaction unless one has been trained in the science, or study, of medicine.

If a man is to take a long journey by auto, he first places his car under the care of a mechanic who has been trained in the care and construction of that car. Every part is gone over carefully and any weak places are strengthened. Then during the journey, frequent checks are made to be certain the car is running smoothly, is receiving the proper amount of gas and oil. In fact, it is considered economy to give the car the best of care even though the journey is not especially dangerous nor over roads never used before. A man taking a journey of only a few weeks will not think it unreasonable to spend twenty-five or even fifty dollars to have his car placed in good order before starting the journey, nor will he think it unreasonable to spend a few dollars every day for gas, oil and service.

We should consider the period of pregnancy as a journey that the wife is making toward motherhood and that the babe is making to birth, and take the same precautions and care that we would take of our car on a trip.

Before starting on the period of pregnancy, the modern young wife is learning that it is economy and wisdom to go to a well qualified physician and have her entire body given as thorough an examination as a mechanic gives a car, have any inflammation treated and any necessary repairs taken care of, then the journey to motherhood will be far more safe.

PLACENTA WITH ATTACHED CORD

However, if this examination has not taken place before pregnancy has started, the physician should be consulted at once. It may be that this is the family physician who has known the family for years and, therefore, is on the outlook for any inherited traits. The physician, if he is competent, will give the woman a thorough health examination at this time in order that she may be placed in the best possible health at the beginning of the period of pregnancy.

In this day of efficiency, the business-man husband should go with his wife, make all arrangements so his wife will feel free to go to the physician at regular times, or whenever any new symptom appears. This is the time to have a thorough understanding regarding the expenses to be met. No man of ordinary intelligence would purchase an auto without inquiring

as to the cost, and making arrangements for payment. Neither should the man or his wife engage a physician without inquiring regarding the charges and making definite arrangements regarding payment. This is necessary as there is considerable difference in the charges of physicians, just as there is a difference in the cost of various makes of automobiles. A physician, because of his experience, may charge more than another with less experience. The one engaged should be the best that can be afforded by the people concerned. No man would buy a five-thousand-dollar car when his income is such that he would have to struggle to meet payments on one that cost one thousand. The price must be considered in buying anything whether it be food, clothing, physician's services or hospital care. Hospitals vary in their charges according to the accommodations. Naturally one must pay more for a large single room than for space in a ward room. The necessary care is given in either case, but some of the luxuries are omitted in the latter, just as there are things missing in a house that rents for ten dollars a month that would be found in one that rented for ten times that amount. Business principles must be observed in planning the care of an expectant mother, then the budget should be brought forth and a certain sum each month be set aside for the physician's fee, for the hospital, and for the baby's outfit. Only by this method can one avoid being confronted by a huge bill that unconsciously takes away the joy in the birth of the baby.

Nausea, frequently with vomiting, called morning sickness because it commonly occurs upon arising, is one of the first annoying symptoms of pregnancy. It usually makes it appearance two or three weeks after conception and may be the first symptom noticed. It has a tendency to disappear after the first three months.

Sometimes a few simple things will relieve this symptom, as taking a cup of hot drink before arising. This is the time for the husband to show his interest in the child-that-is-to-be by

making an extra effort to arise early and prepare a light breakfast for his wife to be eaten in bed. A little care will save her much time and unhappiness.

All during the period of pregnancy the expectant mother should be under the guidance of a well qualified physician who understands the symptoms and will advise simple measures that will relieve them.

When the foetus is about four and a half months old, it has developed enough so the muscles have a tendency to contract and relax, thus causing movements. This is commonly called "quickening" or "feeling life." Life has been present since conception, but the movements have not been noticeable before this time.

Although the mother does not need extra food to provide nourishment for the developing babe, yet much extra work is thrown upon certain organs, especially the kidneys, hence it is desirable and necessary that a close watch be kept upon these organs that they may be kept in perfect working order.

The pregnant woman should be given the same watchful care that is given an athlete who is preparing for a special event, for certainly the birth of a babe is as important as is the winning of any game, also it requires as much straining of the muscles which naturally will respond more readily if they have been placed in good condition by proper exercise and proper training.

"Anything that touches the life of children, that deals with the beginning of life, cannot help being hopeful. It is a joy to do something that shall reach forward to the future."—*Phillips Brooks.*

As has been said the bearing of a child is the critical time of a woman's life, but in the majority of cases it may be passed through with few inconveniences, and little danger if proper care is given. The provision for this care is the privilege, as well as the duty, of the husband, although "the bearing and training of a child is Woman's wisdom."—*Tennyson.*