PHYSICIANS' MANUAL OF BIRTH CONTROL

KONIKOW

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For Members of the Medical Profession Only

PHYSICIANS' MANUAL OF BIRTH CONTROL

By

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FOREWORD

THIS book should not be confused with my original pamphlet "Voluntary Motherhood," privately printed in 1923 and based on my experience up to that time. It was, I believe, the first book on Birth Control technique by an American physician since Dr. Knowlton's memorable work in 1833. (The influence of Margaret Sanger's *Family Limitation,* first printed about 1915, cannot be overstressed, but I am here discussing only works by physicians.) In 1928 Dr. J. F. Cooper's *Technique of Contraception* was published and secured a wide circulation among physicians. Dr. W. J. Robinson's *Prevenception* followed in 1929. Mention should also be made of pamphlets by Dr. Dorothy Bocker in 1924, by Dr. Robert L. Dickinson in 1924, and by Dr. Hannah M. Stone in 1925.

My pamphlet was reprinted with certain revisions in 1926 and 1928, and the three editions totaling 10,000 have been distributed to physicians and members of the other recognized professions throughout the United States. The added number of patients since 1923 has given me valuable clinical data and an opportunity for extended statistical study beyond the scope of a pamphlet. Furthermore, research by other students in the last few years has made a reworking of the material advisable. The entire subject has therefore been reapproached and the present work is a completely new presentation of scientific Birth Control technique.

A. F. K.

NOTE

THE author wishes to acknowledge here the aid given in the preparation of this work by many of her friends and, in particular, by Miss Mary Duggan, Mr. Robert J. Lawthers, and her son, Dr. William M. Konikov. For the illustrations, she is indebted to Dr. Adrian Solo.

TO THE BUSY PRACTITIONER

who wishes, at once, to obtain practical knowledge of approved methods, and is willing temporarily to postpone theoretical considerations and discussion of other methods,

READ:

TABLE OF CONTENTS

PART I

GENERAL DISCUSSION

PART II

DETAILED DISCUSSION OF METHODS

PART IV

STATISTICS

See List of Tables, page 159

ILLUSTRATIONS

ERRATA

For *Antiflexion* throughout, read *Anteflexion*

For *Antiversion* throughout, read *Anteversion*

PART I

General Discussion

CHAPTER I

Introduction

SEVERAL good books on the technique of Birth Control have been published lately and, no doubt, many others will follow. This is a sign of medical progress. The physician, who a few years ago looked upon Birth Control as something beneath his dignity, now wants information and eagerly examines the books written by those with experience. Thus have the demands of the people at last impressed the physician, for the pioneers in Birth Control succeeded only because of the great support given them by the laity. Here is one of those rare examples in medical history where the layman has forced the physician upon the way of progress instead of the physician instructing the layman as has been done in most other fields of medical endeavor.

The name "Birth Control" coined by Margaret Sanger is often misunderstood as a means of controlling birth by abortion. It is, therefore, not quite so well chosen as it might be, but historically it has asserted itself through the courageous and splendid work done by the pioneers of Birth Control in America. It has appealed to the masses of interested people and it will not be easy to substitute another short slogan for it. Dr. Robinson proposes "Prevenception" but however appropriate this name may sound, it hardly will take the place of the one which carries

the flavor of a whole historical period. I will use the much abused name after having stressed, as all physicians do, its real meaning: prevention of conception.

Birth Control is necessary, as is now finally admitted by all authorities, in many cases of kidney trouble, heart disease, hyperthyroidism, tuberculosis, pernicious anaemia, repeated Caesarian deliveries and other pathological conditions which in combination with pregnancy may lead to the deterioration of health and even to the death of the woman.

Recently another substantiation of the indication of Birth Control in certain kidney conditions has been published. Drs. George C. Prather and E. Granville Crabtree, discussing "Pyelonephritis of Pregnancy," [1] write "It is certain that no patient should begin a subsequent pregnancy until all infection is clear, at whatever date that occurs. We believe that, because of poor general condition, it is preferable that even those who recover within the three month period should not begin a subsequent pregnancy until a year has elapsed."

Conditions influencing the health and death-rate of the child also have to be considered. Spacing of birth has according to statistics great influence upon the health and death-rate of the child. In *Causal Factors in Infant Mortality,* published by the Children's Bureau, U. S. Department of Labor (Publication No. 142) in 1925, valuable statistics are given. Tables 44 and 45 are analyzed as follows:

> "The analysis given in Table 44 shows that the infants who were born after the shortest intervals—i. e.,

[1] *New England Journal of Medicine,* Vol. 202, No. 8, February 20, 1930, page 366.

after changes of only one year in their mothers' ages—since next preceding births to their mothers had the highest mortality rate (146.7) and those who were born after changes of four or more years had the lowest (84.9). The most marked difference appeared between the rates for infants who were born after changes of one year and after changes of two years, which were 146.7 and 98.6 respectively. Practically no difference was found between the mortality of infants born after changes of three and of four or more years, the rates for these groups being 86.5 and 84.9 respectively.

"Table 44 also shows that the trend of the rates from each of the three principal groups of causes—those peculiar to early infancy, gastric and intestinal diseases, and respiratory diseases—was similar to that of the rates from all causes; in each case the infants whose births occurred after short intervals (one year's change in mother's age) had a markedly higher rate than those born after longer intervals. . . . The mortality rate from all other causes was decidedly higher for the short-interval infants (21.7) than for other infants.

"Furthermore, a markedly higher rate of mortality during the first month was found among the short-interval group than among infants born after intervals averaging about two, three or four years or more—51.2, as compared with 37.3, 36.7, and 38.1, respectively. (Table 45.)"

Unfortunately I am unable to find statistics on the effect of spacing upon the health of the mother. Physicians and social workers have enough experience, however, to be impressed with the baneful influence upon women's physical and spiritual welfare of births following one another within a year.

In addition to these health indications, there are sociological reasons for Birth Control:

Prevention of conception does away with abortions.
It permits early marriages.
It lightens the burden of motherhood and gives mothers some leisure for self-culture.
It brings about happier sex relations.
It preserves woman's health and prevents her ageing prematurely.

In the last few years a great change has occurred in woman's life. Her emancipation and entrance into industrial and professional life has necessarily changed her attitude towards motherhood. The educated woman of fifty years ago was called a "blue stocking" because she forfeited marriage and motherhood to obtain economic independence and an interesting life in the pursuit of scientific work. Marriage and motherhood at that time meant absolute economic dependence upon the husband and the drudgery of housework for a lifetime. Those who tried to combine a career with housework soon succumbed physically and this is partly true even today. But women now have a way out of this dilemma. Motherhood can be combined with economic independence, with a life of study and mental alertness, if Birth Control is used.

General Discussion

A small family does not take a woman's lifetime. A mother can stand four pregnancies in twelve years without losing her health and vigor while she breaks down with four pregnancies in five or six years. Woman realizes this

and saves her body and strength and ability to work. She goes out on strike against too many and too frequent childbirths just as the worker goes out on strike for shorter hours to save his physical welfare. Through Birth Control woman attains a shorter working day at home with leisure hours or opportunity to work for a livelihood if necessary. Efficiency, so highly praised by our era of industrial perfection, is at last applied to the human family.

Women are not swayed by deep economic studies of population, they are interested in the population of their own homes and in a chance for motherhood and happier families. Nature often leads to a Birth Control of sorts by crippling the body of a woman who has undergone many consecutive pregnancies. She finds herself suffering from malposition of the uterus or various inflammatory processes. Now women prefer to arrange the births of their offspring without having to pay this heavy tax.

Our laws still place Birth Control and abortion in the same category. The laws against both, however, have not diminished the number of abortions, nor prevented the spread of contraceptive methods. Our legislators dare not take a stand on the problem for fear of losing the chances of a political future shaped by their party bosses. But energetic advocates in New York have succeeded in overriding the silence of their legislators by obtaining direct decisions of the courts. Whether or not the legislators dare to come out for it, the people of the United States have adopted Birth Control. This can be easily proved by the falling birth rate among the native population, and especially among college graduates and businessmen.

Most of our American families use coitus interruptus

and condoms for Birth Control purposes but they do not call these practices "Birth Control." In the eyes of the average person Birth Control is a mysterious procedure which is known only to physicians and kept secret by them for their own use. Tell a lawyer or a businessman that his "taking care" (coitus interruptus) is Birth Control and he will be astonished. Physicians and sociologists no longer really need to advocate Birth Control: it has taken root in the population. They need advocate only that people be given an opportunity to secure reliable and healthful contraceptives. The present laws which place contraception and abortion in the same class cannot prevent the use of coitus interruptus and the condoms which are detrimental to health and happiness and still keep the abortionist busy. The only achievement of the law is this: it blocks the spreading of normal and healthful methods and prevents improvement in the methods and technique used.

As to the popular idea about the average physician keeping the secret of Birth Control for himself, it is important to admit the sad truth that the average physician knows very little about Birth Control. This is nothing to be astonished at, for where should he get his information? The colleges do not give it to him. Lately a few of the more progressive institutions have ventured to do so but this number is still very small. The average physician goes as far as advising douches, condoms and sometimes suppositories, but here his information stops. No wonder there is a growing demand among the young physicians for information about Birth Control. For these physicians I have written this book wherein I try to stress the practical side of each procedure in detail.

I do not intend to give material easily obtainable in a gynaecological or other text book. I shall, therefore, omit descriptions of operations for sterility in men and women; I shall also leave out rare and exceptional methods which have not been used lately. I shall concern myself mainly with methods used now and advocated by prominent physicians here and abroad.

Some people may ask, "Why another book on this subject?" I have found the several studies already in print very helpful but I also consider my own experience valuable; the more so that I differ from my colleagues in the evaluation of some of the methods, and consider these differences important enough to bring to the attention of the medical profession. Naturally I have given serious consideration to the literature presented by physicians in this country and abroad, in England, Russia and Germany, but in this book I shall present mainly the results of my own experience in the technique of Birth Control, derived from twenty-eight years' practice of medicine.

As a woman physician, practicing in the poorer districts of the city, I inevitably became interested in Birth Control. The fear of pregnancy, the terror of undesired motherhood, which seemed to occupy the whole life of the married women, was brought to me continually. I knew these women. I knew their husbands, their children. I knew that their health and their economic circumstances absolutely forbade further childbearing. I saw them using the most desperate means to bring about abortions; I saw tears, unhappiness and endless despair. As a woman, I could not send my patients from one self-induced abortion to another. Something had to be done.

During my student days abroad, a young newlywed,

I had come in contact with Birth Control instruction, through the kindness of a chance friend. I applied this lucky knowledge to my practice, and whenever possible, tried to relieve my patients of the cause of their unhappiness. At first I had only my own personal experience for instructor. There was no time for careful statistical studies, but the rough and ready experience in a busy practice soon weeded out the more obviously defective methods. Later I supplemented my knowledge with the experience of other physicians whom I met through my personal endeavor, and still later at conferences organized by the Birth Control League.

The number of Birth Control patients in my office was at first small: fifty, seventy-five or one hundred a year. With the growth of Birth Control propaganda and the greater demand for information the number of patients applying for advice grew rapidly. In later years, I have had many patients from the well-to-do and professional classes, but the charitable institutions and social agencies have sent me patients from the poorer strata, and my own acquaintance with workers and my interest in their lives have brought many of them to me for Birth Control instruction.

As the city in which I practice has no clinics, I have often had to take upon myself the work done elsewhere by these organizations. Naturally, I have been limited by the laws of the state and have not been able to give advice to all who have applied. More recently the example of clinics in other cities has prompted me to take records and follow up my patients insofar as my practice permits. The patients are seen by me personally usually several times a year. Many times they come in quest of refitting or for

other advice. The re-examination naturally adds a great deal to my knowledge. While I cannot present results of thousands of cases as given by clinics, I have the advantage of having fitted and instructed each patient personally and have thus come in closer contact with patients than is possible in clinical work. A section will be devoted to my records and the statistical results obtained from them.

My Birth Control work has given me the satisfaction of contributing my small share to the happiness of those with whom I have come in contact. One case, by no means an isolated one, will serve as an example of what Birth Control accomplishes.

Mr. and Mrs. A. came to me two years ago. He worked for the telephone company receiving $40.00 a week. They had had six children in seven years, the youngest baby was three months old. The mother weighed 103 pounds, haemoglobin 45%, blood pressure 103/70. She suffered from constant diarrhoea and sleeplessness. Her husband was continually nauseated, a symptom which he accepted as a sign of his wife's pregnancy. "Whenever she is pregnant, I am nauseated," he assured me. As she was continually pregnant for six years, his symptoms were constant. I supplied the woman with modern Birth Control information. They visited me for a re-examination two years later. The woman weighed 138 pounds, her haemoglobin was 90%, her blood pressure normal. The husband's nausea had disappeared and he had gained ten pounds. His nausea had been part of an anxiety neurosis resulting from their continual fear of pregnancy. Both looked happy and could not find words enough to express their appreciation. All this without any other treatment except a temporary one for her indigestion.

Surgeons and specialists may receive letters of gratitude from their patients but I doubt that they exceed in number and depth of feeling those which I find in my files; there is no question that other physicians in Birth Control work have had a like experience. There is a great need for physicians sympathetic towards Birth Control and trained in the technique. I feel it my duty to share my experience with them. The nightmare of untimely and undesired parenthood must be destroyed. If my book will be of assistance in doing this, I shall be satisfied.

CHAPTER II

Prejudices against Contraception

PREJUDICES against prevention are rampant among physicians and the laity. The average physician is certain that his alma mater gave him all the theoretical instruction he ought to have and he considers himself up to date if he follows the average weekly or monthly magazine published by established authorities. It is quite natural, therefore, that he mistrust anything which comes from another source. As Birth Control has not been touched upon by his university and hardly by his medical journal and magazines, he is prejudiced against it and considers physicians working in Birth Control either quacks or cranks. He cannot imagine that earnest scientific work can be done without college connections. Such a physician assures his patient that Birth Control methods may bring serious harm. True, under stress of public opinion, this attitude among physicians is disappearing but it is present in a greater degree than one would expect.

Many a patient has told me that her obstetrician or surgeon warned her against the use of pessaries because they might bring about cancer or other serious results. The physician hears of some particular method which is harmful—the stem pessary for instance—and applies his condemnation to all others. No doubt also many quacks have played with Birth Control because the regular phy-

sician does not want to take it up and the demand for it is so great. But one could expect from the average physician at least enough response to modern life to investigate the methods offered.

Many patients have informed me that they were told that Birth Control prevents the possibility of pregnancy in the future. Here, undoubtedly, the results of abortions have been taken for the consequences of Birth Control appliances. There are many people who use prevention for a few years and, upon giving it up, find that conception does not take place. But these are cases where partial protection would have been enough. Women who have a sharply antiflexed or retroverted uterus or some ovarian defect or one of the many causes of partial sterility may need some partial protection for 100% safety, but they may expect to find that conception takes place with difficulty even after preventive methods are discarded.

It is best to tell patients about such conditions if they are diagnosed while giving Birth Control advice and thus avoid possible misunderstanding. One can never be sure in a newlywed whether a certain displacement of the uterus will give complete sterility or not, but one can tell her of its possibilities. Explain to her that she needs less prevention than others—omit the paste, if one is using paste and pessary—but point out to her that she cannot rely upon her own condition for 100% security, that she will find out only when she is ready for her first pregnancy how much protection it gives her. She should be told that if conception does not result within a month or two after discarding the pessary she should consult a physician.

Many young couples have used coitus interruptus for two or three years and they will swear by the efficiency

of this method during that time, but when they are ready to enter parenthood they find that conception does not take place and the young woman begins her pilgrimage from physician to physician to cure her defects. In these cases a method of prevention which I consider only partially reliable proves efficient because of the inherent partial sterility of the wife.

In connection with the possibility of partial sterility it would be well to examine the husband before advising Birth Control methods, but getting the husband's consent for such an absolutely natural procedure may take another quarter of a century of education. Men still need much instruction to realize that their own condition may have an influence upon the possibility of conception.

Another curious and inexplicable prejudice still persists in the minds of physicians—namely that a physician specializing in Birth Control must necessarily be an abortionist. If patients make such an error it is understandable, but it is very strange to have physicians follow suit! Why should an abortionist be interested in Birth Control? The abortionist earns a large amount of money and is accustomed to high fees, while he certainly cannot charge high fees for prevention. The laity naturally are inclined to accept the same attitude because the term Birth Control is rather doubtful, meaning "prevention of birth"—possible abortion. Thus the laity sometimes apply to Birth Control all they hear about the baneful effects of abortions.

Every physician dealing with Birth Control gets numerous requests to induce abortions. Many are afraid to undertake Birth Control work because this confusion may give them undesirable reputations. But this proves only that this branch of medicine is in need of men and women

who can stand by a principle. The physician who pays no attention to narrow prejudice finds his consolation in the assurance that he is paving the way for better methods of Birth Control and better understanding of sex life.

In my opinion the gynaecologist or family doctor who gives a great deal of his time to Birth Control can find in it tremendous interest and satisfaction. It brings him nearer to his patient who appreciates his humanitarian attitude and understanding; it gives him the confidence of his patients especially in the problems of sex. Research in sex psychology, in the art of love, comes as near to this subject as the problem of sterility which Dr. Dickinson suggests as a supplementary study, well connected with Birth Control. To me the joy of the patient who learns to know more about her body, her deep interest and eager response to my instructions, has always been an additional inducement to stick to my work.

CHAPTER III

A Short Review of Anatomy

THE external part of woman's reproductive organs is known as the vulva. It surrounds and protects the entrance to the vagina. The vulva comprises the large and small labia, the clitoris, and the openings into the urethra and vagina.

The vagina is the canal that forms the passageway between the external and internal sex organs, between the vulva and the uterus (womb). It is directed downward and backward. The penis enters the vagina during coitus, and ejaculation of the seminal fluid takes place into the vagina. In virgins the vaginal opening is narrowed (not blocked) by a membrane called the hymen.

The uterus is a small muscular bag consisting of the cervix (neck) and fundus (body). In length it measures three inches including the cervix, which is an inch long. In breadth the uterus is about two inches. The cervix is the part of the uterus which enters the vagina and can be easily felt as it projects into it. The opening in the cervix leads into the cavity of the uterus. This opening is very narrow. The uterus has openings into the tubes, two narrow canals leading to the ovaries. Each tube is about five or six inches long. The outer extremity of the tube is trumpet-shaped and surrounds the ovary. The ovaries are almond-shaped glands. They are the most

important part of the sexual mechanism, for in them is found the ovum. The ovum is the cell that contains all the physical and spiritual characteristics which the mother contributes to the child.

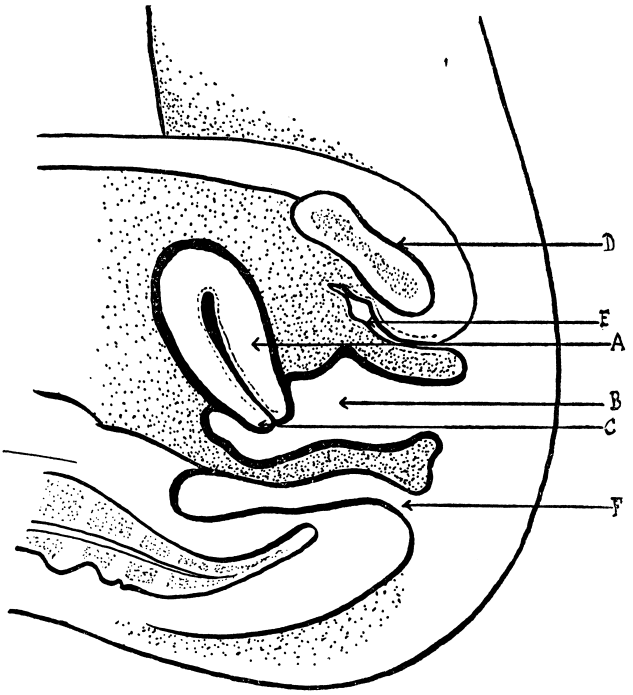

FIG. 1

This diagram represents the normal relations of the uterus, vagina, bladder and rectum.

A—uterus; B—vagina; C—cervix; D—symphysis pubis; E—bladder; and F—rectum.

The ovary discharges the ovum into the tube and from there the ovum is pushed into the uterus by the movement of the cilia of the lining cells. The ovum is one of the two parts necessary for conception. The other part is the sper-

matozoon of man. The seminal fluid of man, ejaculated into the vagina during the sexual act, contains millions of microscopic cells (spermatozoa) created in the testicles.

The spermatozoa deposited in the vagina move toward the cervix, through its canal into the uterus, and from there enter the tube.

CHAPTER IV

Conception and Theories of Prevention

THE union of the spermatozoon with the ovum is called conception, impregnation or fertilization. This union takes place either in the uterus or tube but the fertilized ovum normally settles down in the uterus for development. We have only scanty information about the act of ovulation and still less positive information about the vitality of the spermatozoa.

That there is a greater possibility of conception during the first two weeks after menstruation seems to be established by research work on conception and ovulation by Drs. Dickinson,[1] Mall,[2] Ahlfeld,[3] and Issmer.[4] Still, research has not been able to give any positive proof of a definite time when conception is entirely impossible. Dr. Dickinson [1] gives the following summary of his research:

"Summary"

"1. There is no time in the month at which conception has not occurred in some women.

"2. The premenstrual week constitutes the relatively 'safe period' or 'low-risk period' when the average chance of pregnancy is less than one in ten.

[1] Dickinson, Robert L.: *The "Safe Period" as a Birth Control Measure,* Committee on Maternal Health, New York. Page 10. Dec. 1927.

[2] Keibal and Mall: *Human Embryology,* 1910.

[3] Ahlfeld: *Beobachtung uber die Dauer der Schwangerschaft,* Monatsschr. fur Geburtk. 1869; 34; 180.

[4] Issmer: *Ueber die Zeitdauer der Menschl. Schwangerschaft,* Arch f. Gyn. 1889; 35; 310.

"3. A 'safe-period' or sterile part of the cycle is present in every woman, but it is a matter for individual tests, and such successful tests are not yet effectively transferable from animals. Nor has any series been studied that is made up of adequate case records of women with known 'safe periods.'
"4. The height of fertility belongs to the week or ten days following menstruation.
"5. Fertility is relatively high during menstruation. For the four days that make up 14 per cent of the average menstrual cycle, conceptions from isolated coitus have amounted to 13 per cent.
"6. Abdominal operations point to ovulation between the fourteenth and nineteenth days from the beginning of the period—rarely thereafter. Coitus may possibly free the ovum earlier.
"7. Alterations in rhythm of tubal contractions and in the tube lining point to passage of the ovum subsequent to the above days and up to the twenty-second day.
"8. New evidence shows coincidence of maximum sex desire and maximum well-being with minimum chance of conception, in the pre-menstrual week; also a secondary wave of desire at the time of greatest fertility."

The spermatozoon is about 4.2 microns long (micron —1/1000th part of a millimeter). One ejaculation contains about 200-1000 million spermatozoa. If repeated one after the other, the later ejaculations contain fewer spermatozoa. The following quotation from Van DeVelde's *Ideal Marriage*[1] describes the action of the spermatozoa very vividly:

[1] Van DeVelde: *Ideal Marriage,* page 128, published by Heinemann, London, 1928.

"These sperms move forwards at a rate of speed which, under the microscope, appears about 3 mm. a minute. This means that each spermatozoon moves its own length forward in a second. They are propelled onwards with enormous force, obstacles are thrust aside or cloven through, and the advance is steadily *upstream*. And, as I have mentioned, a capillary current downwards and outwards, towards the vagina and introitus, is always operating in the woman's oviducts and uterus; so the invaders must swim against the stream to attain their goal. Probably their extreme rapidity is slightly diminished by the capillary current. At least, it is assumed that they only advance 1 to 1½ mm. every three minutes, so that as they emerge from the *liquid ejaculate* at the external *os uteri,* they only reach the cavity of the uterus *in two to three hours*. A few more hours and they will have entered the oviduct or tube, and in its lateral portion they meet the released ovum. One of the spermatozoa darts forward and plunges into the ovum, its head becomes merged with the ovum, and fertilisation has taken place. *Fertilisation* or *conception* thus cannot take place at earliest—if we accept these calculations—before eight hours have elapsed after coitus."

Dr. Gerard L. Moench[1] quotes many authorities as to the motility of the spermatozoa:

"How long do normal sperms remain in the vagina? An actively motile spermatazoon, according to Henle, will travel 2 cm. in seven minutes. Adolphi found the spermial motion to be from 14 to 23 microns a second, which equals about 1 cm. in eight minutes. Lespinasse, using a one-sixth objective and a number

[1] *Journal of the American Medical Association,* April 19, 1930, page 1205.

1 ocular, found that the sperms moved across the field of the microscope in from six to twenty seconds, which agrees fairly well with the two preceding statements. My own work likewise corroborates these observations, as I determined that actively motile sperms travel between 1 and 2 cm. in eight minutes."

The question of longevity of the spermatozoa is by no means settled.

Huhner[1] thinks that the spermatozoa ejaculated directly into the cervical canal are the only ones which survive and have a chance to fertilize the ovum, the spermatozoa remaining in the vagina being soon disabled by the acid vaginal environment.

On the contrary, Van DeVelde states that the spermatozoa may live a long time in the vagina. He bases his assumption on an analogy with various animal specimens and on practical experience.

Dr. Moench[2] states that he does not believe that acidity has anything to do with sterility. He quotes Killian and Stepita to support his contention and continues as follows:

"As far as vaginal acidity is concerned, I stated in a previous paper that I did not believe such acidity had anything to do with sterility. Since then further tests have only strengthened my opinion in this regard. The experiments of Killian and Stepita have strongly corroborated my views, as these investigators found that the sperms split glycogen into lactic acid but that the semen has such a marked buffer action that despite this fact the alkalinity of the seminal

1 Huhner: *Sterility in the Male and Female,* New York, Rebman Company, 1913.

2 *Journal of the American Medical Association,* April 19, 1930, page 1205.

fluid rises, and falls only as an end-reaction. Now vaginal acidity, which is normal in contradistinction to the alkalinity of the cervical mucous, is due to lactic acid and the highest values of vaginal acidity are always found in the most normal vaginas. Any vaginal discharge reduces acidity. Furthermore, vaginal acidity, except during pregnancy, practically never exceeds 0.5 per cent of lactic acid (von Jaschke, Menge) or a hydrogen-ion concentration of 4.7, according to Zwolinski and Truzkowski and I have determined by repeated trials that sperms live for hours in 0.5 per cent lactic acid solution.

"In addition, in considering any possible effects of the vaginal acidity on the sperms, it must be remembered that the titrated value of the vaginal acidity will always be reduced by the semen itself and that the volume of the alkaline semen far exceeds that of the normal acid vaginal secretion (and if the latter is not normal it will be less acid). Again, the semen is normally deposited in the least acid portion of the vagina near the cervix. At the same time I admit that a long continued stay of the sperms in the acid vagina will kill them off. After I had finished these experiments I found that Gräfenberg (Arch. f. Gynäk. 108, numbers 2 and 3, 1917) had made similar investigations. He found that a 1% lactic acid solution killed off most of the sperms in three hours, whereas a 0.5% solution left them practically unaffected."

The fact that, in cases where seminal fluid is deposited in the vulva near the entrance of the vagina, pregnancies have occurred, would speak for the ability of the spermatozoa to pass through the vagina into the cervix without being affected by the acidity of the vaginal secretions. Dr. Cooper explains this by assuming that the vaginal secretions may not be acid in some cases. As little accurate

research on acidity of the vagina in its relation to the seminal vitality has been made, we should be guarded about our conclusions on this problem. From practical experience, every physician knows of cases where conception has taken place in virgins, also in cases of coitus interruptus. I, myself, remember two obstetrical cases with absolutely undilated hymens. Leakage of seminal fluid could be given to explain the conception in coitus interruptus, but nothing except the ability of the spermatozoa to withstand the long passage through the vagina into the uterus will explain the pregnancy of technical virgins. It is likely that at least some of the coitus interruptus conceptions occurred the same way.

Dr. Samuel R. Meaker [1] explains the pregnancy of virgins by the fact that the vaginal secretions in virgins are not acid. According to the above quotation from Dr. Moench, however, vaginal acidity plays very little rôle in any case.

Since in this discussion we are interested in the prevention of conception, it seems that until it is positively proved that the vaginal acidity destroys the semen, we will accept the viewpoint that the semen may have great vitality and survive the acid reaction of the vagina or that the vaginal acidity is not always powerful enough to destroy it. If Huhner's theory were correct, prevention would be much more easily obtained than the results of the different methods seem to indicate.

To make conception possible the normal physiological work of both male and female organs is necessary. Nat-

[1] *A Working Classification of the Causes of Sterility*, Samuel R. Meaker, Journal of the American Medical Association, Vol. 90, No. 2, Page 111, Jan. 14, 1928.

ural sterility is brought about by some break in the chain of these normal physiological events. Artificial temporary sterility, or prevention of conception, is based on counteracting particularly one or the other of the following conditions necessary for conception:

1. The formation of healthy normal spermatozoa in the man's testicles and normal ova in the woman's ovaries.
2. The possibility of the spermatozoa passing through the spermatic cord to be ejaculated into the vagina.
3. The possibility of the ovum passing from its place of formation, the ovary, into the tube towards the uterus.
4. The ejaculation of the normal spermatozoa into the vagina and their entrance into the uterus.
5. The possibility of the spermatozoa after entering the uterus meeting the ovum and actually uniting with it.
6. After the union of the spermatozoon and ovum called conception, fertilization or impregnation, the possibility of the fertilized ovum settling in a normal uterine lining for its development into an embryo.

All these conditions are fulfilled in normal human beings.

Prevention of Conception

The prevention of conception can interfere with one or another of these conditions as follows:

1. Formation of normal spermatozoa or normal ova can be prevented by the use of X-ray and by certain biological methods.

2. The passing of the sperma through the spermatic cord is prevented by the operation for sterility in man, vasectomy, which consists in tying and cutting both spermatic cords. This operation is frequently performed and does not interfere with normal sex functions. It does not belong in the province of this book as it brings about permanent sterility which I do not intend to discuss. Its technique and application are given in every text book of genito-urinary surgery.
3. The possibility of the ovum passing through the tube is artificially prevented by the sterility operation on women. The operation consists in the excision of a section of both tubes and tying the ends, thus preventing the passing of the ova through them to the uterus. It is more serious than the sterility operation in men as it necessitates the opening of the abdominal cavity. It is usually performed when another abdominal operation is done on the patient, as for example, after a second or third Caesarian. This operation cannot be advised for regular Birth Control practice for it would mean permanent prevention of conception which is not the purpose of this book. Its technique is given in every text book on gynaecological surgery.
4. Penetration of the normal spermatozoa into the vagina and from there into the uterus can be prevented by mechanical and chemical methods. This is the condition which is mainly considered in Birth Control practice. This book concerns itself principally with these methods, because so far, we consider them the best and safest in fulfilling all de-

mands for Birth Control as discussed later in this chapter.

5. The union of the spermatozoon with the ovum can be prevented even after sperm passes into the uterus or tube. This is accomplished by the injection intravenously or subcutaneously of sperm preparations. Antibodies to sperm protein are developed in the woman and these prevent the union.
6. The settling down of the fertilized ovum in the lining of the uterus can be interfered with by methods which irritate the mucous lining of the uterus so that normal development of the fertilized ovum will prove impossible. Such methods are advocated by several prominent German and Russian physicians. Small pessaries of various substances (German method) or chemicals (Russian method) are introduced directly into the uterus.

Briefly stated, the purpose of any Birth Control method is to prevent the fertilization of the ovum or its consequent development.

To achieve this, only such methods should be used as are absolutely harmless to the man and woman and have no deleterious effect upon the germ plasm—in other words, the methods must not be detrimental to the health of the individual or of the race.

Coitus is not the coarse, vulgar, primarily physical procedure, often indicated by coarse and vulgar minds. It is really a most complex psychic relationship in which any mental or emotional influence may disturb the normal

procedure. The methods used must, therefore, not interfere with the course of normal sex relations as they may disturb the nervous equilibrium in both man and woman and result in psychic injury.

Naturally any Birth Control method must be so simple that a person of average intelligence can apply it easily. It should not be complicated or necessitate many preparations.

Some authorities on sex hygiene think that the seminal fluid is absorbed by the mucous membrane of the vagina and that this absorption stimulates woman's health. Although the evidence for this is not conclusive, it must be considered in the choice of method.

A good contraceptive method in my opinion should comply with the following conditions:

1. It must achieve its main aim—prevent conception, *it must be reliable.*
2. It must not be detrimental to health.
3. It must not cripple germ cells (as occurs in X-ray method).
4. It must not interfere with the course of normal sex relations.
5. It must be simple enough to be used by the average person.
6. It should, if possible, allow for absorption of the seminal fluid by the walls of the vagina.

Classification of Contraceptive Methods

We may classify the methods according to the manner in which they interfere with conception, following the same

general order as in the table given above of conditions necessary for conception:

I. Those preventing the normal development of the spermatozoa or ova:
   (a) X-ray
   (b) Certain biological methods (hormone)

II. Those preventing the passage of the spermatozoa through the spermatic cord:
   (a) Vasectomy
   (Not considered in this book because it means permanent sterility.)

III. Those preventing the passage of the ovum through the Fallopian tube into the uterus:
   (a) Operation to produce sterility in women
   (Likewise excluded here for it means permanent sterility.)

IV. Those preventing the spermatozoa from entering the vagina:
   (a) Condom
   (b) Coitus interruptus

V. Those preventing the entrance of the spermatozoa into the uterus:
   (a) Chemicals introduced into the vagina:
      1. Antiseptic pastes
      2. Suppositories
      3. Tablets
      4. Douches
   (b) Mechanical appliances intended to cover the cervix:
      1. Sponges
      2. Intravaginal pessaries

VI. Those destroying the spermatozoa after they have entered the uterus or tube:
   (a) Biological products introduced into the bloodstream

VII. Those preventing the settling of the fertilized ovum in the lining of the uterus:
   (a) Intrauterine pessaries
   (b) Chemicals introduced into the uterus.

Some of these methods are still in the process of research; namely, the X-ray and the biological methods. It is best, therefore, to concentrate attention on the methods which have been found practical and effective or at least are well known and universally used.

To help the student who wants to get at the best methods at once, I add another classification:

Reliable Methods

1. Intravaginal rubber pessaries used with paste and douching.
2. Intravaginal pessaries used with paste.
3. Intravaginal pessaries used with douching.
4. Condoms used with paste.
5. Coitus interruptus used with douching or paste.

Partially Reliable Methods

1. Antiseptic pastes (jells).
2. Suppositories or tablets.
3. Condoms with douching.

Unreliable Methods

1. Coitus interruptus.
2. Douching.
3. Condoms.

The intrauterine pessaries are not classified here because we have insufficient information as to their actual value.

In looking over the above classification based on reliability, one will notice that all reliable methods are combinations of two or more. Thus: "Intravaginal pessary with paste and douching" or "Condom with paste." Any of these methods alone achieves less safety and is therefore not advisable unless the patient herself has some degree of natural sterility (retroversion, antiflexion, or erosion). In discussing the separate methods in the following chapters I shall call the reader's attention to the effectiveness of the various combinations. The combination of two or three methods may seem cumbersome but it gives results. Nor is it as difficult as it seems at first glance because a few repetitions make it a matter of habit. For example, a pessary with paste in its cup is introduced a few hours before coitus, and its presence is not noticed. The paste is again used immediately after coitus, and its use is simplicity itself. The douche is a little more bothersome, but can either be replaced by the paste, or postponed to a convenient time.

PART II

Detailed Discussion of Methods

CHAPTER V

Methods Preventing the Normal Development of the Spermatozoon or Ovum

X-rays

THAT long exposure to X-rays brings about sterility has been well known from the experience of men and women who have had occasion to work with them. It is, therefore, natural that they should be tried as a Birth Control method.

Experiments were made in Russia by Dr. E. J. Kvater.[1] He worked with 67 women from 20 to 30 years of age and in each case obtained sterility for a period of five years. The X-rays were applied to each ovary for from five to fifteen minutes and the procedure repeated in a week. Two problems arise: Do X-rays injure the health of the women or affect the offspring conceived after such treatment?

Dr. Kvater has studied cases in which X-rays were used over a period of eighteen years and has never found any harmful results. He quotes Prof. Werner of Vienna who followed up 2680 cases where ovaries and uterus were exposed to X-rays for treatment. He also found no harmful results. In fact he felt that X-ray exposure prevented the possibility of cancer. Kvater states that Nurnberg

[1] *Contraceptive Methods and Their Technique,* published by the Department of Health, Moscow, 1926.

made experiments on 397 animals (female and male) and followed them through several generations. He drew the same conclusion.

However, later studies made by Dr. H. J. Muller in 1927 seem to offer new and serious objections. Dr. P. H. Whiting states in his article "The Influence of X-Rays on Heredity" [1] that Dr. Muller was able by the use of X-ray to produce mutations with great frequency in fruit flies. Dr. Whiting continues: "The discoveries of Dr. Muller have already been in part repeated by others with fruit flies, and investigations with other insects and plants. By far the greatest proportion of gene mutations and chromosal irregularities resulted in lethal and semi-lethal effects, causing death or weakening of descendants. These effects may fail to manifest themselves in the offspring of the treated individual but may occur in later generations according to well known Mendelian principle."

Taking into consideration such warnings from a prominent biologist, the advisability of using X-rays for temporary sterility should be still considered as doubtful. The possibility of affecting later generations has to be weighed seriously. The question of dosage also has not been settled. A dose giving partial sterility in one woman may give permanent sterility in another.

Some authorities have shown statistically that the children born after X-ray treatment were normal. However, their figures do not include subsequent generations which according to Dr. Muller might be adversely affected. Until the contrary is definitely proven in man X-rays should not be used for Birth Control purposes.

[1] *Birth Control Review,* January, 1930.

Hormone Method

The ovum and the process of ovulation can also be influenced by biological methods. Professor Haberlandt [1] of the University of Innsbruck injected rabbits with ovarian and placental products ("Ovariolopton" and "Plazentaophon," preparations of E. Merck, Darmstadt). He noticed three stages following the injections. At first, the animals refused copulation, then temporary sterility was obtained, and finally the rabbits began to reproduce again but the offspring were weaker and fewer. Professor Haberlandt introduced the same products in guinea pigs and white mice by mouth and obtained temporary sterilization for several months.

The fact that the injection of ovarian and placental extracts led to a deterioration of the offspring seems to point to the same danger we discussed under X-rays. A method producing temporary sterility followed by definite damage to the coming offspring must be avoided.

Just as this book goes to press Professor Haberlandt has reported further experiments at the 1930 Sexual Reform Congress at Vienna. He implanted ovaries of pregnant animals in normal female animals and secured temporary sterility. On the basis of these experiments he worked out a tablet—called Infecundin—which he states brings about several months sterility when given by mouth to either animals or women. In a letter to me, Dr. Haberlandt states that Infecundin is being tested clinically and is not yet on the market.

[1] *Geburtenregelung,* 1928. Dr. Kurt Bendix, Berlin, page 84, referring to Professor Haberlandt's article in the Wiener klinische Wochenschrift, 1928, Heft 16, *Die hormonale Sterilisierung des weiblichen Tierkörpers.*

No doubt the idea of preventing conception by the swallowing of a few tablets is very tempting since it would mean that we had attained our desired goal of simplicity. However, it seems to me that we must proceed very cautiously and await the result of most extensive experiments—first on animals and later on women—before accepting this method. It must prove absolutely reliable. Equally important, it must not have the defect noted above in connection with Ovariolopton and Plazentaophon. Experiments must be made over several generations to show no harm to future offspring.

CHAPTER VI

Methods Preventing the Entrance of the Spermatozoa into the Vagina

Coitus Interruptus

In this method the penis is withdrawn from the vagina just before ejaculation of the seminal fluid. Sometimes the seminal fluid is deposited in the vulva, in other cases the husband ejaculates into a towel prepared for that purpose. It is used by thousands of men in all countries. Among my patients coitus interruptus (withdrawing) or, as women say, "My husband takes care," make up a large percentage of previous prevention. (See last section for statistics.)

Many women assure me that the method does not harm the husband, at least he does not complain. Some have used it for a few months, others for ten or fifteen years. To woman, this method brings great disappointment because she needs more stimulation to reach her orgasm than man. The sudden interruption of the act leaves her often in actual physical distress. Again, many women, afraid of pregnancy, worry so much over the possibility of the husband missing the right moment of withdrawal that they do not participate in the act at all. They give all attention only to reminding the husband "not to forget himself."

There are women to whom sex relations give no joy at all. They consider it as a duty to the husband, an ordeal imposed by marriage. The sooner it is over the better. Such women, brought up in aversion to the sex act, do not realize the importance of normal sex relations for themselves and their husbands and are very much inclined to leave the full care of prevention to the man. The patient who tells me that she does not care for sex relations, says also, "Let him take care; as for me I do not need it anyway." Probably she does not have any sex desire just because of the abnormality of such relations, and no doubt also because of the overpowering fear of undesired motherhood. To such women coitus interruptus seems a satisfactory Birth Control method.

Some men also seem to find this method satisfactory. Others prefer no intercourse whatever to the strain required by coitus interruptus. Many nerve specialists ascribe to this practice anxiety neurosis and sexual impotence of different degrees. Other authorities claim that at worst it is merely unpleasant.

Dr. Max Huhner [1] states that coitus interruptus leads to the following results:

1. The erection centre is not thoroughly deplethorized and remains hyperemic.
2. The seminal vesicles do not empty completely and become distended again much sooner—bringing forth the desire for coitus earlier than after normal coitus.
3. The prostatic part of the urethra remains congested.

[1] *Practical Treatise on Disorders of the Sexual Function in the Male and Female,* 1928. American edition, page 71.

The results are: (a) ejaculation takes place at the commencement of coitus (rapid ejaculation or even premature ejaculation); (b) the erection centre loses its power to hold the impulses back until the proper time—it may become completely exhausted and fail to respond to stimuli thereby leading to the absence of erection.

The history of cases given by Huhner coincides with the above: First, such cases get premature ejaculation, then weakness in erections, and finally, no ejaculation at all. All this happens after coitus interruptus has been practised for some time and not everybody has such results. Huhner says "I have seen the final stage (impotence) reached after but six months of coitus interruptus and, on the other hand, have seen patients indulge in this practice for many years before any ill effect was noticed." In woman coitus interruptus often leads also to congestion of all sex organs because she does not reach her orgasm.

Huhner cites the following cases which seemed to be caused by coitus interruptus:

1. Cardiac symptoms in a woman which disappeared after normal sex relations were established.
2. Sciatica which was so bad that the patient had to give up work.
3. Nervous exhaustibility.
4. Severe neurasthenia and pain in skin of penis, besides complete impotence.

The husband of one of my patients, who practised coitus interruptus for many years, had after each coitus severe headache and often nausea and vomiting. He was treated by nerve and stomach specialists. It did not occur to him or any of his physicians to relate this disturbance

to his abnormal sex life. The wife was fitted with a pessary and the husband's symptoms disappeared after a few weeks. Then the husband realized that he was cured. Previously he had spent much money for specialists and lost many days of work.

While the controversy between physicians and even among the laity on the problem of the harmfulness of this method probably will continue for a long time, I can make the assertion that the method as far as Birth Control goes is absolutely unreliable.

Investigation has proved that a leakage of seminal fluid containing spermatozoa takes place previous to ejaculation. Thus, even if the man withdraws before ejaculation, impregnation can take place. In addition to this, most men do not have the self-control to interrupt the sexual act at the very height of their passion. The average man unknowingly leaves a part of the seminal fluid near the entrance of the vagina in the vulva. From this point the spermatozoa can make their way deeper into the vagina, up through the cervix into the uterus, since they can move about 3 mm. in a minute, and also may live for many hours or even for days in the vagina. (See Chapter IV on the possibility of spermatozoa living in the vagina.)

Men often begin a second coitus, forgetting that they are carrying the microscopic spermatozoa back into the vagina with the penis. The usual superficial wiping is worthless. To assure safety, the man would have to wash his penis thoroughly with a weak antiseptic. This cleansing process at such a time is naturally not very pleasant.

Some physicians assert that men can attain full control of themselves after a certain time. They forget that there is leakage of seminal fluid. Besides, the question

arises: How many children may be born before this ability is attained? I have had cases in which prevention was obtained with coitus interruptus for five to fifteen years. Invariably I learned that the seeming efficacy was due to a peculiar construction of the sexual organs of the woman which made conception difficult. Whenever a patient tells me that her husband succeeded in warding off pregnancy for several years by coitus interruptus, I am certain that I will find a displaced uterus, or some inflammatory condition of the uterus, or sterility in the man. The couple in these cases are aided more by partial sterility than by this method of Birth Control. But in cases where the sex organs of both are normal this method is absolutely unreliable.

I consider coitus interruptus unreliable, abnormal, and detrimental to health, and would advise its use only in exceptional circumstances and then only in combination with other methods, such as douching or paste.

Condoms

A condom or "French safe" is a thin sheath made of rubber or animal membrane which is drawn over the erect penis before intercourse. Those made of animal membrane or cecal membrane ("fishskin," "beetleskin," or "goldbeater's skin") are thinner and decrease the joy of coitus less than the rubber ones. Although thinner they are firmer and do not tear as readily as the rubber condoms. On the other hand they slip off more easily and have to be moistened with water on both sides before use. The rubber condom fits better but is more likely to tear. It is advisable to lubricate beforehand. There are different sizes and men should choose the most suitable. Each condom should be tested before use, either by blow-

ing it up or by filling it with water. The price of condoms varies from 25 to 50 cents each. It is wiser to use a new one each time. "Skin" condoms to be used again should be kept in water or alcohol, after a thorough cleansing with soap and water.

A professor in a German clinic said about condoms, "From the point of view of prevention a condom is as thin as cobweb but from the point of view of the joy of the sexual act, it is as thick as the wall of a fortress." This statement is no exaggeration. Condoms may tear, leak or slip off. Against the condom also is its application during the actual progress of coitus. At the time when men and women should forget all the world about them, the man is obliged to give his attention to the disagreeable task of applying the condom—an act which seems especially coarse and distasteful at such moments of intimacy. The second coitus requires a second condom. To many women the second coitus presents the real joy and it has to begin unfortunately with a new interference.

Condoms are sold at every drug store and are marked: "For Prevention of Infection." Such is our hypocrisy. The man buying a condom tacitly admits either that he or his wife has a venereal disease, or that he intends to use it with a prostitute. It is not supposed to be used for prevention of conception.

I do not recommend the condom. First, it is highly disagreeable. Few men and women can enjoy sex relations with this foreign body present. Secondly, it is unreliable, because one can never tell when it will fail. As far as simplicity is concerned objections cannot be raised by the woman but it does not appeal to the husband. In short it is neither reliable nor normal. I can hear some

readers say at this point, "In our experience, they have never broken." My answer is that my practice shows a high percentage of failure with the use of condoms.

Prevention is assured only when the condom is supplemented by other methods. Douching is unsatisfactory in this case, for during the time consumed in preparing the douche, the spermatozoa released through a tear in the condom may enter the uterus. In coitus interruptus the woman has the assurance that the spermatozoa are not deep in the vagina, an assurance which she cannot have in the case of a torn condom. The supplementary means used with the condom must be other than douching. The best supplement is a chemical paste inserted in the vagina before coitus to destroy any liberated spermatozoa.

Some men, urged by their wives, whose fear of an undesired baby takes away all sex desire, use even two or more condoms at the same time. I know a number of families who have followed this method for years. It is hardly necessary to state that sex relations under such conditions are absolutely abnormal and can satisfy neither husband nor wife.

I draw the conclusion, then, that both methods, coitus interruptus and condoms are unsatisfactory. If either method is used, supplementary precautions must be taken.

CHAPTER VII

Methods Preventing the Entrance of the Spermatozoa into the Uterus

Chemical Methods

THE basic idea of these preventives is the introduction of chemicals into the vagina. These chemicals are intended for the destruction of the spermatozoa without injuring the mucous membrane of the vagina, or affecting the health through absorption. The spermatic fluid is delivered in a volume of 4 to 7 cc. at the cervix. Any chemical to be of value must react throughout this volume very rapidly because the unaffected sperm may be pushed or drawn up into the cervix and out of danger.

According to their popularity and historical appearance as contraceptives, chemicals come as follows:

1. Douche
2. Suppositories
3. Tablets
4. Antiseptic paste (jell)

The douche was probably the first chemical method used for prevention of conception; it has been mentioned in contraceptive literature of a century ago.[1] The actual use of suppositories for contraception has been known for

[1] Knowlton, *Fruits of Philosophy.*

at least forty or fifty years, perhaps longer, while tablets and jells are products of the twentieth century.

As to their actual value in contraception, the order must be reversed:

1. Antiseptic paste (jell)
2. Tablets
3. Suppositories
4. Douche

I consider antiseptic pastes, used alone, partially reliable, while the douche, except in combination with other methods, must be abandoned as absolutely unreliable.

Antiseptic Paste

An antiseptic paste is a soft mass made of gelatine, glycerine, starch, agar-agar, or Irish moss which gets its antiseptic character from admixture of boric acid, lactic acid, oxyquinoline sulphate or other mild acids or antiseptics. A trade preparation of oxyquinoline sulphate "Chinosol," can be used when this chemical is prescribed but costs much more. This soft mass is placed in a collapsible metal tube which contains about 40 to 70 cc. A glass or rubber nozzle can be screwed on its opening so that on pressing the tube (this is usually done by the turn of a key adjusted at the end of the tube), the nozzle is filled with the paste.

There are three uses for paste: first, it can be used alone before coitus; second, it can be smeared on a pessary to prevent sperm passing around into the cervix (this is discussed under use of pessaries); and third, it can be used instead of a douche to destroy the sperm held back in the vagina by a pessary.

When used for the first or third purposes the nozzle is introduced into the vagina. Then the key is turned halfway round and 2 cc. or ½ teaspoonful of the paste is squeezed directly into the deeper part of the vagina—usually (if the uterus is in normal position) directly in

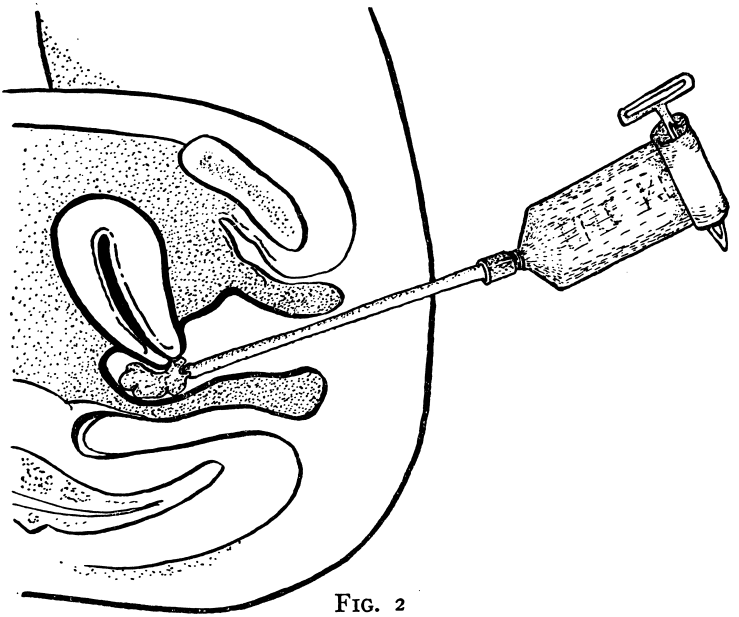

FIG. 2

Insertion of antiseptic paste into the vagina.

front of the cervix. When not in use the nozzle is closed by a small cork or rubber cover. The paste is soft and melts at once; it can be placed deep in the vagina because it is introduced through a vaginal nozzle which the average woman knows how to use because of her experience with douching; it is water soluble and, therefore, easily mixes with the seminal fluid; its constituents usually do not irritate and yet are powerful enough to destroy the spermatozoa.

Antiseptic pastes in tubes supplied with nozzles are at present sold in the United States for the treatment of leucorrhoea and other disorders. These pastes incidentally contain all the ingredients necessary for a good preventive. There are many preparations on the market retailing for about $2.00 a tube which can be obtained from any druggist. Among the pastes [1] at present on the market are in alphabetical order Gelakta, Gelaquin, Hyva, Koromex, Lactikol, Lactikol B, Lucorol, and Prekonsol. These pastes are by no means equivalent, since they differ in composition. Gelaquin, Hyva, Lucorol, Lactikol B, and Prekonsol are said to contain, in addition to boric acid, oxyquinoline sulphate which is a powerful non-toxic antiseptic. On the other hand, Gelakta, Koromex, and Lactikol are said to rely for their action on lactic or boric acid only. Those relying on such weak acids fail to realize that both the vaginal and spermatic fluids are buffer solutions tending to maintain their own hydrogen-ion concentration. Acids introduced into the vagina are buffered down, principally by the spermatic fluid, so that the miraculous demise of the spermatozoa in vitrio is not duplicated in vivo. This has been brought out in work done on rabbits for the Committee on Maternal Health by Dr. Isidor Kross using 2% lactic acid. The rate of propagation was not affected at all.[2] Strong acids, of course, should not be used in the vagina because of the inflammation which they cause.

Such figures as are available through clinical experience support this view. The Illinois Birth Control League reports (1924-27) success in better than 96.5% of 2274

[1] See appendix for addresses.

[2] R. Dickinson: *Contraception: A Medical Review of the Situation.* Transactions of the American Gyn. Soc., 1924, Vol. XLIX, page 95.

cases in which pessaries and Prekonsol [1] paste were used in combination. My 1930 statistical study given in the last section of this book shows 96.8% success in 379 cases for which I prescribed pessary and Prekonsol paste. From the 1925 report of the Clinical Research Department of the American Birth Control League, we conclude that in cases where pastes alone were used best results were obtained with an oxyquinoline sulphate paste, whereas pastes containing only acids proved least effective. The force of this conclusion is somewhat weakened by the limited number of cases (186).

One person in a thousand is sensitive to oxyquinoline sulphate and on this account some authorities recommend a lactic acid paste for general use. They ignore the fact that some individuals are in turn sensitive to lactic acid and the jells containing acid only are at best of doubtful value. For the rare patient sensitive to oxyquinoline sulphate I recommend pessary and douching only.

Suppositories

Chemicals mixed with cocoa butter or boro-glyceride are made up in egg-shaped, conical or globular form. Suppositories made of cocoa butter require at least seven minutes to melt in the vagina, those of boro-glyceride at least twenty minutes. Unless they are melted, they are ineffective. Chemicals used are:

Quinine—1 to 3 per cent
Boric acid—3 to 4 per cent
Salicylic acid—1 to 2 per cent
Oxyquinoline sulphate—1/10 to ½ of 1 per cent

[1] The manufacturers of Prekonsol advise me that their paste contains only 0.5% of oxyquinoline sulphate instead of 1.5% as stated by several writers on Birth Control.

Corrosive sublimate should not be used because it is easily absorbed and works as an accumulative poison in the body. The price of suppositories is from $1.00 to $1.50 per dozen. They can be ordered in almost any drug store.

I have used the following:

Quinine sulphate	grain two
Boric acid	grain two
Cocoa butter	drachm one

This makes one vaginal suppository.

Oxyquinoline sulphate	grain one-fifth
Boric acid	grain two
Cocoa butter	drachm one

This makes one vaginal suppository.

The suppository is inserted before coitus deep into the vagina so that the finger can hardly feel it. The body heat melts it, and during coitus the chemicals are supposed to destroy the spermatozoa. The cocoa butter acts as a mechanical barrier, partly blocking the opening into the womb. Unfortunately considerable time must elapse before melting takes place, and the woman can never be certain that it has occurred.

The chemical contained in cocoa butter is coated with this fat to such an extent that very little acually comes in contact with the spermatozoa. The action can be compared to an attempt to dissolve in water a suspension in oil. The oil definitely hinders solution. The real action of the suppository is probably due to the film of oil obstructing the path to the cervix.

Tablets

Tablets used for prevention of conception are composed of the same chemicals given under suppositories,

and like the latter are introduced before coitus. Usually effervescent mixtures of sodium bicarbonate and tartaric acid are present in the tablet, and their interaction is supposed to carry the active ingredient to all parts of the vagina by the production of carbon dioxide. "Proseldis" tablets are used in England; "Semori" in Germany.

The tablet requires moisture to dissolve and if this is not present may obtain it by dehydration of the vaginal mucosa. The strength of the solution starts at saturation and this is often injurious to the tissues. The effervescent ingredients cause a definite burning sensation during their interaction, particularly at the vaginal orifice. This latter action can be partially prevented by inserting the tablet deeply thus avoiding contact with the external genitalia. The deeper tissues are less sensitive, but may, nevertheless, be injured. Until statistics are available on this point I cannot advise the use of tablets.

Another objection is the lack of mechanical obstruction. One certainly would not inject four cc. of a solution into the vagina and expect results. This is at best all that the tablet affords.

Comparing the antiseptic paste with the suppositories and tablets we find the paste has many advantages because:

1. It needs no time for melting—it is soft and melts at once as soon as introduced while suppositories often take from seven to twenty minutes, and tablets may not dissolve at all. The boro-glyceride suppository can be ruled out completely for this reason.
2. It is placed deeply, because it is introduced through a vaginal nozzle; while suppositories and tablets

are placed with the finger. Unless specially instructed, women place them at the very entrance of the vagina. The penis may push them deeper but the melted or dissolved part will remain at the entrance.

3. The ingredients of the paste are not as disagreeable as cocoa butter of which most suppositories are made. Cocoa butter has a disagreeable smell and its fatty consistency is very objectionable. The tablet, on the other hand, may cause smarting and inflammation.
4. The fatty consistency of suppositories makes chemical action upon the spermatozoa quite difficult while the antiseptic paste is water soluble and mixes readily with the seminal fluid. The tablet is water soluble provided that enough moisture is present which is usually not the case.

The advantage of suppositories and tablets is found in their convenience. Both are of small size and can be easily carried around. Still this advantage is offset by the greater efficiency of the antiseptic paste.

Douching

Douching is the flushing of the vagina with water or a mild chemical solution by means of a douche bag or syringe. Applied to Birth Control, its aim is to wash out the seminal fluid deposited in the vagina during coitus and at the same time to destroy the spermatozoa.

The principal achievement of the douche is the washing out of the seminal fluid, and for this alone, plain water would be effective. However, a certain number of sper-

matozoa may remain in the folds of the vagina, and the addition of a mild acid or antiseptic to the douche insures the killing of these. The chances of spermatozoa remaining are diminished even with plain water by using large amounts (about two quarts) with a steady, fairly powerful stream, thus achieving the result in a mechanical way. Alkaline or salt solutions should not be used as they may be diluted in some fold of the vagina and form a good medium for the spermatozoa. For safety the mild acid or antiseptic is desirable.

It is astonishing that this method of prevention of conception which has proved so utterly inefficient in thousands of cases is still advised by physicians. About a hundred years ago a prominent advocate of Birth Control, Dr. Knowlton of Boston, advised douching as a great and successful method of prevention in his book, *The Fruits of Philosophy*. Dr. Knowlton's book made a sensation in London where it involved Annie Besant and Bradlaugh in a famous court trial. It may give us some consolation to know that we have progressed somewhat in the last hundred years, if we discard as inefficient this method which was once the last word in Birth Control. At present we consider douching very helpful in combination with other methods, but by itself it has to be absolutely discarded.

Description of Fountain Syringe and Its Use

The douche bag or fountain syringe consists of a rubber bag with a tube about four or five feet long attached to its lower end. A vaginal nozzle with several openings is screwed on or inserted at the end of the tube. A clamp on the tube serves as a valve. The bag is filled with water,

hung up about three feet above the level of the nozzle. The woman can be sitting on the toilet or lying on a bed pan. For Birth Control purposes, sitting on the toilet is sufficient. In the country a pail or chamber pot may be used. The nozzle is inserted into the vagina, the clamp

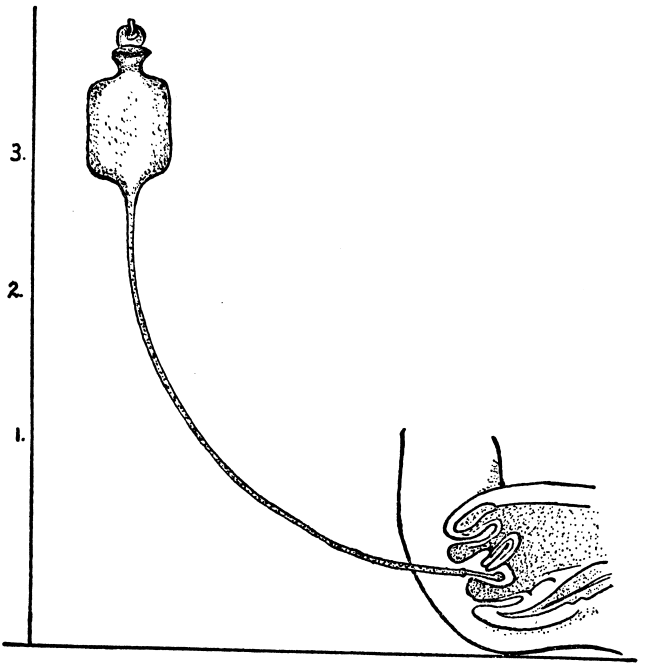

FIG. 3
Fountain syringe with height indicated in feet.

on the tube released, and the solution flows into the vagina, and out of it into the toilet or bed pan. The nozzle after being introduced into the vagina should be moved around so that the solution reaches all parts. In this way the vagina is washed out thoroughly. The solution does not enter the neck of the womb which is tightly closed.

The douche washes out only the vagina. If the semen has entered the cervix it is not affected by the douche; only the semen in the vagina is definitely removed or destroyed.

This fact explains the uselessness of the douche as a Birth Control method. The semen can enter the cervix during coitus or even during the short interval while the woman is preparing the douche. Once in the cervix it is not reached by the douche. The cervix of a uterus in normal position is directed backwards towards the posterior cul-de-sac of the vagina, where the semen is deposited. It is bathed by the seminal discharge and the semen can enter the cervix during or immediately after ejaculation. That is why douching may come too late even if done at once.

Douching is effective in cases where through malposition of the uterus, such as retroversion or antiflexion, the seminal fluid is deposited far away—several centimeters from the cervix. There it may take so long for the spermatozoa to reach the cervical entrance that the douching undertaken right after coitus then achieves its purpose—it washes out or destroys the semen before the spermatozoa have a chance to enter the cervix. These are cases in which women do not conceive easily anyway just because of the fact that the semen is not directly brought to the entrance of the cervix. The success of the douche in such cases earned for it its reputation as an efficient Birth Control method and led to its use in normal cases in which it is bound to fail in a short time.

Temperature of the Douche

A warm douche should be used. Hot or cold douches after coitus are not advisable. The sexual organs are then

naturally congested and there is no need to aggravate the condition by the use of a hot douche. In such a congested condition the harm which might be caused by the sudden effect of a cold douche is obvious. Cold douches are advocated by many, however, because the cold is thought to kill the spermatozoa or benumb them, also because their use saves the time and work of heating the water. To this we have the objection that the contraction of the vaginal walls from the sudden application of cold may keep hidden away some of the spermatozoa which may be benumbed by the cold at first but later revive.

There are indications that spermatozoa stand cold quite well. It is known that they live in test tubes longer if kept on ice than in warm surroundings. The heat probably promotes the growth of bacteria in the test tubes and these kill the spermatozoa, while on the ice this does not occur and the spermatozoa survive. Also, undoubtedly, their rate of metabolism is slower at the lower temperature. The cold does not kill them. Veterinaries keep on ice spermatozoa to be used for artificial insemination. Thus the whole theory of killing the spermatozoa by cold water is wrong and women should positively give up torturing themselves with cold douches after coitus.

Chemicals Advised for Douching

1.	Boric acid	2 tablespoons to 2 quarts of water.
2.	Lysol	¼ teaspoon to 2 quarts of water.
3.	Creolin	¼ teaspoon to 2 quarts of water.
4.	Sylpho-Nathol	¼ teaspoon to 2 quarts of water.
5.	Vinegar	½ glass to 2 quarts of water.
6.	Zonite	2 tablespoons to 2 quarts of water.
7.	Potassium Permanganate	1 to 3 grains to 2 quarts of water.

The stronger proportions recommended by the manufacturers of some of the above preparations are unnecessary and harmful.

Women often double or treble the amount advised to "make sure." Physicians should warn them against doing this, particularly with the antiseptics. The amounts given above are sufficient, any stronger solution will only needlessly irritate the mucous membrane of the vagina. If no chemicals are available, plain water is better than nothing. I have not mentioned corrosive sublimate among the chemicals, because it is readily absorbed through the vaginal walls, and being an accumulative poison can do a great deal of harm even in weak solutions, if used continually. Zonite is the most expensive of the preparations and has no special advantages over the others.

An acid is of value in douching because the total amount is large and new acid is continually entering the vagina. Here the buffer action of the vaginal secretion and the seminal fluid cannot neutralize the acid as they might when small amounts of an acid paste are used. I usually recommend boric acid or Lysol.

Different Forms of Douching Apparatus

I advise the fountain syringe because it gives an even stream of water entering the vagina with sufficient power to flush it thoroughly. It is easy to fill and to adjust. There should be a permanent hook over the toilet to hang the bag on. The combination of hot water bag and douche is clumsy and often leaks at the lower end. A fountain syringe costs from $1.50 to $3.00 in any pharmacy.

The whirling spray is much advertised and is probably bought because it costs $5.00 and therefore is supposed to

be better than the cheaper fountain syringe. The vaginal nozzle of this spray is very heavy and large, very disagreeable to insert. The rubber bulb is supposed to hold a pint of water but one is never sure that it has been entirely filled. If two quarts are to be used, the nozzle has to be withdrawn and inserted four times while the fountain syringe of two quarts capacity with its smaller nozzle, needs only one insertion. Even with four insertions one cannot be sure of having used two quarts with the whirling spray. People advising it insist upon strong solutions but these harm the vaginal mucous membrane and should not be used. The solution is mixed with air and does not enter the vagina with an even pressure. Most of it barely flows in, while the first jet comes at too great a pressure.

Douching Before Coitus

A douche before coitus is advised by some for prevention of conception. This contradicts the condition of simplicity and normality, for too much preparation interferes with sex relations. It also washes out the normal mucus present in the vagina, thus bringing about an abnormally dry state of the vaginal walls. The small amount of antiseptic solution left in the vagina after a douche cannot counteract the full amount of a seminal ejaculation. Such douching is a most objectionable procedure and almost too ridiculous to demand discussion. Nothing could dampen sexual ardor more than such prolonged preparation.

Mrs. W. has used douching for seven years and found it an effective Birth Control method. On examination I

found her uterus in a state of complete retroversion. The cervix was far forward almost under the symphysis. The seminal discharge was deposited in the posterior cul-de-sac of the vagina far away from the neck. It would take a long time for the semen to travel forward to the mouth of the uterus. Immediate douching removed the semen before it had a chance to reach the cervix. Under these conditions douching suffices as a Birth Control method. Such cases and others with natural causes for partial sterility often come to the notice of physicians. But women cannot themselves judge the position of the uterus, only a physician can decide whether or not a case presents so much natural sterility that douching alone suffices for 100% safety.

In conclusion we can say that douching alone should never be used as a Birth Control method except in certain cases where partial sterility is present.

In combination, it is used:

with pessary
with pessary and paste
with coitus interruptus
with condom
with chemicals, to remove them after coitus if their presence is annoying.

When a douche is used in combination with a pessary and paste, it can be taken at any time following coitus. The presence of the paste makes no difference.

Objection to Douching

Some object to continual douching because it affects the mucous lining, diminishing its sensitiveness and thus leading to a dryness of the vaginal wall. No doubt exces-

sive douching with strong chemicals may bring about such results. That is why I advise only mild antiseptics. No patient has complained to me of douching as a cause for dryness. My re-examination of hundreds of patients using douches has not shown any change in the vaginal lining or any excessive dryness. There are many causes of dryness such as overwork, nervous excitement, and fatigue, but it is difficult to place the blame on any particular cause.

Evaluation of Chemical Methods

Dr. W. J. Robinson [1] considers the chemical protection (particularly antiseptic paste) as the best method but gives no statistics covering its use. He stresses especially the facility of applying this method to large groups of women who have no chance to consult a physician. There is no doubt that the chemical methods have an important place in the field of Birth Control, but I have not seen any valuable statistics to prove their positive achievements.

I have made a special effort to gather the few statistics available. Dr. Dorothy Bocker,[2] who gave the first report on the Birth Control Clinic of New York in 1924, studied 1558 cases. She herself made no tests with suppositories but states that 12% of the cases coming to her had previously used suppositories with 70% failures; 67% of these failures, however, had used suppositories with success for from eight months to three years. She made studies with pastes and tablets. Under Series VII she reports her work with pastes. Two hundred patients used them from two to twelve months with 3% failures (the pastes

[1] *Practical Prevenception,* 1929. Published by The American Biological Society, Hoboken, N. J., page 135.

[2] *Birth Control Methods,* 1924. Birth Control Clinical Research, New York, pages 6, 10.

used contained oxyquinoline sulphate in combination with (1) Irish moss and boric acid, (2) gelatine and lactic acid, (3) tragacanth and acetic acid). In Series VIII, an effervescent tablet containing oxyquinoline sulphate was used in two hundred cases over a period of two to five months with 3% failures.

Dr. J. F. Cooper[1] in his reports on pastes uses five different formulas as follows:

Jelly No. 1
Boric acid
Chinosol
Glycerine
Tragacanth

Jelly No. 2
Boric acid
Chinosol
Glycerine
Irish moss

Jelly No. 3
Boric acid
Acetic acid
Chinosol
Glycerite of starch

Jelly No. 4
Boric acid
Glycerite of starch

Jelly No. 5
Boric acid
Lactic acid
Glycerite of starch

He states: "When we consider jelly alone, we find that in a series of 164 cases there was 91 per cent success. The best results were with formula No. 2 which gave 98 per cent success, and the poorest results were with formula No. 5, which gave 87 per cent success. Since each of the series had less than 100 cases and the total was only 184, the numbers are inadequate and it is impossible to draw definite or final conclusions."

[1] *Technique of Contraception,* 1928. Day-Nichols, New York, page 186.

Elsewhere in his book,[1] Cooper says that Jelly No. 5 was used in *"selected cases"* (italics his). He does not state, however, whether selection was made in the case of the other four pastes, so we do not know if these figures apply to normal cases.

The 1925 report of the Chicago Clinic gives only fourteen cases of paste used alone, with one failure.

Dr. D. M. Gunodman [2] gives 133 cases followed in the Moscow State clinic where he used an oxyquinoline sulphate paste with 97% success.

Norman E. Himes [3] shows that English clinics like the American use chemical methods alone very seldom. His report covering the years 1927-1928 gives the following information:

Table	*Clinic*	*Cases*		
1	North Kensington	of 911	gave	1 quinine pessary
2	Manchester	" 536	"	1 soluble pessary and syringe
3	Wolverhampton	" 457	"	2 Factoids
4	Cambridge	" 249	"	1 syringe 1 lactic acid 1 lactic acid and syringe
5	Liverpool	" 198	"	41 quinine pessaries
6	Birmingham	" 127	"	none
7	Glasgow	" 125	"	1 not specified
8	Aberdeen	" 103	"	2 lactic acid
9	Cannock	" 136	"	none

[1] *Technique of Contraception,* 1928. Day-Nichols, N. Y., page 91.

[2] *Contraceptive Methods in the Light of Modern Science,* published by the Department of Health in Moscow, 1929, page 92.

[3] *Contraceptive Methods: The Types Recommended by Nine British Control Clinics,* New England Journal of Medicine, Vol. 202, No. 18, page 866.

Here also the number of cases in which chemicals alone are used is too small to draw any valuable conclusion.

Few experiments on animals are recorded. Dickinson [1] states that Dr. Isidor Kross made experiments on rabbits using 2% lactic acid in the vagina. The result was negative, no change being found in the percentage of pregnancies; but these conclusions do not necessarily apply to human beings.

Physicians naturally do not experiment with patients for whom failure may mean serious consequences but even in ordinary cases, failures are disagreeable because they naturally lead to a popular distrust of all Birth Control methods.

My own experience with chemical methods has not been satisfactory. I have not gathered statistics to prove their failure because the poor results in my first attempts made me turn at once to different methods which statistically proved to be very efficient. I have not felt justified in experimenting upon my patients by using a method still doubtful.

In the statistics given above, success with paste usually reached from 87% to 97% but the tests were not continued long enough nor made on sufficient numbers. In addition it seems likely that these were all selected cases.

From the small number of cases in which chemicals have been used alone, we may conclude that most investigators felt the method not suited to general application. We cannot claim prejudice because the most ardent advocate of these methods, Dr. Robinson, presents no statistics whatsoever of their use.

[1] *Contraception: A Medical Review of the Situation,* Transactions American Gyn. Society, 1924, Vol. 49, page 295.

Objections to Chemicals

1. Insufficient statistics proving effectiveness.
2. The greater number of failures with some chemicals shown by the statistics of the Birth Control clinics.
3. The messiness of suppositories and even pastes used alone (although pastes are not as bad as suppositories).
4. Over-lubrication of the vagina detracting a great deal from the joy of the sex act.
5. Continual introduction of large amounts of chemicals possibly affecting the vagina.
6. Greater cost to patient than in methods using pessary and paste in combination. The set retail price of most of the pastes is $2.00 per tube, and profiteering druggists sometimes charge as much as $3.00 or $4.00. I have patients who cannot afford the small amount of paste to smear around the edge of a pessary—how could such women afford to use paste in the quantities required for its use as the sole preventive?

I agree fully with Dr. Robinson that for mass instruction chemicals in the form of pastes and suppositories are of great help. But whenever instruction by a physician is available, the messy, sloppy and inferior chemical methods should be discarded for some form of rubber pessary used with a small amount of paste.

Chemical methods alone can be used with absolute success in those cases in which the seminal ejaculation does not strike the cervix directly. Their use is also indicated when the cervix is partially obstructed. In these cases the chemicals have time to come in contact with the spermatozoa and destroy them before they enter the cervix.

Cases in which ejaculation does not hit the cervix are:

1. Retroversion of the uterus, the neck of the uterus points forward and upward, away from the cul-de-sac and the direct path of the ejaculating penis.
2. Antiflexion: the cervix is also turned away from direct contact with the ejaculation.
3. Extreme antiversion: here the cervix is placed high up in the posterior cul-de-sac, also at a distance from the usual place of ejaculation.

Cases with obstruction are:

1. Those in which mucous discharge fills the cervix like a tenacious plug.
2. Those with profuse discharges from the uterus.
3. Those with bad tears of the cervix with erosions.

Chemicals are also indicated in those cases which cannot be fitted with a pessary because of vaginal relaxation, sensitiveness, etc.

CHAPTER VIII

Methods Preventing the Entrance of the Spermatozoa into the Uterus
(*Continued*)

Mechanical Appliances Covering the Cervix

MECHANICAL appliances (sponges and intravaginal pessaries) are used to cover the opening of the cervix, thus preventing the spermatozoa from entering the uterus.

Sponges

The first suggestion that would come to one's mind is a sponge or piece of cotton or gauze soaked in an antiseptic solution and placed in the vagina in front of the cervix. If one looks at the picture presenting the relation of the uterus and vagina, one can see how easily the erect penis can push such a sponge away from the cervix into the posterior cul-de-sac. This leaves the entrance to the cervix unprotected, with consequent possibility of impregnation. Therefore, this method is entirely unsatisfactory. A large sponge which could not be displaced would interfere mechanically with intercourse.

Intravaginal Pessaries

In this section I shall give the general rule for the use of pessaries covering the cervix. The different types of

pessaries will be discussed later. While pessaries are made of other materials, I will speak principally of rubber pessaries because they alone are used in this country. I will describe the various types of pessaries and their uses; and

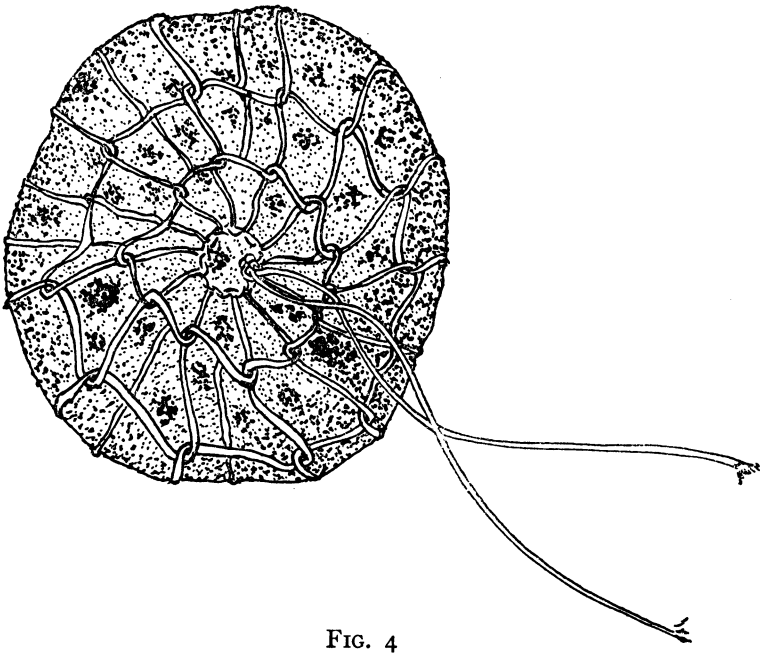

FIG. 4

Sponge enclosed in net with string attached to facilitate removal. An antiquated method.

in a summary at the end will tabulate the different pessaries required by various conditions.

The use of rubber pessaries is considered the most reliable method of prevention if combined with an antiseptic douche or paste.

The main purpose of every pessary is to cover the cervix, the entrance into the uterus. Thus the spermatozoa

cannot enter the uterus during coitus. The spermatozoa remain in the vagina and must be washed out or destroyed before the pessary is removed, otherwise they may enter the uterus, for the spermatozoa under some conditions may live for many hours or even days.

Important rule

A pessary should never be removed (if coitus has taken place) unless an antiseptic douche has been used. (See details on douching under "Chemical Methods.") An antiseptic paste can be used instead of the douche, but in this case the pessary should not be removed at once but must remain in place at least three hours.

Advantages of the Rubber Pessary

A rubber pessary with the use of an antiseptic douche or paste is the best method of prevention because all conditions of a good contraceptive are complied with. (The type of pessary to be used is discussed below.)

It Is Reliable

Since the neck of the uterus is covered during coitus, the spermatozoa cannot enter the uterus and are removed by an antiseptic douche or destroyed by a paste before the pessary is taken out. For greater safety, it is advisable to put a little paste around the rim of the pessary to stop any spermatozoa which might get under the edge.

It Is Harmless

The pessary, if well fitted, does not rub or irritate any part of the uterus or vagina. It remains in the vagina only

over night or for a short time, and cannot interfere with the normal discharges of the uterus. Many of my patients have used pessaries for fifteen or twenty years; I have seen and examined them many times during that period, and have found no harmful consequences.

It Permits Normal Conditions of Coitus

Most men and women, as I have ascertained through questionnaires, are not conscious of the pessary's presence. In a few cases, the man is aware of it but finds it less annoying than the use of other mechanical devices. Preparations for coitus are always a disadvantage. To avoid this, the pessary can be introduced hours before coitus takes place. Douching can be delayed until morning or for many hours: repetition of coitus is possible without new preparations.

The Use of a Pessary Is Simple

Any woman can learn its use within ten or twenty minutes. After having practised its application, the introduction should not take more than a few seconds. If the pessary is inserted every night before retiring, as a regular part of woman's toilette, whether intercourse is expected or not, there is no disagreeable interruption, either physically or mentally, of the love embrace.

DIFFERENT TYPES OF INTRAVAGINAL PESSARIES

1. Diaphragmatic pessary
2. Cervical pessary
3. Vault pessary
4. Block shaped pessary

Some other forms are mentioned in exhaustive treatises, but as they are not in general use, or advisable, we can omit them.

The diaphragmatic and vault pessaries are the only ones to be recommended. The description and evaluation of others are given to warn against their use. The detailed description of the use of diaphragmatic and vault pessaries follows.

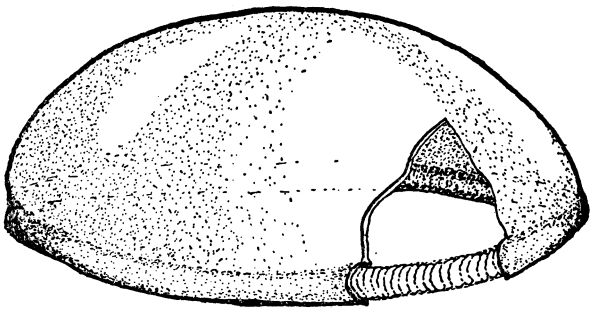

FIG. 5

Diaphragmatic pessary with coiled spring. (A piece is cut out to expose the spring.)

THE DIAPHRAGMATIC PESSARY

This pessary divides the vagina into two parts blocking off the upper section which contains the cervix and leaving the lower part free for normal intercourse (see fig. 8). This pessary astonishes the laity with its large size but it really does not materially diminish the space left for intercourse. It is large because it covers, not only the cervix, but the whole upper part of the vaginal wall from the symphysis pubis to the posterior cul-de-sac.

This pessary cannot be displaced by the male organ for its front rim if properly fitted is practically behind the

symphysis and the penis entering the vagina passes by it without rubbing against it. This is one of its advantages over the French pessary which can be pushed off by the penis if used in normal cases. The French pessary is also much more difficult to insert.

Diaphragmatic pessaries can be obtained in all leading surgical supply houses. There are many models on the market, differing from one another by the type and firmness of the rim and by the size and texture of the cup.

1. *The Mensinga*[1] which is the original diaphragmatic pessary invented by Dr. Mensinga of Holland has a watch spring in the rim. Its advantages are the firmness and small caliber of the rim, and its low dome. It is now used mainly in England. The Mensinga pessary made by Lambutt in London has a firm rim, low dome, and excellent well wearing rubber. Here in the United States pessaries with a watch spring in the rim have recently been placed on the market by the Akma and the Durex companies.
2. *The Ramses*[1] made in Germany has a spiral spring rim and transparent dome. The rim is too weak and the rubber deteriorates rapidly whether it is used or not.
3. *The American Ramses*[1] is a reproduction of the German with better rubber and a firmer rim.
4. *The Durex*[1] has a weak large rim with a spiral spring and rather large dome. It is too weak in flabby cases but can be used in healthy normal vaginas. It is durable and has a good seal.

[1] See appendix for addresses.

5. *The Rantos*[1] has a firm spiral spring rim, a low dome, and is made of good rubber. It is good for general use.
6. *The Akma Vagiphragm*[1] has a firm spiral spring rim and a low dome which is made of transparent well wearing rubber. It is good for general use.

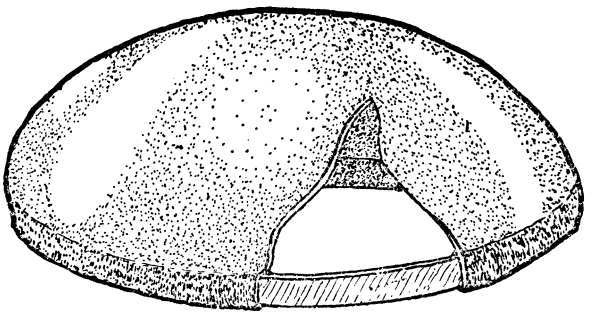

FIG. 6

Diaphragmatic pessary with watch spring. (A piece is cut out to expose the spring.)

The sizes, except the Mensinga, run from 50 to 85 mm. in diameter at 5 mm. intervals. The Lambutt Mensinga runs at 2½ mm. intervals.

Several types of pessaries ought to be in every physician's office, for each may be needed in one or another particular case. I have found the Akma and Rantos pessaries good for general work. The Durex having a weaker rim than the Akma or the Rantos is helpful in cases where patients cannot handle the hard rim.

Often one has to begin to teach the patient with a weak-rimmed pessary (Ramses or Durex) and then change

[1] See appendix for addresses.

it for a firmer rim which is not so easily displaced (Akma or Rantos).

Use of the Diaphragmatic Pessary

The use of the diaphragmatic pessary is recommended:

1. In all cases where the vagina is normal and the uterus is in *normal position* (slightly antiverted).
2. In all cases of antiversion and antiflexion except sharp antiflexion where a French pessary should be used.

The use of the diaphragmatic pessary is not advised:

1. In retroversion because the lower rim of the pessary instead of slipping down into the posterior cul-de-sac below the cervix easily fits into the anterior cul-de-sac above the cervix thus leaving the latter uncovered. One exception to this rule is the case in which retroversion is extreme and the cervix is so close to the symphysis that the rim of the pessary cannot get into the anterior cul-de-sac. However, intelligent patients may be able to learn to adjust a diaphragmatic pessary even with retroversion.
2. In cases with cystocele because the anterior rim of the diaphragmatic pessary is pushed out of place by the pressure of the cystocele.

To insert the pessary the woman places herself in a half reclining position drawing up her knees and leaning conveniently back on her left forearm. If she sits up straight the pelvic bone moves down and partially blocks her vaginal orifice. If she lies on her back her finger cannot feel the cervix. Beginners and heavy women can insert the pessary in a completely reclining position, using both

hands if necessary and try afterwards in this half-reclining position to feel the cervix which should be covered by the pessary.

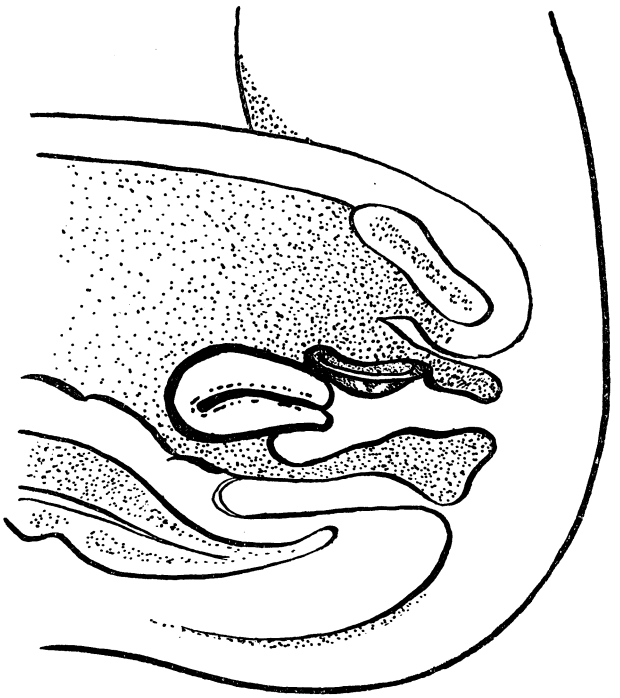

FIG. 7

This diagram illustrates a condition in which the diaphragmatic pessary is not advisable. The uterus is retroverted; the rim of the pessary, when inserted, easily slips above the cervix into the anterior instead of the posterior cul-de-sac leaving the cervix uncovered.

It is immaterial whether the pessary is held with the cup or dome facing the woman. The rim containing the spring is squeezed together and the pessary is inserted into the vagina by being pushed down and in.

The pessary is pushed as far in as it will go. Then, the front of the rim (located just within the entrance of the vagina) is pushed in and up behind the symphysis. In

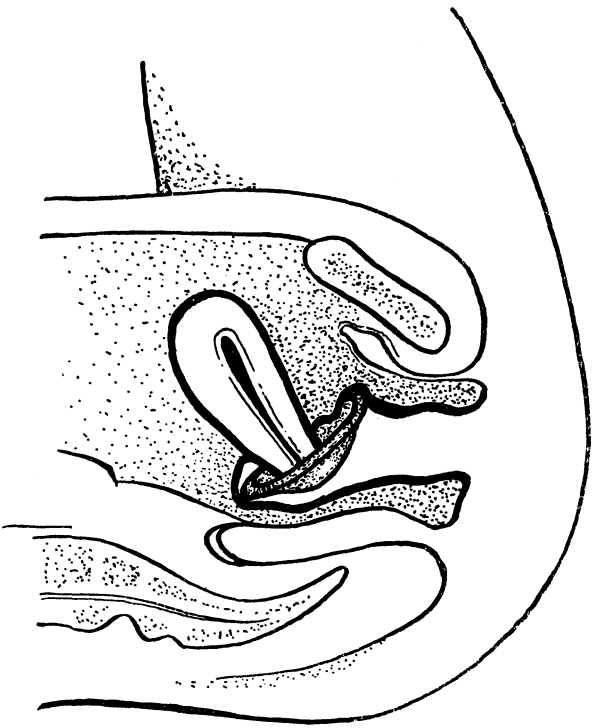

FIG. 8

Diaphragmatic pessary in correct position. Note the front part of the rim back of the symphysis pubis, the back part of the rim in the posterior cul-de-sac.

final position the front rim rests against the symphysis. The back part of the rim is behind and below the cervix in the posterior cul-de-sac and cannot be felt; the cervix

itself is usually felt far back, through the thin covering of the rubber.

After the pessary is inserted as directed, its correct position should be tested by looking for two landmarks: (1) the front portion of the rim should be back of the symphysis; (2) the cervix should be felt way down in back, covered with the rubber of the pessary. *The largest size which can be fitted comfortably should always be used.*

It is advisable to place a small amount of antiseptic paste all around the rim before insertion. The pessary may be left over night in its position. I am often asked whether the pessary can be worn steadily. I do not advise it, because the pessary covers the cervix and prevents the escape of the normal discharge of the uterus. Again, the pessary may slip during exercise or bowel movement. As the pessary is so easily adjusted by the average woman it should be inserted whenever needed or, in general, before going to bed and should be removed in the morning.

Before removing, an antiseptic douche or an antiseptic paste should be used. The pessary is removed, after the douche, by hooking the index finger around the rim and then pulling it out. If antiseptic paste is substituted for the douche, two or three hours should elapse before the removal of the pessary, in order to give the chemicals sufficient time to act upon the spermatozoa and completely destroy them.

For beginners there is an advantage in inserting the pessary with the dome facing the woman—it makes the removal of the pessary easier because the woman can hook her finger into the border of the rim which is, in this case, not covered by the rubber of the dome and, therefore, not so slippery.

Care of the Diaphragmatic Pessary

After use, the pessary should be washed with warm water. No special disinfectant is required. It has been sufficiently disinfected by the antiseptic paste used when introducing it into the vagina and by the antiseptic douche. Do not boil it, rubber spoils from being boiled too often. Dry it and dust with *any* talcum powder. If the rubber gets hard, losing its elasticity, or the spring works through

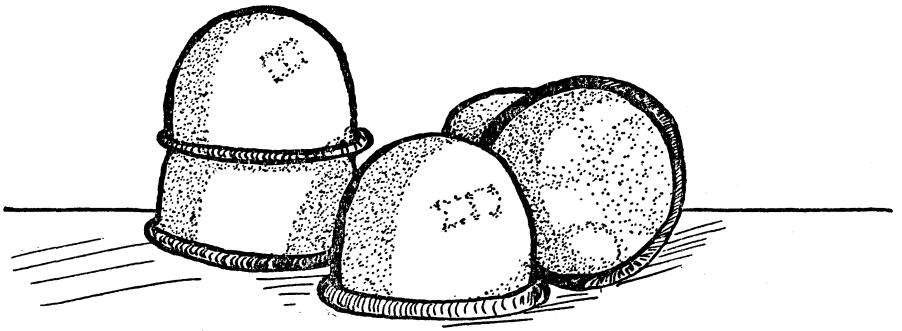

FIG. 9

Cervical pessaries. Several sizes are shown here.

the rim, a new pessary must be obtained. Vaseline must not be used on these pessaries because it will spoil them. With good care a pessary may last from ten to eighteen months.

CERVICAL PESSARY

This pessary is built like a thimble only larger. It is made of aluminum, silver, hard or soft rubber. It must fit the cervix snugly, if it is to stay on, and is, therefore, liable to bring about too much pressure upon the cervix. In many cases this pessary can be pushed off during coitus.

Its use should be limited to a very few selected cases. It is undeservedly in great vogue in Germany and Russia. I do not use it.

VAULT PESSARY

A vault pessary covers the cervix with a cap like the cervical pessary, but it has the distinction of having a

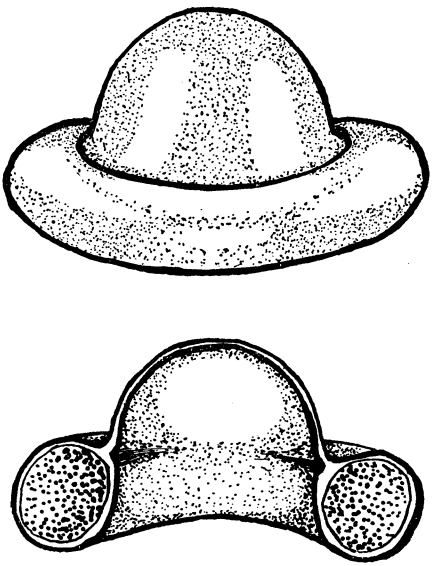

FIG. 10

Vault pessary. French pessary, large size. The cross section shows the thickness of the rim.

thick rim which fills the vaginal vault around the cervix (the anterior and posterior fornices). The rim is made of either solid or soft rubber, or of rubber tubing filled with air. The pessary does not hang on the cervix; it keeps in place by means of its large rim which fits in between the upper part of the cervix and the walls of the surround-

ing vagina and for this reason does not press upon the cervix or irritate it.

Some physicians persist in calling this type a cervical pessary. In my opinion the presence of the large rim gives a decided advantage to this form over the rimless cervical type, and is sufficiently important for a separate classification. To stress this fact I call this type the vault pessary.

The following vault pessaries are in use:

The French pessary is made of heat vulcanized rubber, has an inflated or soft solid rim about ¼ to ½ inch thick with the center section covered by a thin cap in the form of a hemisphere. It comes in many sizes and makes. The average druggist sells the type with a very thin cap which deteriorates quickly. I advise the use of the heavy cup which is found in the following:

Sizes	*Total diameter*	*Thickness of rim*
JUMBO (Trade No. 99) the largest size of French pessary	65mm.	14mm.
MEDIUM SIZE (Trade No. 200 or No. 240)	53mm.	12mm.
SMALL SIZE (Trade No. 38.) (This size with a thin but reinforced cup is No. 100)	50mm.	11mm.
VERY SMALL SIZE (Trade No. 120) is made only with a thin rubber cup	47mm.	8mm.

The above all have inflated rims which I usually prefer. The JUMBO with a solid rim is "Crown C." The MEDIUM with a solid rim is "Crown A." All these pessaries may be obtained from any wholesale supply house.

The Pro-Race[1] or Dr. Stopes' pessary (much used in England) is made of red or black rubber. It has a thinner

[1] See appendix for addresses.

rim than the French, and a much longer cap. It is sometimes supplied with a rubber loop near the rim into which a finger can be hooked to help in its removal.

The Akma Hydome[1] is a modification of the Pro-Race pessary made in America of transparent rubber with a slightly lower dome. This and the Pro-Race are produced in four sizes, numbered 0, 1, 2, 3 with the following diam-

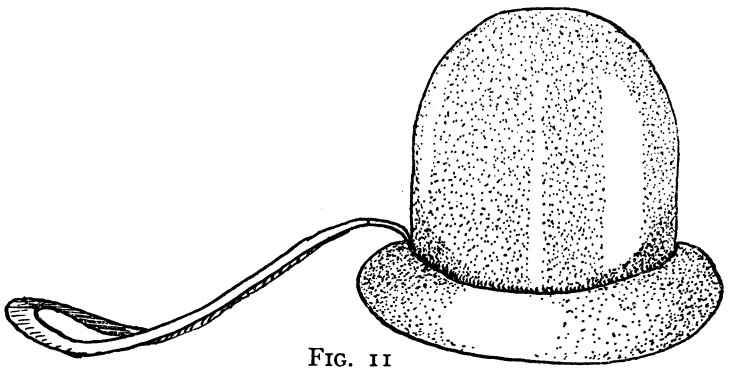

FIG. 11

Vault pessary. Pro-Race, Stopes type.
Note: This pessary is also made without the rubber loop.

eters respectively: 37.5, 40, 45, and 50 mm. I usually use the "1" and "2."

The Mizpah[1] has a very heavy solid rim with a slit into which a thin detachable rubber cap is tied on by a string. This string also serves for the removal of the pessary. The heavy clumsy rim, and the ease with which the cap can come off the rim, make this pessary inadvisable for general use. It comes in three sizes with total diameters of 45, 53, and 61 mm. The rims are 10, 11, and 14 mm. wide respectively. Women who have no possibility of get-

[1] See appendix for addresses.

ting a physician's advice may find the Mizpah helpful for they can remove it easily, whereas the removal of the French pessary often presents difficulties to a novice.

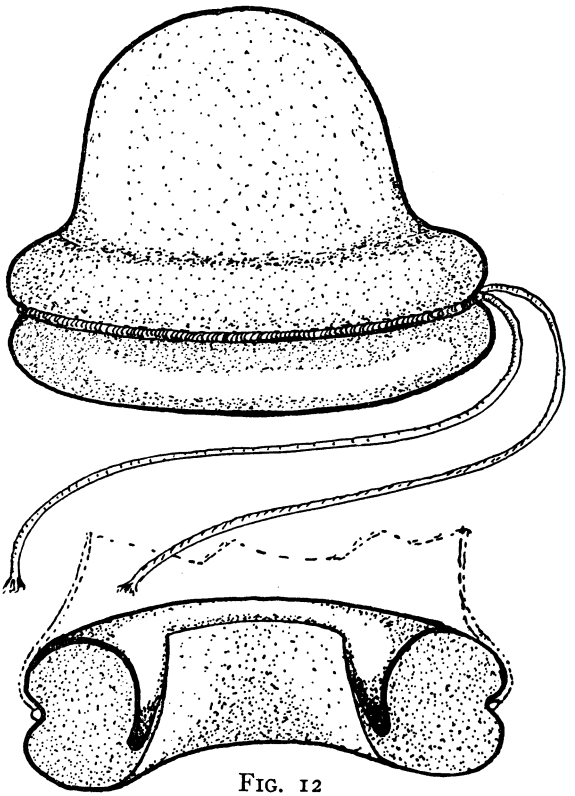

FIG. 12

Vault pessary. Mizpah type, medium size. The cross section shows the groove in the rim where the thin rubber cap is inserted and tied with a string.

The small sizes of the diaphragmatic pessary (55 and 60 mm.) are sometimes used as vault pessaries in those cases in which the fornices are too narrow to admit the large rim of the French pessary.

The Flat Pessary (Dumas) [1] has the shape of a shallow saucer, the rim and cap being made of a single piece of heavy rubber. I have used three sizes, 55, 52.5, and 47.5 mm. in diameter. This pessary can last for years but it fits only those cases in which the cervix is flat and stubby

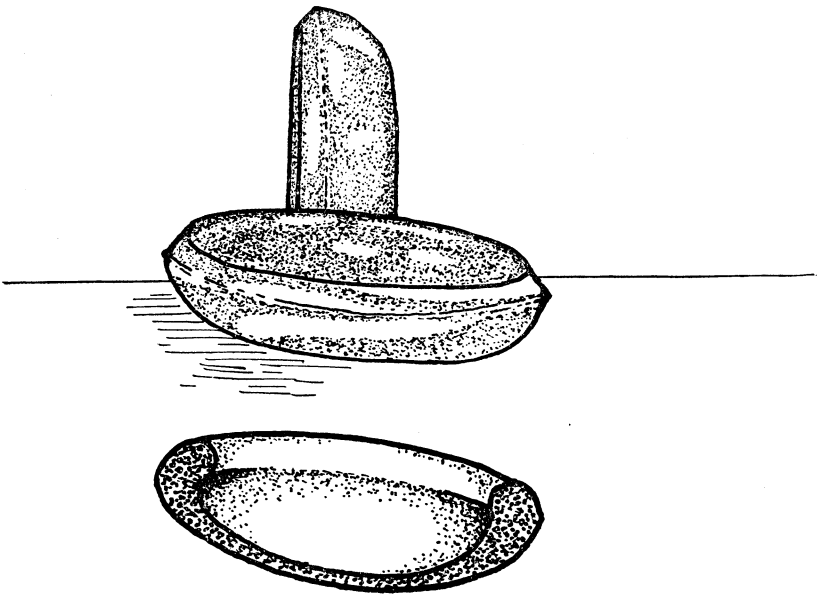

FIG. 13

Dumas (flat) pessary.

and the vagina narrow. It cannot be recommended for general use.

USE OF THE VAULT PESSARY

(*French, Pro-Race, etc.*)

The vault pessary is so adjusted that the cervix is wholly covered by the pessary. The border or rim fits into

[1] See appendix for addresses.

the fornices while the cap may hang loosely. The rim fills out the space between the cervix and the walls of the vagina. It must fit firmly so that it cannot be displaced by pressure. The cap does not fit the cervix like a glove as many imagine. I speak of this because women seem to pay attention to the fact that the thin part of the pessary is wrinkled when it is placed over the cervix. If the rim of the pessary fits well, the pessary is in place. The pessary holds its position by the pressure outward of the rim, not inward.

I always have used the paste with the pessary as follows: Squeeze a thin layer of paste (less than ½ teaspoonful) around the inside of the rim before placing the pessary in position. This prevents any spermatozoa from getting in around the edges and working their way into the cervix. Then, as convenience dictates, paste can be placed in the vagina after intercourse to destroy the spermatozoa there, or a douche can be taken the next morning or at any time following coitus. The paste placed within the pessary is effective particularly in cases where the pessary works loose.

The pessary, folded with the rim upward, is introduced into the vagina. After it is pushed back through the entrance, it opens; then it is pushed back, in, and down. One must push firmly for the walls of the vagina close tightly and the pressure of the walls must be overcome. The pessary must be pushed as far back as it will go, about a finger's length from the entrance. Then the anterior rim is pushed upward above the cervix. It is necessary to feel the bulging cervix through the thin rubber tissue of the dome. If the vagina is dry it is desirable to lubricate it with a touch of jelly, glycerine or paste. Do not put any

lubricant on the pessary itself; it is difficult to handle when slippery.

After coitus, douching may be postponed until morning unless the woman has to move her bowels. This might dislodge the pessary and therefore an antiseptic paste or douche should be used at once. If desired an antiseptic paste used immediately after coitus can be substituted for the douche. The filled nozzle is inserted deep in the vagina and the key given a half-turn. If the pessary is then left in place for three hours, the chemicals in the paste have sufficient time to act, and no douche is required upon removal of the pessary. However, a plain water douche may be used to wash out the chemicals, if desired. Note, however, that unless the paste is given at least three hours in which to act, an antiseptic douche must be used.

Never remove the pessary after coitus without douching or applying paste. Douche first, then remove the pessary and use part of the douche after the removal. Always wash the vulva and external genitals while douching.

The removal of the pessary does not present difficulties if one learns to hook the finger in the front rim of the pessary. For this purpose the finger must be introduced sideways. If the removal is difficult the woman can be given a Mizpah temporarily. The Mizpah's disadvantages have been described above. I often employ it to teach my patients the use of the French which I give them after they learn to handle the Mizpah readily. Some never learn to remove the French pessary and have to continue with the Mizpah, but ninety per cent discard the Mizpah after a few weeks, having learned more about their bodies and therefore about removing the pessary.

Women often express fear of pushing the pessary too deep or losing it and it must be explained that the vagina has no opening to the body except the cervix with its very tiny entrance to the uterus. Sometimes women think that their fingers are too short to reach the cervix. This is the usual complaint; but they really only lack experience, and usually respond readily to instruction.

After removing the pessary wash it in warm or cold water, dry well and powder it before placing in a box. Any talcum powder can be used for this purpose. Do not boil a French pessary if it has a rim inflated with air because the rim will collapse. Boiling is not necessary as the antiseptic fluid or paste keeps it clean. The average pessary ought to keep from one to two years.

The vault type of pessary (usually the French) has been entirely discarded by some physicians. This is a grave mistake for in certain cases it is an absolute necessity. I shall discuss its use below and lay stress upon its great value in cases of retroversion and retroflexion.

Some gynaecologists say that every case of retroversion or retroflexion should be corrected either by operation or by a Smith pessary. This is easily said but patients cannot always be induced to attend to such troubles and their need of Birth Control may be to them of greater importance.

Vault pessaries (French, Stopes, Mizpah and Akma Hydome) are recommended:

1. In cases of retroversion and retroflexion.
2. In some cases of cystocele.
3. In some cases following confinement in which cystocele persists for a time.
4. In sharp antiflexion.

Vault pessaries are not to be used:

1. In cases with normal position of the uterus.
2. In antiversion.

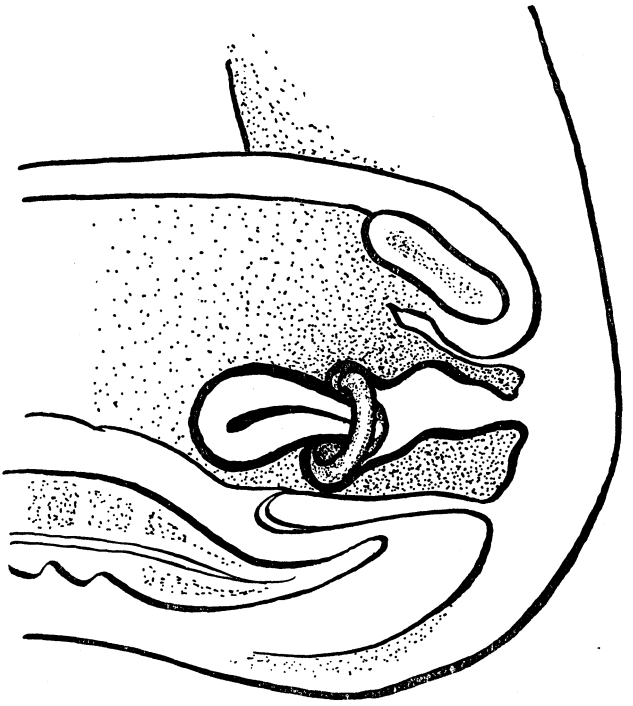

FIG. 14

A retroverted uterus with the cervix covered by a French pessary. This is a perfect fit. This pessary cannot be displaced during coitus.

Note that the pessary is maintained in position by the outward pressure in the vaults, not by fitting the cervix snugly.

3. In cases of third degree retroversion where the cervix is near the symphysis pubis. Here a diaphragmatic is indicated.

The vault pessary is the pessary of choice in retrover-

sion and retroflexion because in such cases the diaphragmatic type is easily misplaced by the woman. The lower rim of the diaphragmatic pessary instead of slipping as it should down under the cervix into the posterior cul-de-sac is caught by the top of the cervix and remains in the anterior cul-de-sac leaving the cervix exposed. Some women with retroversion learn to guide the rim of the diaphragmatic pessary down in front of the cervix but the majority, especially beginners, cannot get the technique. However, they easily learn to guide the smaller vault pessary directly over the cervix. In these cases the vault pessary cannot be pushed off by the penis whereas in normal position or antiflexion it can, because the upper rim is exposed directly to the thrust of the penis. In cases of retroversion and retroflexion the penis does not strike the rim at all, it presses directly over the cup of the pessary. Thus the vault (French, etc.) pessary in these cases presents the assurance of being placed correctly without any danger of being pushed off. After a patient has had much experience with a French pessary, one can later succeed in teaching her the use of the diaphragmatic if one so desires.

I warn physicians against the use of the diaphragmatic pessary in cases of retroversion because I personally had two failures in 1930. In both, my patients seemed to have grasped the more complicated task of pushing the diaphragmatic pessary over the cervix but when I sent for them after a reported failure and I asked them to put the pessary in place, they promptly slipped it above the cervix into the anterior fornix, having forgotten all my special instruction. In such cases, I now give only the vault (French) pessary. True, one has to see these cases at least once in six months because the position of the uterus may

change. As soon as this occurs, a diaphragmatic pessary must be substituted.

In third degree retroversion, however, the cervix is so near the symphysis that the first part of the diaphragmatic pessary inserted cannot go into the anterior cul-de-sac as in usual retroversion. Hence it is safe to use a diaphragmatic here.

In women with cystocele, especially soon after confinement, the fitting of a pessary presents great difficulty. The diaphragmatic pessary in large sizes 75 or 80 usually does not stay in place being pushed out by the pressure of the cystocele. It finds no resting place due to the absence of the normally present depression behind the symphysis pubis. In such cases a small vault pessary, such as the Stopes Pro-Race pessary or the Akma Hydome, becomes very helpful. The narrow rim of this type fits directly over the cervix and the loose walls of the vagina close over it in front instead of pushing it out. After three or four months this pessary should be changed for another according to the position of the uterus. Sometimes the large French pessary called Jumbo is retained.

In sharp antiflexion the French pessary covers the cervix without possibility of being pushed off by the penis, while the lower end of the diaphragmatic would be easily pushed into the hook formed by the antiflexed uterus without covering the cervix.

The vault pessary should not be used in normal cases or antiversion because in covering the cervix and following its inclined position, the front rim is directly exposed to the stroke of the penis and can be easily pushed off. Its helpfulness in retroversion and retroflexion should not be overlooked however.

The advantage of the vault pessary consists also in its strength and endurance. Many of my patients have used the same pessary for four or five years. If I have to change

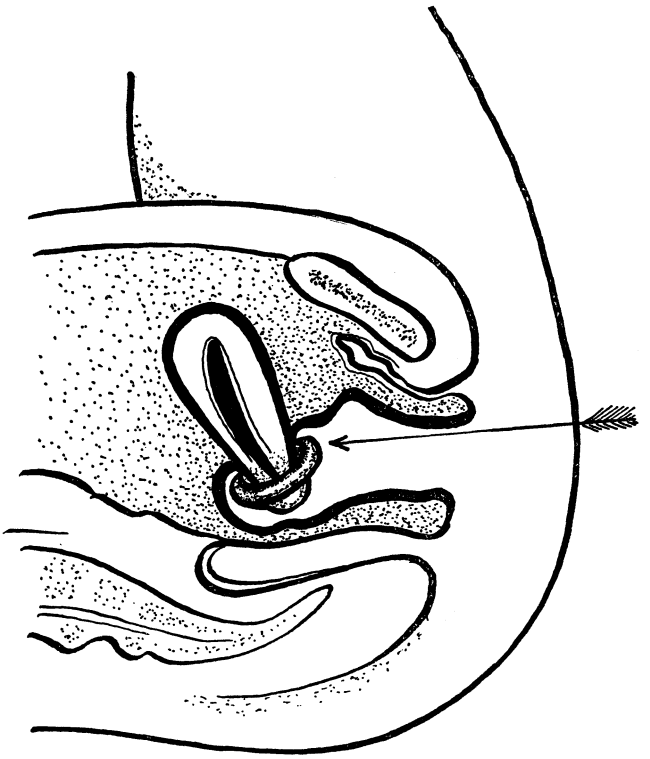

FIG. 15

A French pessary should not be used in normal position of the uterus because it can be easily displaced during coitus.

a French pessary for a diaphragmatic, the patient often objects strenuously—nothing seems to her to be as reliable as the vault type.

Another advantage of the vault pessary (French, Pro-Race, etc.) is the fact that a smaller portion of the vaginal wall is covered by rubber, thereby allowing a larger area to be exposed to friction during coitus.

Dr. M. Stopes points out this advantage in the use of the Stopes pessary and concludes that, for this reason, the diaphragmatic pessary should be discarded for the Stopes in every case. Such a conclusion is not correct. First of all let us point out that it is not only the Pro-Race pessary which gives this advantage but every vault pessary (French, Mizpah, Akma Hydome, etc.). The prevention of conception afforded by a pessary is of primary importance. This is not assured by the vault type of pessary (including the Stopes) in the majority of cases. The indications for the use of the vault and the Stopes pessaries have been given. The diaphragmatic is indispensable in all normal positions of the uterus because the vault (French, Pro-Race, etc.) can be easily dislodged by the penis.

Block Shaped Pessary

A Curiosity

A block of rubber or other material, with cup shaped faces on every side is now on the market. The idea of the device is that it can be inserted in any manner, without failing to cover the cervix with one of its cup shaped sides. In actual practice this apparatus is by no means certain to cover the cervix; its bulk and shape can cause irritation to the female and male organs. It is rather an instrument of torture than a preventive. An article has appeared in the *Journal of the American Medical Association* reporting

a case in which this cubical pessary caused a fistula between the bladder, rectum, and vagina.

Answers to Criticisms of the Rubber Pessaries

I. The statement has been made that the use of a contraceptive paste in conjunction with the rubber pessary shows a lack of faith in the latter. It is claimed that the paste is the really effective member of the combination.

To answer this objection we need only consider the gravity of the problem. We must have a barrier sufficiently strong to prevent the direct discharge of the spermatozoa into the cervix and also capable of blocking in all parts the minute spermatozoa with their tremendous motility. The pessary offers the strong mechanical barrier to a direct entrance of the spermatozoa. This the paste alone is obviously unable to do, but placed about the rim of the pessary, the paste plays an important part by preventing the spermatozoa from later working their way around the edge. The spermatozoa under some circumstances may live for hours or even days and the final douche or paste introduced into the vagina after coitus is accordingly used to enable the woman to remove the pessary with safety.

II. The further objection is made that many women are unable to learn the use of the pessary.

Here we have obviously not theories but facts to consider. I have fitted about five thousand women with pessaries and have found very few unable to learn the technique easily. I even remember one patient sent me by a psychiatrist with a statement giving her mental age as eight years. She responded to instruction readily and has

found no difficulty in using the pessary. With even the few who could not learn the technique the trouble was not due to any difficulty but to definite sex inhibitions.

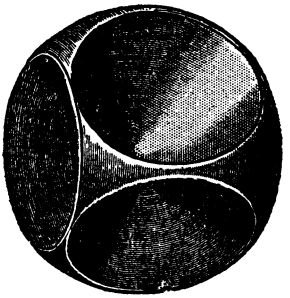

FIG. 16

Block pessary. A curiosity.

III. A third objection is that the pessary cannot become the method of the masses because it requires personal instruction by a physician and requires a high grade of intelligence in its application.

With the present attitude of the government on Birth Control this objection undoubtedly has force but it is unfair to charge this as a defect of the method. It is true that most women now have no opportunity to get Birth Control instruction from a physician but this should lead only to renewed action on our part towards changing the laws and awakening interest among physicians. With this accomplished every woman should have within her reach a clinic or private physician able to give her advice and instruction.

The question of intelligence has been discussed in the answer to the previous question. We must admit that the

use of the pessary requires foresight and perseverance—but these requirements are not peculiar to the pessary. Other Birth Control methods make similar demands. Even the slight technique required by the use of coitus interruptus, condom, suppositories, or pastes is readily neglected when foresight and a sense of responsibility are lacking. Without these, no Birth Control method now available is of any use.

CHAPTER IX

Methods Destroying the Spermatozoa After Their Entrance into the Uterus or Tube

Biological Method

THERE is hope that the clumsy and bothersome methods described above may be displaced by subcutaneous or intravenous injections of biological products.

Dr. R. L. Dickinson in *Sterility-Fertility Studies in Animals*[1] writes as follows:

> "Kohlbrugge reports that in normal copulation of rats and other rodents the spermatozoa penetrate the epithelium of the generative mucosa and invade the underlying connective tissue. If this process takes place in women, the sterility that is common among professional prostitutes may be in part due to spermatoxins; and this might be the cause of sterility with strong sperm, open tubes, proved ovulation, and very frequent intercourse. There is said to be an Abderhalden reaction to testicular proteins after every coitus. . . .
>
> "Dittler found that by immunizing female rabbits with progressive doses of dilute rabbit ejaculation, they were made sterile for a period of four months or longer. . . .

[1] *The American Journal of Obstetrics and Gynecology*, Vol. XI, No. 1, January, 1926, pages 58 and 59.

"Guyer speaks of 'spermatoxic' sera prepared by injecting fowls repeatedly with the sperm of rabbits which are toxic in vitro for the spermatozoa of both rabbits and guinea pigs. When introduced into the blood stream of male rabbits at intervals, for four to five weeks, such serum produced partial or complete sterility. Even complete disappearance of spermatozoa from the semen occurred. Microscopic examination of the testis of a serum-treated male showed disintegration changes taking place in the seminiferous tubules. . . .

"McCartney found that (1) female rats could be sterilized for a period of from two to twenty-two weeks by subcutaneous injection of spermatozoa or testes extract, combining the work of Guyer and Dittler; (2) the sterility seems to be due to the presence of spermatoxins in the vaginal and uterine secretions of the immunized animal, and that (3) within limits, the degree of immunity appears to be proportionate to the amount of antigen injected. Kennedy found autosperm worked best and degeneration rare in the testicles of guinea pigs."

In my opinion the most fruitful work on this method has been done in Russia by Dr. M. C. Naiditch.[1] He quotes a number of interesting studies by previous investigators. He made extensive experiments on the injection of spermatozoa into rabbits and reports the production of temporary sterility in women by the intramuscular injection of spermatozoa.

He gives two reasons why this method works: (1) The change produced by spermatoxin in the tissues surrounding

[1] *New Research in Contraceptive Methods* (Article "Temporary Sterility Obtained by the Introduction of Spermatozoa"). Published in 1928 by the Commission for the Study of Contraceptive Methods appointed by the Department of Protection of Mother and Child of Soviet Russia.

the incoming spermatozoa and (2) the effect on the ovum resulting in a change of the positive chemotaxis to negative. His preliminary experiments on 22 female rabbits led to the following conclusions:

(1) Introduction of sperm into the blood of the female brings about temporary sterilization without interfering with her biological function (ovulation).
(2) The mechanism of sterilization resembles the process of immunization for it forms in the serum of the blood antibodies called spermatoxin.
(3) Spermatoxin evidently penetrates to all parts of the organism and acts directly upon the spermatozoa.
(4) Normal serum of females contains ordinarily a weak amount of spermatoxin but animals which undergo the method of artificial sterilization show the presence of much larger amounts.
(5) Sperm of one species can be used to immunize another. The antibody is specific for sperm protein.
(6) Artificial formation of spermatoxins which brings about temporary sterilization can be achieved by intravenous or subcutaneous injection of sperm either living or dead.

Sterility obtained in rabbits reached 17 months which is a long period for this animal. The experiments were made in the Institute for Experimental Endocrinology.

With women, Naiditch decided to use only dead sperm to avoid possible infection and to introduce them only subcutaneously to avoid the possibility of embolism. Only healthy women who had gone through several pregnancies

were accepted for experimentation. Of 32 women, 4 conceived during the process of sterilization; 2 more conceived soon after the injections were ended. The rest, 26, showed sterility from 2 to 12 months, which means 7% failures. One of the failures received only a small dose, the other one probably too large a dose. Libido was not diminished and in a few cases it was increased.

Naiditch draws the following conclusions: (1) Dead sperm of the bull introduced subcutaneously can bring about temporary sterility in woman; (2) sterility is obtained without interfering with the normal sex process in woman: ovulation and menstruation are not affected.

The technique is, in short: A mixture is made of chopped bull epidydimis with normal salt solution; presence of live sperm should be proved; formalin is added and the mixture strained through a double layer of gauze. The filtered mixture is then kept for two days and inoculations are made to prove absence of infectious bacteria. Then the concentration of the dead sperm is ascertained with the ordinary blood counting chamber. The mixture is diluted to the desired concentration with normal salt solution. Naiditch uses a concentration of 500 million sperms to one cc. Fifty billion sperms are needed for a woman of 50 kg. weight (110 lbs.).

Injections were made twice weekly for five weeks. Patients complained after the third injection of chills and fever. Some complained of nausea. The blood of the women was examined for agglutination of sperm. A normal woman's blood agglutinates sperm in two to four hours. After injections this occurs in ten to thirty minutes.

The results so far are by no means decisive. The number of cases is too few for any definite conclusions. Many

women go normally several months without conception and the efficacy of this method is by no means proven. Still these experiments have just begun and possibly some slight change in technique may accomplish the desired end.

It should be stated here, however, that some authorities do not believe that there is a definite antibody produced for sperm. They feel that any sterility obtained by injections must be accounted for by other means. Among these is Dr. Moench who gives an excellent presentation of this point of view.[1]

[1] *Journal of the American Medical Association,* April 19, 1930, Vol. 94, No. 16, page 1206.

CHAPTER X

Methods Preventing the Settling of the Fertilized Ovum in the Lining of the Uterus

Intrauterine Pessaries

INTRAUTERINE pessaries are appliances which lie either partially or entirely within the uterine cavity. Among them we find our old friends the gold or aluminum button, the wire pessary, and the gold spring or wishbone pessary. Among the newer developments are the Pust pessary, and in the latest literature the Gräfenberg silkworm gut star, and gut, or silver ring.

I consider these all dubious Birth Control methods and I do not use them. I give descriptions of the appliances and their technique in order that the reader himself may be able to form some judgment of their merits and demerits. They do have the great advantage that no preparation for coitus is required of either the man or the woman.

The older methods of this type are completely discredited and will be discussed briefly at the end. One of the newer methods furnishes an opportunity for discussing the general principles underlying these intrauterine appliances and will be treated in detail. I refer to Dr. Pust's and Dr. Gräfenberg's pessaries.

Silkworm Gut or Silver Wire as Contraceptive Agents

Silkworm gut is used in the form of a star or a ring which is introduced into the uterus. One piece of the star usually remains hanging in the cervical canal; the end of it is either tied into a knot or is fastened to a glass pearl to avoid scratching the cervical mucosa with the sharp

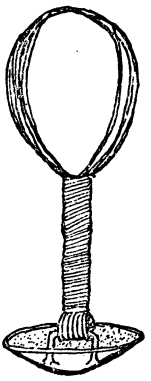

Fig. 17

Pust pessary, the upper ring and stem made of silkworm gut.

ending. The ring form, with a piece of gut hanging in the cervical canal was introduced by Dr. Pust who claims 150,000 of these pessaries are in use.

How can temporary sterility be produced by the presence of this foreign body in the uterus? It cannot affect the sperm; this is proved by the occurrence of occasional extrauterine pregnancies.[1] Dr. Ernst Gräfenberg[1] explains it as follows: The foreign body irritates the mucosa

[1] See *Geburtenregelung,* 1928, published by Dr. Kurt Bendix, Berlin, Germany, page 50.

of the uterus but not to any really pathological extent; it only exaggerates its natural rate of change to a premenstrual state of congestion so that the uterine lining is never in a receptive condition.

Stefko and Lourie [1] and Stefko in another article [2] report degenerative changes of blood vessels and other pathological changes in the uterine mucosa after the use of silkworm gut stars or rings. Where pregnancy had occurred, they noted subchorionic hemorrhages and exuberation of syncytial cells. However Gräfenberg considers all these changes only as slight exaggerations of the normal functional part of the premenstrual mucosa which is expelled from the uterus every month and is at once regenerated. The fertilized ovum, in his opinion, cannot develop in this changed mucosa but the change of the mucosa is not to be considered dangerous in any sense since the mucosa is expelled and regenerated every month as mentioned above. A great deal of stress is placed by Gräfenberg upon this expulsion and regeneration of the functional mucosa. In this he sees the protection of the uterus from any harm or irritation.

Unfortunately the fact of such monthly regeneration is not absolutely established. Many physicians do not accept this theory. Dr. Emil Novack in *Menstruation and Its Disorders* [3] mentions many prominent names for and against this view. He believes that during menstruation "in by far the largest number of cases no epithelial loss can be determined other than perhaps that occasioned by

[1] *Die pathol. anatom. Veränderungen der Mucosa uteri bei Einführung von Silkwormgut, usw.* Deutsche Zeitschrift für die gesamte gerichtliche Medizin, 1926, Band 8.

[2] *Antikonsept. Mittel,* Archive für Frauenkunde, Band 14, 1930.

[3] *Gynac. and Obs. Monographs,* pages 36 and 37.

the lifting up of small strips." In perhaps the majority, the loss of tissue in menstruation is very "slight and only incidental." If this is correct the whole theory of the harmlessness of a foreign body in the uterus falls. The continual irritation of the mucosa resulting in an over activity of all the cells and blood supply may easily bring about the pathological results claimed by the Russian authors referred to above.

The technique of introducing the star or ring is as follows: The star is formed by cutting the usual length of silkworm gut into three pieces and tying them together in the form of a star by a thin silver wire. The free ends of the silkworm gut are tied into knots. The ring is formed by twisting the silkworm gut into a ring and winding around its rim a thin silver wire. Gräfenberg prefers the ring because it adapts itself easily to the uterine cavity. The silver wire has the advantage of being easily detected by a sound or with X-rays. He uses three sizes of rings: 2 cm., 2-½cm. and 3cm. in diameter.

The introduction of the silkworm gut star or ring is usually followed by some pain which disappears in a few hours. If this pain persists one should at once consider the possibility of some complication. Occasionally there is a discharge of a little blood; the first two menstruations are usually somewhat heavier. White discharge from the cervix often follows but is due only to a cervical inflammation which may be increased from the irritation of the silkworm gut thread. A silkworm gut star may sometimes be forced out from the uterus by contraction. The ring is not easily pushed out. In Gräfenberg's opinion this accounts for the greater percentage of failures with the star. Lately Gräfenberg has been using silver rings without any silkworm

gut. He claims they are more easily introduced, and more readily found when they have to be removed.

The intrauterine pessary is usually left in the uterus for a year or longer. The removal of the ring is achieved by the use of forceps. This procedure occasionally presents difficulties. A small silver hook can be used for the same purpose. The details of the method of introducing these implements are given in *Geburtenregelung*.

Gräfenberg finds a number of contra-indications to the use of the silkworm gut star or ring:

I. Inflammatory condition of the adnexa (tubes or ovaries). In case of inflammatory conditions of ovaries or tubes, the pressure of a foreign body in the uterus can start a new active process.

II. Infectious conditions of the cervix or vagina may be introduced into the uterus.

III. Special care should be taken to avoid spreading infection of the gonococcus from the outer sexual organs into the uterus. Naturally the star form which leaves a piece of the silkworm gut in the cervical canal allows more chance for the spreading of infection from the vulva, vagina and cervix into the uterus than the silkworm gut ring.

IV. Metritis and endometritis will show increase of symptoms after introduction of the silkworm gut forms. Any diseased condition of the uterus which increases the menstrual flow will get worse with the presence of a foreign body, although sometimes chronic metritis seems to improve because the foreign body brings about contraction and thus strengthens the muscular coat of the uterus.

One must, therefore, be very careful to avoid all such pathological conditions before one decides to introduce into the uterus the silkworm gut ring or star.

Gräfenberg claims for these intrauterine pessaries certain advantages over the so called "stem" or "collar button" pessaries. In the latter the apparatus is half in the vagina (button part), half in the uterus. In the silver ring there is no connection with the vagina, and in the silkworm gut star and ring only a short knot lies in the cervical canal hardly reaching the entrance. With a part of the apparatus in the vagina there is more chance of ascending infection than in the case of the silver ring or silkworm gut star.

I have never used intrauterine pessaries but find serious objections to them from the very statements of their ardent advocates. The most important objection to the introduction of these pessaries into the uterine cavity is the damage to the uterine lining. Gräfenberg assures us that the irritation of the functional mucosa of the uterus is of small degree and has no damaging results because the upper part of the epithelial lining is thrown out and renewed with every menstruation. I have discussed this assertion above and consider that the problem is still open. The uterine lining is so easily provoked into neoplasms that one must proceed with extreme care in adopting a method depending upon a constant irritation of this part.

This objection is by itself almost sufficient to discard the method. But as many physicians seem to agree with Gräfenberg as to the continual changing of the mucosa, I refer the reader to Gräfenberg's own contra-indications given above. These seem to me of a very serious nature and it is not easy to diagnose the various conditions which

he admits prevent the use of this method. A further objection is the difficulty of introducing and removing the ring or star. These demand a high degree of skill and sometimes resemble minor operations. Gräfenberg uses anaesthesia in some cases.

These difficulties place the use of this method entirely in the hands of a skilled specialist, for mistakes in diagnosis or poor technique may result in serious complications. The pain and small hemorrhages would certainly prejudice the average woman against the method.

It is true that many women are willing to pay a high price to a skilled specialist for a sure preventive, but Gräfenberg cannot give us full assurance even on this point. With the star shaped silkworm gut he admits failures; as to the silver or gut ring he has given us no definite statements. No doubt the method looks tempting and some gynecologists may feel it worth while to select healthy normal women for further investigations.

Considering the difficulties we meet in our Birth Control work I would not advise the average physician to apply this method until further studies are published.

Pessaries Partly in the Vagina, Partly in the Uterus

1. Gold or aluminum button
2. Wire pessary
3. Gold spring pessary (wishbone)

The gold or aluminum button and the wire pessary are not used now as much as formerly. This is because they were made so short that they could slip out of the neck of the uterus without the woman being aware of it. Therefore they have gradually been displaced by the gold spring pessary.

The latter consists of a circular cap with perforations, attached to a wire spring which is about an inch long and ends in two prongs in the shape of a wishbone. Physicians charge from twenty-five dollars up for the pessary and its insertion. Some people have been known to pay as high as one hundred dollars.

To insert this pessary the prongs are covered (and thus kept tight together) by half a gelatinous capsule.

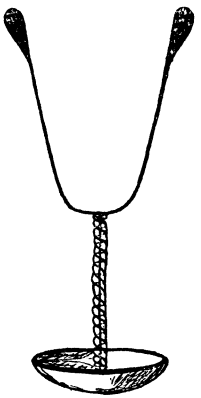

FIG. 18

Wire spring ("wishbone") pessary. This should never be used.

After insertion into the cervix the capsule is dissolved by the uterine secretions and the prongs of the wishbone are released. They spread out and press into the flesh of the inner part of the cervix. This pressure keeps the apparatus in position, but it brings about irritation likely to lead to inflammatory conditions and possibly cancer. Several cases of cancer following the use of this pessary are now on record.

The effectiveness of this method is probably due to the continual irritation of the uterus. From the preceding dis-

cussion on pessaries within the uterus it is clear that some physicians do not consider this irritation to be of a dangerous nature. They base this contention on the assumption that the uterine mucosa changes and is discarded with each menstruation. This theory is not accepted yet by the medical profession in general as proven in the discussion above. Still, even physicians accepting this theory find fault with this type of pessary. The objection is based on the fact that the pessary is half in the cervix and half in the uterus. The uterine cavity is thus more exposed to all infections invading the vagina, because the infection can easily follow the stem placed in the cervix and in this way reach the inner cavity of the uterus. Gonorrheal infections are known to have spread from the outer part of the cervix into the uterus and tubes.

Facts prove that this apparatus is not as reliable as is claimed. I personally have seen five cases in which pregnancy took place in spite of the spring pessary. It must be inserted by a physician, and remains in position until a physician removes it. Many women claim no annoyance with this method; others suffer agony.

If not removed for about six months the spring wire may work itself deep into the flesh of the uterus. The lining covering the inner part of the cervix grows around and in between the coils of the spring. If it is retained for about one year, its removal usually brings on a discharge of blood and tissue. This apparatus must be removed and re-inserted at intervals of about every two months, thus the patient has to visit the physician very frequently.

This device is popular. Its high price seems to impress women. They think at such a cost they are surely getting "the best."

Summary on Intrauterine Pessaries

Advantage

Requires no preparation for coitus by either man or woman.

Disadvantages

1. Irritation of mucous membrane of uterus.
2. Possible infection of mucous membrane of uterus.
3. Continuous supervision by physician.
4. Not reliable.

Injections of Iodine
or
Swabbing the Uterine Walls with Iodine

This method is extensively used in Russia and Germany. The idea is to irritate the epithelial lining of the uterus and thus make it impossible for the fertilized ovum to settle and grow. The details are described by Dr. E. J. Kvater [1] in his Russian pamphlet as follows:

A sound wrapped with a thin layer of cotton is soaked in a ten per cent iodine solution, or a solution of equal parts of tincture iodine and glycerine. The cervix needs to be sufficiently dilated to introduce the sound and cotton. It is best to pull the cervix down with volsellum forceps and use two or three numbers of dilators. After introduction of the sound the uterus at first contracts, but in a few minutes it relaxes and the sound with cotton can be easily withdrawn. This swabbing is done in Soviet Russia once a month either before menstruation or a few days after

[1] *Contraceptive Methods and Their Technique,* published by the Department of Health, Moscow, 1926.

its delay. A continual destruction of the surface layer of the uterine lining may lead to an inflammatory process or to introduction of infection on account of lowered resistance.

The same method is used in the form of injections. Dilation of the cervix is also necessary here. Many physicians have told me of extreme pain, nausea, vomiting and even fainting after this procedure. One physician stated that even a morphine injection could not relieve the pain for a long time. Some physicians try to avoid such serious complications by injecting only a few drops. Dr. Kvater points out that often old inflammatory conditions are started up with such injections.

Dr. C. A. Selitzky, chief of the gynecological department of the Moscow State Hospital made a special study of this method. In a chapter on intrauterine injections and swabs in a recent work [1] he objects strenuously to its use. He points out that gynecologists always were averse to intrauterine chemical applications. He quotes Tchertock who used iodine and protargol injections before impending hysterectomies (1926). In ten cases in which injections were made from eight to fourteen times, he found partial or total destruction of the uterine mucosa. Levinski [1] in 1928 made experiments on rabbits, injecting mild solutions of tincture of iodine into the uterus. He found not only atrophy of the mucous lining of the uterus, but also atrophic changes in the ovaries. He also quotes Lebedeff who reports from the Saratoff Hospital 37 cases which came to the hospital after having received iodine injections by outside physicians, evidently for delayed menstruation.

[1] *Contraceptive Methods in the Light of Modern Science,* published by the State Department of Health in Moscow, 1929.

Results gave 16.2% cases of severe hemorrhages and high temperature and three deaths; 13.5% developed parametritis and cellulitis. In most cases three to ten injections had been given.

Selitzky [1] saw several cases of shock after intrauterine iodine injections, also many cases of prolonged amenorrhea. Several physicians have pointed out that this treatment seems to lead to ectopic gestation. Stressoff [1] reports three cases of extrauterine pregnancy after such injections. Dr. Kvater [2] reports one case. Timofeef [1] studied 216 cases of ectopic gestation and found fifteen cases having a history of intrauterine iodine injections.

I saw one case of the same nature. A Russian woman who was treated for many years with intrauterine iodine injections whenever she missed her menstruation became pregnant a year after leaving Russia. It proved to be an ectopic pregnancy. These facts are not conclusive, but are certainly suggestive.

In my opinion this method should be absolutely discarded. It is abortion rather than prevention of conception for it evidently destroys the embryo if used in delayed menstruation. In irresponsible hands it may lead to serious complications. The possibility of extrauterine pregnancy as a result of the unhealthy condition of the uterine lining also is against this method for Birth Control purposes.

1 *Contraceptive Methods in the Light of Modern Science,* published by the State Department of Health in Moscow, 1929.

2 *Contraceptive Methods and Their Technique,* published by the Department of Health, Moscow, 1926.

PART III

Practical Applications

CHAPTER XI

Practical Advice on Fitting and Selecting the Pessary

General Advice

THE first thing I do is decide whether the patient has a legal right to Birth Control advice. I then take the history on a card, especially devised for that purpose (see Fig. 19). The card used by the American Birth Control League served as a model for this.

The patient is then instructed concerning the anatomy of her sex organs by means of a model and is shown the necessity of covering the cervix with a pessary. Such models showing a cross section of the female organs are sold in many wholesale medical supply houses. They may not be correct in the minute details but they give the patient a fair idea of the relations of her organs. One made by the Perfectfix Rubber Co. of Milwaukee, Wisconsin,[1] is sufficiently accurate.

Before I had such a model I used a small cylindrical box with the neck of a bottle inserted through a hole in the bottom. The box represented the vagina; the neck of the bottle, the cervix; and the bottle itself, the uterus.

Most women are afraid that the pessary may get lost, or stowed away never to be found again. This fear can

[1] See appendix for full address.

be easily overcome by pointing out that the vagina is open only at its entrance and at the cervix, the latter opening being pin-point in size.

After taking the history, I do a vaginal examination to determine the condition of the uterus, adnexa and vagina. If any abnormalities are found—which happens frequently —treatment is advised or given.

If the patient has conditions pointing towards a lesser or greater degree of partial sterility such as retroverted or antiflexed uterus, she should be told about it; but one should stress the point that this degree of natural sterility is not sufficient to assure 98% or 100% prevention. The patient should be advised to use artificial prevention but one may advise a slight simplification such as the omission of the paste inside or around the rim of the pessary, or one may even use paste alone instead of in combination with the pessary.

It is important to tell the patient of her condition of partial sterility for several reasons:

1. If she has been married a long time, she will then understand why an unreliable method (such as coitus interruptus, condoms, or even douching) has helped her to achieve almost 100% security, and will not advise these methods to others.
2. If she is a newlywed, an explanation will prepare her for the possibility that conception may not take place at once after discarding her Birth Control method. In such cases the patients often think that their continued sterility was caused by the use of preventive methods.

It is not easy for the physician to be certain of the

NAME .....ADDRESS .....CASE No.....

Reason for giving advice.....

.....

Reason for refusal.....

.....

Method recommended .....

.....

Dates	

Referred by.....
Nationality .....Religion .....
Husband's occupation.....Trade Unionist.....
Wife's occupation.....

SEX HISTORY

Age of wife... Years married...Last period .....
Age of husband.....
Present Character of Menses.....
No. living children and ages.....
No. dead children and ages .....
No. Miscarriages .....
Therapeutic ... Accidental ... Self-induced.....
Character of labors.....
Contraceptive used and how long.....
Is orgasm experienced.....
Attitude toward coitus.....

PHYSICAL EXAMINATION

General .....
.....
Pelvic .....
.....
Laboratory reports.....
.....

FIG. 19. Record card.

degree of sterility brought about by a retroverted or antiflexed uterus, by obesity or even inflamed tubes. I have seen cases of third degree retroversion conceiving within a month after discarding prevention. On the other hand, every physician knows that often it takes months and years to overcome sterility in such cases.

After these preliminaries I ascertain which kind of pessary to give. In the normal position or antiversion, I give the diaphragmatic type; in retroversion, retroflexion, and often in extreme antiflexion, I usually give the vault type. For detail on choice of pessary see second part of this chapter. The physician soon learns to judge the size and kind of pessary by the vagina. In the case of the diaphragmatic pessary, small changes in the firmness or structure of the rim are of great importance for good fitting. I shall discuss that below.

The diaphragmatic pessary is introduced like a Smith pessary, that is downward and backward, the lower part of the rim fitting behind the neck of the uterus, the upper resting behind the pubic arch. After it is in place the front of the rim should not be felt by the finger passing directly downward and backward. *The physician should select the largest size pessary which can be used comfortably.* If the pessary selected is too small, it does not fit closely behind the symphysis and can be pushed off by the penis. In fitting the French pessary over the cervix it is important to take care that the front of the rim fits tightly and cannot be easily pushed off by the incoming penis.

I have not found the trial rings made by several rubber concerns very helpful in deciding the size needed for the patient. The ring cannot take the place of the actual pessary in this process of fitting. Often the same size pessary

but with a different dome or with a rim of different tension or thickness may fit where another pessary does not.

After a pessary has been tried and discarded, it naturally has to be sterilized before it is used again. I place it at once in a basin filled with strong Lysol solution.

After I decide on the pessary to be used, I explain to the patient the necessity of a self-examination in order that she may learn to recognize two "landmarks" in her body; the cervix and the pubic bone. I ask her to wash her hands, demanding ordinary, not surgical, cleanliness and then ask her to assume either a squatting or half reclining position. A sitting or a recumbent position will not do because in the sitting position the pubic bone, moving down, partially obstructs the vaginal opening thus making self-examination difficult, and in a recumbent position it is impossible for her to feel the cervix. If the reclining position is chosen she should support herself on her left forearm and pull up her knees. In either this or the squatting position the woman should introduce her index finger down and back until she feels a knob, like a large nipple. She is then told to bring her finger near the entrance and feel the depression behind the pelvic bone. The upper protruding part of the vaginal entrance formed by the pubic bone and covered by a wrinkled uneven mucous surface is often mistaken by women for the cervix. Most women are sure that the uterus is right at the entrance of the vagina and are astonished to find it so far back.

The patient usually puts her finger upward to feel the cervix and she must be told that in the squatting or reclining position she finds the cervix down and back.

Some women are extremely shocked at the idea of examining themselves. These are usually persons with sex

inhibitions. Nothing does away with such prejudices more quickly than a scientific explanation of the anatomy of her sex organs and a self-examination. As soon as a woman

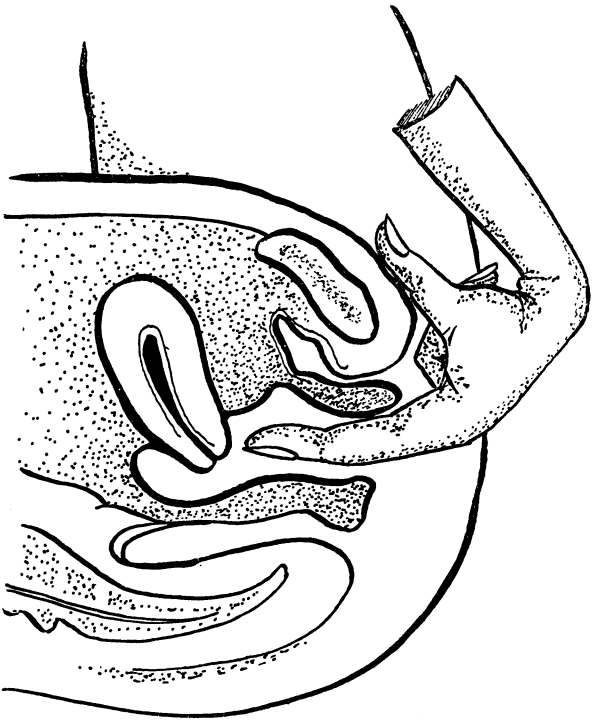

FIG. 20

Woman examining herself. Her finger can feel the cervix and the depression behind the pubic bone.

realizes that there is no mystery about her sex organs and feels these parts herself, many of her sex fears and prejudices are gone. I found that many women learned to overcome their frigidity and actual vaginismus (contraction of vagina at slightest touch—also pain on coitus be-

cause of such contraction) after examining themselves several times. Vaginismus seems often to be due to an uncontrollable fear of the mystery of coitus. "Something may happen," "Something may be torn or hurt." When a woman gets acquainted with her body, she loses these fears.

I found a number of my patients assuring me that they could not touch themselves "there"—it is too "disgusting" or "horrible." They laughed at their prejudices afterwards. "But women should not touch themselves there" some objected. "It may lead to self-abuse." My experience is that touching the vagina with a certain scientific purpose in mind will not lead to autoerotism in a normal woman. What is forbidden often attracts them. The interest in the study of the anatomy of the organs followed by the task of learning the introduction of the pessary occupies the mind sufficiently to prevent interest in autoerotism. I have not yet heard of even one case where the teaching of self-examination for purpose of using the pessary has led to such consequences.

After the patient's inhibitions are overcome, and she has learned to recognize the necessary "landmarks," I proceed to instruct her in the actual use of the pessary.

For instruction in the use of the diaphragmatic pessary, I have the woman in a half reclining position on the gynecological table. She rests on her left forearm. First I insert the pessary with the dome towards her back, for ease in removing, and ask the patient to introduce her index finger and feel for the rim, upward behind the pubic arch and then to remove the pessary. Nine out of ten can do this easily. Some fail because they do not expect to find the rim so near the entrance and feel for it deep in the vagina.

This removal of the pessary gives the patient the assur-

ance that the procedure is not so difficult. Then I again ask her to feel the cervix by putting her index finger back

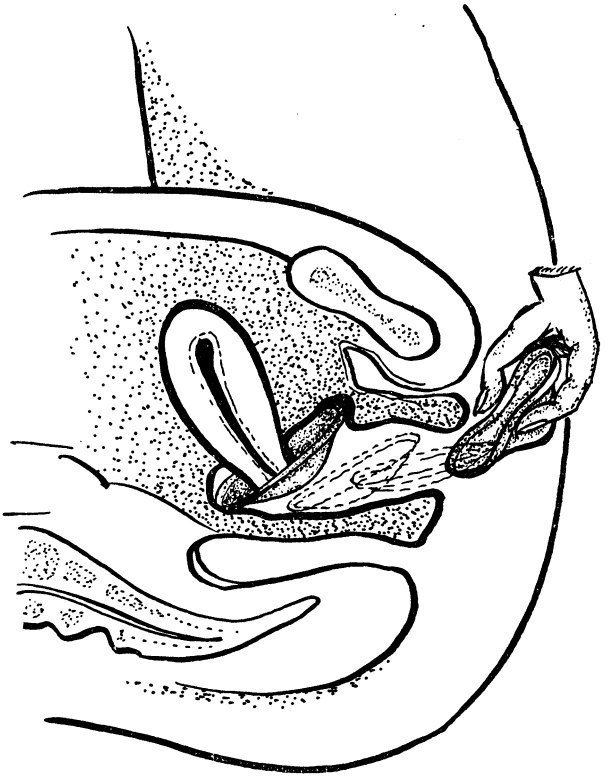

FIG. 21

Introduction of the diaphragmatic pessary. The pessary is pushed in and down, past the cervix, so that the rim enters the posterior cul-de-sac. The part of the rim near the hand is then pushed up behind the symphysis pubis.

and down towards the rectum. Unless the cervix is very deep, or the woman very stout, she will now do this easily.

Next I show the woman how she should insert the pessary by squeezing the rim firmly between the thumb, index and middle finger and then pushing the pessary down and back until it is all in the vagina. After it is in, she must push the upper part of the rim up behind the pubic bone. The main difficulty is usually in keeping the elastic rim compressed but this is soon overcome. Usually after a single trial the patient places the pessary correctly. I let her take it out and replace it two or three times, and have her feel with the index finger the cervix covered by the rubber, and the rim behind the pubic bone. It is surprising how easily the average woman learns to introduce and to remove the pessary. Very often a woman will start by saying, "I can never do that," and have it done while saying it.

The French pessary is introduced in another manner. It should be introduced and removed while the woman is in a squatting position because the patient feels the cervix more easily in this position. Even when teaching the use of the diaphragmatic pessary it is sometimes wise to have the woman occasionally in a squatting position to feel the cervix, especially if it is very high and she cannot reach it in a reclining position.

After she has felt the cervix, show her how to manage the vault pessary (French or Mizpah) by holding it in the same way as the diaphragmatic except with the dome outward. Advise her to push it down and back and press the upper rim over the neck of the uterus. It is surprising how easily women learn to do this. The usual mistake is to place it too near the entrance of the vagina.

The removal of the vault pessary is more difficult than the diaphragmatic. Instruct the patient to introduce the

finger sidewise (dorsal part toward left side) and try to push the rim down by a repeated hooking down movement of the finger, until the finger gets inside the cup and hooks around the rim. A little bearing down of the patient brings the pessary nearer.

When inserting the vault pessary some women push it upward so that the edge which should go into the posterior fornix, slides into the anterior fornix. If a patient persists in this after instruction, it is well to modify the method, teaching her to begin with the pessary folded with the rim down. Then when the inner edge hits the anterior fornix, the edge nearer the finger can be pushed down into the posterior vault.

Introducing the pessary several times deprives the vaginal wall of its natural lubrication. This procedure when the vagina is dry, is painful and almost impossible. The physician should, therefore, put in the vagina plenty of lubricating jell between insertions. If the patient has naturally dry vaginal walls, it is best to advise her to use jell for lubrication.

After the patient has replaced the pessary several times and feels sure that she can manage it, she is given a printed instruction sheet which I adapted from a form used in an English clinic. (See Fig. 22)

I always read this over with her and explain the importance of each item, otherwise it might go unread. In this way the patient gets a personal explanation, and yet after going home the slip serves to remind her of the various details.

The busy specialist may not have time to give all the instructions noted above, and he will doubtless leave part of this work to his nurse. He should not fail to instruct the

INSTRUCTIONS

PLEASE READ THESE INSTRUCTIONS CAREFULLY

(1) Please return within a week's time, so that the doctor can tell if you are using the appliance correctly.

(2) Never leave it in longer than over night.

(3) Always place paste upon the part of the appliance which is directed towards the cervix.

(4) DOUCHE with mild antiseptic (Lysol ¼ teaspoon to 2 quarts) ½ of the bag BEFORE taking appliance out and ½ after removing it. A two-quart fountain syringe is to be preferred.

(5) Wash appliance after use, and powder it with talcum powder or any baby powder.

(6) Paste can be ordered from druggist or direct from concern.

(7) COME BACK.....(write in the time) The appliance may need replacing.

(8) DON'T use Vaseline on the appliance.

(9) If the appliance or paste gives discomfort, report at once.

FIG. 22

Instruction Sheet.

nurse very carefully, however, and he should periodically check up on her work.

USE OF VARIOUS TYPES OF PESSARIES

If the vagina has a long soft anterior wall with a marked depression behind the pubic bone, a diaphragmatic

pessary with almost any type rim can be used. If the space behind the pubic bone is short and shows little depression, then a very flat rim is needed (Mensinga) or a thin firm spring (Rantos or Akma). For general use with women married several months or years, I find the diaphragmatic type with a fairly firm but not too thick rim the best. There is no need of a high dome; it only wrinkles and gets in the way. My ideal pessary is one with a firm rim and low dome.

A newlywed needs at first a weak spring such as that in the Durex or sometimes even one as weak as that in the German Ramses. In newlyweds one sometimes has to overcome fear and modesty which bring about a contraction of the vaginal entrance. This is easily overcome by advising a week's daily douching with warm water, also by requesting the patient to examine herself daily with her index finger. This procedure gets the patient used to touching her vaginal orifice. As soon as the newlywed understands the anatomy of her sex organs and loses her inhibitions she becomes an apt pupil.

If one starts a newlywed with 50 or 55 mm. one must ask her to return in three or four weeks to change it, usually for 60 mm. with a firmer rim. If great relaxation is found in a short time, it is better to see her again in two or three months because she may then need the next size 65 mm. This change of pessaries may seem an expensive proposition but it is necessary for the best results. After three to six months the vagina usually does not change any more and the same size pessary can be used until the first pregnancy is desired. A newlywed fitted with a vault pessary because of retroversion will usually require no change for six months or more. Even then re-examination is required

principally to make sure that the uterus has not changed its position.

The Stopes Pro-Race or the Akma Hydome pessary is sometimes useful when newlyweds have a very narrow vagina. Within six or seven months there may be sufficient dilatation to permit the use of a diaphragmatic pessary.

In all cases a new examination and fitting is necessary after confinement. The vagina six to eight weeks after delivery is usually quite enlarged. Both anterior and posterior walls are soft and flabby. The depression back of the pubic bone which is present in the average woman usually cannot be felt, due to a tendency to cystocele. The diaphragmatic pessary has, therefore, no resting-place in back of the pubic bone. It slips out easily and cannot be used. I found the fitting of such women a most difficult task. The vaginal wall seems to push out every pessary but the small Pro-Race or Akma Hydome. This type with its narrow rim fits directly over the cervix and is therefore not affected by the tendency of the vaginal wall to push downward. It is above the pushing and in fact is kept back by the falling walls below it.

The patient has to be seen again within four or five months after confinement. After that time the vaginal walls become firmer, return to normal condition and the patient can be fitted with size 65, 70 or 75 mm. of a diaphragmatic type unless the uterus is retroverted. If so, a medium size French pessary can be tried. In some cases 80 mm. diaphragmatic is needed, others return to normal so quickly that 70 or 65 mm. will fit from the beginning. Not until six to eight months after confinement can the patient get her final fitting which will give her the size she uses until her next desired pregnancy. Each case demands

several fittings depending upon the condition of the woman. A woman who has not had a child for a year or more can be fitted at her first visit with a pessary which as far as size is concerned need not be changed until after the next pregnancy.

Cases with retroverted uterus using a vault pessary should be seen at least twice a year because the uterus may slowly regain normal position. This, of course, would require a change to the diaphragmatic type.

A physician specializing in Birth Control should have in his office all types of pessaries:

1. Diaphragmatic with firm, weak and medium rims.
2. French pessaries of three sizes at least (No. 38, No. 240 and Jumbo).
3. Pro-Race pessary or Akma Hydome of medium size.
4. Several sizes of Mizpah.

It is preferable that the physician himself give the pessary to the patient instead of prescribing it. Quite often a pessary prescribed upon the first visit will be found too small after a second examination. Women relax more at the second fitting and the pessary has to be changed. I often have cases where at the first visit it is difficult to introduce size 60 mm. but which at the second visit I have to change to 70 mm. Patients cannot afford to buy new pessaries within so short a period. The physician can sterilize the pessary and give the patient another without causing her any extra expense.

Newlyweds

What methods should be advised for newlyweds?

If the hymen is intact, the pessary cannot be used. The possibility of fitting a pessary should not be ruled out, however, until after the physical examination has been made. For one reason or another, the hymen may be sufficiently dilated to permit the fitting and use of a pessary.

If the pessary cannot be used, the antiseptic paste is advised. It is best to show the young woman how to introduce the vaginal nozzle into the vagina. Many young women give up the use of this appliance because they dare not insert the nozzle. While antiseptic paste has given good results as a contraceptive in cases of this type, it is best to combine it with the condom or coitus interruptus to temporarily assure 100% safety. (See Chapter VI.)

As soon as coitus does not give any discomfort to the wife, she can be fitted with a pessary. This usually means about two to four weeks after marriage. The newlywed should be informed that the first pessary fitted must be changed in three or four months, because the vagina will distend after several months of marriage.

Pessaries Used in Average Cases

To summarize briefly the technique of choosing a pessary I repeat the above instructions in the form of a handy table.

NORMAL POSITION OF UTERUS (Also Anteversion)	
Women married over eight months (no children)	Diaphragmatic from 60 to 75 mm.
Women with one child or more (at least eight months since confinement)	Diaphragmatic from 70 to 80 mm.
Newlyweds several weeks after marriage (Re-examination is necessary six months after first fitting)	Diaphragmatic from 55 to 65 mm. (If weak rim is needed, use Ramses).
In narrow tight vaginas	Stopes No. 0, 1, or 2; Akma Hydome No. 0, 1, or 2.
CASES OF RETROVERSION OR MARKED ANTEFLEXION	
Newlyweds	Akma Hydome No. 1 or 2; Stopes No. 1 or 2; French No. 38.
Married many years	French No. 38 or 240, sometimes Jumbo.
Third degree retroversion, cervix near symphysis	Diaphragmatic from 70 to 80 mm.
If patient cannot use French pessary (No. 38 or 240)	Mizpah medium (After patient learns more about her body, change to French).
In women with large distended vaginas — with cystoceles or rectoceles	Jumbo; Akma Hydome No. 1 or 2; Stopes No. 1 or 2.

CASES IMMEDIATELY AFTER CONFINEMENT (Two to six months after delivery)	
If cystocele present	Akma Hydome No. 1 or 2; Stopes No. 1 or 2; Jumbo; and occasionally Diaphragmatic from 75 to 80 mm. with firm rim (Akma or Rantos).
If no cystocele present	Diaphragmatic from 75 to 80 mm. with firm rim (Akma or Rantos).
Newlyweds, where pessary cannot be fitted Women who refuse to use a pessary, who cannot learn to use a pessary, or who cannot be fitted because of large rectoceles, extreme stoutness, or sensitive vaginas	Advise Combination of Paste and condom
Women with partial sterility assured by direction of cervix or other causes	Advise paste alone (Particularly if patient objects to use of pessary).

CHAPTER XII

Why Do Preventive Measures Sometimes Fail?

THE first reason for failures in Birth Control methods is the wrong attitude of the patients towards Birth Control. This attitude is partially created by the physician who refuses to give Birth Control instruction. Denied scientific information by the physician, the patient turns to one or more of her friends for help and Birth Control is then placed in the same category as a patent medicine or quack remedy. When Birth Control attains the place in medicine which it deserves, when the family physician will give the desired information to his patients, explaining that each case must be treated according to its own peculiarities and that there is no single reliable normal method satisfactory for all cases, then the patient's attitude will change. At present the patient is left to her own resources and draws her own conclusions.

The sister of Mrs. X used douches for ten years and found this method 100% sure. As soon as she stopped using it, she conceived. Ergo—logically, Mrs. X concludes, "I can follow her example." But Mrs. X conceives in three months although she uses the douche exactly as explained to her by her lucky sister. Mrs. X is perplexed. Why should this method fail in her case when it proved successful with her sister? Some friends, wise in condemnation of douching, suggest to her coitus interruptus which

has proved 100% certain in their case. She uses this method and again fails deciding that there are no reliable Birth Control methods or else that her husband is not as willing as the husband of her successful friend.

How should she know that in both cases the unreliable method of douching or coitus interruptus proved successful because her friends had some partial protection in themselves such as retroversion or antiflexion of the uterus or other peculiarities inductive to partial sterility? I am much amused when I hear patients praising their husbands for being "gentlemen" because of success with coitus interruptus while other husbands come in for severe criticism. A few words of explanation from a physician would have cleared the situation up but these words are still missing.

Other women intelligent enough to read books on Birth Control think they can follow the advice given there but they find only too often that their application of book knowledge leads also to failure. Books cannot take the place of a physician in Birth Control work any more than in other fields of medicine. It is most helpful to spread books on Birth Control to inform patients of the existence of reliable methods. However, the laity should accept books giving information on such matters only as a helpful guide of what to expect from the physician and of how better to follow his advice. They should decide to apply such knowledge to themselves or others only if no medical help is obtainable. When I am asked to send Birth Control information by mail, I not only stress the legal prohibition but I also emphasize the fact that such information would be as useless as though I were to send a pair of glasses without an examination.

These failures due to the stepmother attitude of the

medical profession towards this important branch of medicine no doubt would soon disappear if Birth Control were to assume its rightful place in medical practice.

The next cause of failures is the carelessness of patients even after they have received the right instruction from a willing physician. All patients neglect occasionally to follow faithfully the advice of a physician but in hardly any other branch of medicine does a slight neglect lead to such disastrous results. How often have patients assured me that they have followed my instruction to the dot only to acknowledge later that they have failed just once or twice to do so. One woman triumphantly wrote on one of my return inquiry cards: "Ha, ha, 98% safe, well in my case it failed in two months." She had forgotten that on a previous visit a few weeks before she had frankly admitted to me that she had not always used the method or else she did not know that I had made a note of her statement. A patient only lately assured me that she had never, never "deviated from the path of righteousness." A day later a friend of hers who was with her in my office came in and told me that the woman had deliberately withheld the truth because she was ashamed to acknowledge it. Such negligence, no doubt, accounts for a good percentage of the failures. One charity case failed but assured me that she had never neglected to take proper care; in fact her husband had actually on some occasions spent money for condoms (to use instead of the pessary and paste given to her) in order to be *extra safe*. To be sure this case records the ignorance of the patient more than her carelessness.

Failures are also brought about by seemingly small errors in technique. A couple starts coitus without any

protection and just before ejaculation is due, the woman inserts the pessary or the man puts on the condom. A leakage of semen, of which the man is not actually aware, during the first part of coitus makes the condom or pessary useless. I have had three failures following such practice. It is imperative that women using a pessary should insert it as a part of the preparation for going to bed, or that the man who intends to use a condom should start coitus with the condom in place. Such little slips may not be considered important by many but they increase the chance of failure.

In the use of the paste, I discovered a case where the wife had relied upon the husband to remove the cork from the nozzle while he in turn definitely recalled later that he had failed to do so, relying upon her to attend to it. Cases like these prove the necessity of finding a method which would not require the co-operation of the patient at all but would place the whole responsibility upon the physician. For this reason intrauterine pessaries have such an appeal to women. They eliminate all preparation and after care on the part of the patient. But the medical profession has not yet been able to put its final stamp of approval upon any such method. The biological method may prove useful with less possible harm to the woman's physical welfare.

The last but probably most important cause of failures is the lack of experience among physicians giving Birth Control advice. We are after all still in our research period as far as Birth Control is concerned. The fitting of pessaries seems easy but one needs some experience to be able to choose not only the right type and size but the correct firmness of the rim. Another important point is that phy-

sicians often neglect to warn patients of the need of changing the pessaries. Newlyweds must sometimes change the size two or three times before the final fitting is possible. Women, following confinement, need a large size which must be changed after several months until the vagina returns to normal. I have found some of my newlywed cases using a number sixty (diaphragmatic) for several years, when they should have returned for a re-examination after the first few months. I evidently had not sufficiently impressed them with the importance of the change. Lately I write the date for re-examination on the slip which I hand to the patient.

Ignorance on the part of the patient, lack of perfect methods, need of greater experience for the physician, not only account for the existence of failures but make it astonishing that there are not more. However Birth Control will overcome all these impediments which are in no way different from the difficulties found in other branches of medicine.

A few more years of research and clinical work will, no doubt, lead to great improvements.

CHAPTER XIII

Popular Notions about Prevention of Conception

I. Urinating after coitus

MANY women believe that urinating immediately after coitus affords a safe method of prevention. One has to explain to these women the anatomy of their sex organs in order to convince them that urinating may wash off the seminal fluid from the lower part of the vulva but it certainly does not touch the seminal fluid contained in the vagina.

II. Coitus "outside" (within the vulva)

So certain are women about the reliability of this method that they claim there has been no sex relation at all! The spermatozoa deposited in the vulva near the entrance of the vagina having a great motility (see page 23) easily reach the vaginal entrance and if powerful enough can work up to the cervical opening and enter the uterus. Many virgins—in the sense that the hymen is intact—have conceived as a result of such external relations. Newlyweds often employ this method. Without realizing it, the husband slowly distends the hymen and enters the vagina. Since both parties are certain that the breaking of the hymen brings about severe pain and flow of blood, they both are convinced that actual coitus has not taken place because pain and bleeding are missing. Many a patient has

assured me that she has had no sex relations and is practically a virgin although several months married. Examination has usually shown a dilated hymen and, quite often, pregnancy.

III. The "Free" or "Safe" period

Many people, including physicians who have written on sex life, believe that there is a period between menstruations during which conception cannot occur.

Dr. Dickinson's investigations have proved a greater possibility of conception immediately after menstruation but have not shown absolute sterility at any time. (See page 21). An investigation made on the wives of German soldiers during the war gave similar results. There is a higher rate of conception during the first ten days after menstruation and a lower rate before menstruation, but there is no proof of absolute sterility. Conception can take place at any time during the month and no reliance should be placed on the "free" or "safe" period.

IV. Sexual frigidity

Many women believe that conception is not likely to take place if they do not respond to the sexual passion of their husbands. There is no doubt that a strong response to sex passion may increase the possibility of conception while a passive attitude may lessen it but the degree of response does not affect the chance of conception to such an extent as to be of any importance and even complete frigidity gives little or no protection against conception. The fact that many women conceive after being raped is the surest proof of this. It is a pity that so many women try their utmost to control their emotions without achieving

their aim after all. The frigidity of many women is no doubt due to this fallacy.

V. Sterility during nursing period

There is a smaller chance of conception during the nursing period probably because ovulation has not been established. Women of previous generations nursed their babies for two years or even longer in order to take advantage of this supposed temporary sterility. They did so to the detriment of their own health and the baby's. We have no statistics as to their success but the fact that the families of our forefathers were usually quite large seems to show that there was more faith than actual success. Women of our time should be instructed that a lowered rate of conception during lactation does not mean absolute sterility and that, therefore, they should not neglect the use of preventives during this period.

In all these notions or prejudices there is a kernel of truth. There is a lower rate of conception at the middle and end of the menstrual month; there appears to be a lower percentage rate during lactation and in cases of non-responsiveness. But in all these cases, while the number of pregnancies is lower, there is no *absolute sterility*. Chance seems to play a major rôle in these cases, and women, while living up to all these rules, can have children as rapidly as others who pay no attention to them.

If one desires to obtain real control of conception, these uncertain and unreliable methods must be discarded.

CHAPTER XIV

Are There Methods Which Need No Medical Instruction?

THERE is no doubt that there are methods available concerning which a physician need not be consulted but they are cumbersome and make unreasonable demands on both husband and wife. I consider the following methods absolutely reliable and so simple that no medical instruction is needed, with the reservation that they are very distasteful and some are injurious to health:

1. Condom and antiseptic paste.
2. Coitus interruptus and antiseptic paste.
3. Coitus interruptus and immediate douching.

In all these methods the husband has to use the popular methods which really should be condemned: condoms as being highly disagreeable, and coitus interruptus as injurious to health. And the wife has to add her effort by applying the antiseptic paste or using the douche.

Physicians should advise such combinations for permanent use very reluctantly—only when patients cannot be instructed in the use of more agreeable and normal methods.

In backward farm districts pastes, suppositories, or tablets may be advised. Although there will be some failures, the general result will be more satisfactory than no prevention at all.

CHAPTER XV

Psychic Benefits from Birth Control

EVERY family doctor or gynecologist has met the patient who is continually worried about possible conception. This fear of conception becomes an actual mania in many women. Sex relations become distasteful and even cause aversion. These women submit to coitus as to a torture, continually warning their husbands of the possible consequences. They tearfully plead with their husbands to satisfy their "beastly" needs somewhere else. The general prejudices against sex which have been instilled in women by faulty education are further stressed and exaggerated by the fear of conception.

Many women are certain that response to sex passion assures conception. They do their best to control themselves. Many patients have told me that they are hungry for sex life but the fear of pregnancy makes each coitus agony.

The slightest symptom of supposed pregnancy calls forth a nervous upheaval. Many cases came to me as pregnancies on the basis of nausea and turned out to be astigmatism or gastro-intestinal disturbances. Women formerly thought that menstruation was a proof that they had not conceived. Now this safety signal is failing—women have heard that one can be pregnant and still menstruate. That is why every possible symptom (nausea, pain, milk in the breast, or tired feeling) is under suspicion and the

woman rushes in a panic to a physician to find out whether her fear is justified. This fear makes women "feel the child" without being pregnant, see changes in their breasts, etc. How such anxiety neurosis reacts upon the husband is self-evident. How many couples come to my office in a condition nearing nervous breakdown—the woman crying, the man despondent and sullen.

It is wonderful to meet these people after a normal Birth Control method has been used! My inquiry sent out once a year brings a number of unsolicited statements. "You have given us rest and happiness." "My husband is less irritable and I am putting on flesh." "Every month used to be a tragedy in my life—now I am at rest." I could quote many more statements showing how seriously this fear affects woman's life.

Although frigidity is often due to sex inhibitions, a good many cases can be ascribed to the fear of conception. Many patients have told me that they never enjoyed sex because of this worry. The average husband is naturally much affected by his wife's hysterical fears. He promises faithfully to control himself and the unhappiness of both when nature overcomes their decision is quite profound. One could write pages on this subject. The scenes made by the wife because she is a few days late—the tremendous joy when it proves only a delay. A man must have been married and have seen his wife in utter despair to realize the rôle this problem plays in married life with its constantly present anxiety.

Perhaps this is why the Catholic clergy can keep their unrelenting attitude towards this subject while their Protestant married brethren support the Birth Control movement because they have learned at first hand the fear and tension which women undergo.

CHAPTER XVI

Summary of All Birth Control Methods from the Viewpoint of Reliability, Normality, Convenience, and Healthfulness

Reliability

As to reliability, I shall repeat the sub-division given in a previous chapter, which I consider very important:

I. Reliable Methods

1. Intravaginal rubber pessaries used with paste and douching.
2. Intravaginal pessaries used with paste.
3. Intravaginal pessaries used with douching.
4. Condoms used with paste.
5. Coitus interruptus used with douching or paste.

II. Partially Reliable

1. Antiseptic pastes (jells).
2. Suppositories or tablets.
3. Condoms with douching.

III. Unreliable

1. Coitus interruptus.
2. Douching.
3. Condoms.

Normality and Convenience

As to normality and convenience of Birth Control methods and the joy of the sex act, we have to place them in the following order:

I. Intrauterine pessaries.
Intrauterine injections.
Biological methods.
II. Pessary in combination with paste.
III. Paste alone, suppositories, or tablets.
IV. Condoms.
Coitus interruptus.

The methods given under I. are undoubtedly the best so far as normality and joy of sex relations are concerned because they demand no preparation from husband or wife and are not noticed during coitus. However, their use cannot be advised yet on account of their possible harm to the health of the wife and because they are still in the experimental stage. The second best, as regards normality, pessary in combination with paste, does not require preparation immediately before or during coitus. The pessary with paste can be inserted several hours before coitus and the final douche can be taken many hours after. Relations can be repeated within several hours without any new preparations. True many women find even such slight preparations annoying. Some are too tired to attend to even such a small demand upon their time. One cannot blame the exhausted working woman for complaining, but we must stress the fact that the task imposed is really very insignificant. It is more the remembering which counts.

Women are subjected to many more exacting demands as workers and it is surprising that the great value of Birth Control should not overcome the objections to the slight extra effort involved.

The use of paste and other chemicals alone needs very little effort but interferes with the joy and normality of the sex act; nor can they as yet be considered as reliable as the combination of paste and pessary. Condoms and coitus interruptus place the whole responsibility upon the husband but certainly interfere tremendously with the normality, joy of coitus and health of both husband and wife.

From the viewpoint of normality of sex life, we once again select the pessary and paste. Quite often women have come to me for advice on Birth Control after using suppositories, condoms, or coitus interruptus for years with perfect success as far as results go. True in the majority of the cases they had some partial sterility in themselves which accounted for the 100% success of the less reliable methods. But they came to me either because they found the use of suppositories or paste disagreeable or because their husbands rebelled against the further use of condoms or coitus interruptus. They usually found relief from these objections in the use of pessary and paste.

Healthfulness

I have discussed the harmfulness of certain methods in the descriptions already given. A résumé of all the methods from this viewpoint may be helpful.

I. Absolutely Detrimental to Health

1. Gold stem and collar button pessaries.
   These may transmit infection from the

vagina to the uterus and also have the defect of the intrauterine pessary, namely: irritation of the uterine lining.

2. Iodine swabs and injections.
   These have a destructive and harmful effect upon the uterine mucosa.

II. Doubtful (Still under consideration)

1. The intrauterine pessaries which have little or no connection with the vagina, but which must be considered doubtful because of the possible damage to the uterine mucosa:
   Silver ring of Dr. Gräfenberg
   Silkworm gut star of Dr. Gräfenberg
   Pust silkworm gut pessary.
2. X-ray treatment.
   Still uncertain because of possible harm to future generations.

III. Harmful to Nervous System of Man and Woman

1. Coitus interruptus.

IV. Healthful

1. Intravaginal pessaries (diaphragmatic and vault) alone or in combination with douche or paste or both.
2. Mild chemicals introduced into the vagina before coitus.
3. Douches (never to be used alone).
4. Condoms (as to reliability, see Chapter VI on condoms).

The intravaginal pessaries cause irritation only if poorly fitted. Too large a pessary may produce pressure upon the bladder and give discomfort. Too small a pessary

gives interference and discomfort to the husband. A well-fitted pessary is felt by neither the husband nor wife. The husband occasionally feels the French pessary and complains about it, usually when the uterus is low and the pessary near the vaginal entrance. These irritations or interferences are easily remedied and therefore should not be considered serious obstacles.

Chemicals occasionally prove irritating to the husband and they should be discarded for different ones. Sometimes women have special idiosyncrasies for some of the following chemicals: oxyquinoline sulphate, quinine, lactic acid. This is shown by a white discharge, a burning sensation or pain. These symptoms usually disappear as soon as the chemical is given up. Sometimes a few soothing douches (sodium bicarbonate, 1 tablespoon to 1 quart of water) are helpful. Such irritations are disagreeable but of no serious consequence.

As a result of experience with several thousand patients in the last thirty years and from special investigations of

411 cases in 1929
200 cases in 1928
157 cases in 1927

I have reached the same conclusion as the physicians in charge of the various clinics who use pessaries and pastes; i. e., *the use of pessaries and paste is absolutely harmless.*

Conclusion

Considering our requirements (reliability, normality and convenience, and healthfulness) we find that the intravaginal pessary combined with paste or douching appears as first choice under reliability and healthfulness and as second choice under normality and convenience. However,

the first choices under the latter heading must be ruled out because of unreliability or harmfulness. We therefore conclude that the best method at the present time is the intravaginal pessary (diaphragmatic and vault) combined with paste, or paste and douching.

PART IV

STATISTICS

LIST OF TABLES

CHAPTER XVII

Introductory Discussion

IN this section we will study briefly two statistical series. One, a series of 943 cases seen by me between June, 1929, and June, 1930, which we will refer to as the "1930 Series," will be studied for various general data such as age, occupation, religion, years married, and number of children, as well as for certain specifically Birth Control data such as previous contraceptive, and the type of contraceptive prescribed by me. The other, a series of 415 cases derived from the answers to a questionnaire sent to my 1928 and to half my 1929 patients, which we will refer to as the "Questionnaire Series," will be studied primarily for the experience obtained with the pessary: whether or not it is used, whether it is convenient, and most important of all, whether it is successful. Various general data will also be studied with this second series for comparison with our first.

In Chapter XVIII we will consider the general characteristics of the patients for both series, noting whether there are any significant differences between them. We will then in Chapter XIX take up specific Birth Control and sex life data for the 1930 Series only, and then finally in Chapter XX we will study the experience obtained with the Questionnaire Series. A comparison of the two series in Chapter XVIII, the General Study, will show us whether the group of patients on which we are basing our experi-

ence study is a representative group or not, and for this reason it will be most important to note and evaluate any differences found between these two series.

In the tables there will usually be found two, and sometimes three, averages: the "arithmetic mean" or "mean," the "median," and sometimes, the "mode." The arithmetic mean is the figure commonly known as *the average,* obtained by adding the total of all the cases and dividing by the number of items. The median is obtained by arranging the cases in order from least to greatest, according to the characteristic being studied, and picking the middle case. The mode is, roughly, the type case occurring most frequently. No one of these three alone is *the average.* Sometimes one gives a truer representation, sometimes another. There are other averages used by statisticians but these three are the most commonly used and give a fairly good representation. Any fault in one of them would usually be shown or corrected by the others.

To further make the three averages clear, I will give an example. We have a group of say ten patients, one married twenty years, the other nine each married only one year. The arithmetic mean will be 29 divided by 10 or 2.9 years. No person has been married this length of time, and to give this figure alone as an average means nothing; but the median, the fifth case when they are arranged in order, is 1 year, and the mode is 1 year. With all three figures we see that one year is the most frequent length of marriage (the mode), and that it is the middle case when the ten are arranged in order (the median). The arithmetic mean, 2.9, shows us that there must be one or more cases at the upper limit which have increased this familiar "average."

It is apparent that the more compact a group, the nearer together will be these three figures, bearing in mind that a group dispersed evenly over a considerable range will show no mode at all, or a mode more accidental than representative. We must particularly watch any considerable difference between the mean and the median—the mode will often help us to interpret such a difference.

CHAPTER XVIII

General Study

As noted in Chapter XVII we are here studying two series of cases: the 1930 Series of 943 cases, and the Questionnaire Series of 415 cases. We must at this point note a certain complication in the composition of our 1930 Series. They are not all new patients. Some of them are patients originally fitted by me in 1929, 1928 or earlier, who have returned for a re-examination, a check-up, or for other reasons. In taking off the data we have tried, for uniformity, to consider these patients as of their original visit but there is no doubt that a certain number of them have inadvertently been recorded as of their present status.

It is most important to note whether or not there is any selection in this revisiting group and for this reason all statistics in this chapter have been compiled separately for the old and the new sub-series. The result was negative. In most cases no appreciable difference was found between the two sub-series. This is very important since it shows that all classes, occupational, religious, etc., revisit me in their proper proportions. It has not, however, been felt worth while to encumber these pages with a double set of tables for this series; and the two sub-series have, therefore, been combined in almost all the tables. It must be borne in mind, however, that every effort has

been made to find differences and that, when found, they have been noted herein.

With the Questionnaire Series, however, we have a different situation. The general data for this series have been recorded not as of the patients' original visits but as of the present time. This generally represents a period of six months to two years (sometimes more) after the original fitting. We may, therefore, expect to find a difference between the Questionnaire Series and the 1930 Series in certain general data, such as years married, representing the increase in this factor during the period of use. There is considerable overlapping between the Questionnaire Series and the "old patients" of the 1930 Series and for this reason, among others, the two series will not be combined.

Questionnaire Series		415 cases
1930 Series		
Old Cases	279	
New Cases	664	
		943 cases

Our cases will be considered in various ways. We will classify them by husband's occupation, by wife's occupation, by religion, by years married, by number of children, and by the wife's age. We will combine certain classifications, noting the average years married and number of children by occupational classes, etc. We should obtain interesting results showing the general types of patients who may be expected to come to a private physician for Birth Control advice. In general I will permit the tables to speak for themselves with a minimum of comment.

STUDY I

HUSBAND'S OCCUPATION

For the sake of uniformity it would, without doubt, be well for all investigators to use the same occupational groupings, and Mrs. Caroline H. Robinson in her recent book [1] gives a recommended classification to be used in future work. Unfortunately these studies were practically completed when Mrs. Robinson's book appeared and it has, therefore, been impossible to follow her suggestion. A further objection is offered by the difficulty of obtaining certain information in private practice. It is not feasible to ask the husband's income; and personal questions about living quarters are impossible. I am, therefore, unable to divide the workers into skilled, semi-skilled and unskilled.

I have five groupings: A, Professions; B, Workers; C, Clerks; D, Business Executives; and E, Small Business Men. Group A includes all the usual professions: professors, teachers, ministers, lawyers, physicians, engineers, scientists, and also students, social workers, artists, editors, authors, army and navy officers, etc. B includes the usual skilled trades, factory workers, and unskilled laborers, also policemen, servants, and farmers. C includes clerks, stenographers, and salesmen. D includes those active in a managerial capacity in business. E includes the small shopkeeping class. The cases in which no answer as to occupation was obtained (blanks) have not been considered in computing percentages.

[1] *Seventy Birth Control Clinics*, by Caroline Hadley Robinson. The Williams & Wilkins Company, Baltimore, Md., 1930.

TABLE 1

OCCUPATIONS

	Questionnaire Series	1930 Series Old	1930 Series New
	%	%	%
A Professions	42	39	38
B Workers	18	18	18
C Clerks and salesmen	15	15	21
D Business executives	14	19	14
E Small businessmen	11	9	9
Total reporting occupations	360 = 100%	211 = 100%	623 = 100%
Occupations blank	55	68	41

A detailed division of the various professions is given in Table 2 on the opposite page.

Tables 1 and 2 have been given in considerable detail to show the high degree of correspondence between the two series, and between the old and new group of the 1930 Series. The only noticeable exceptions are in the divisions within the professional class. The number of cases in each of the secondary professional groupings is so small that a considerable random difference is to be expected. It is interesting to note that the percentage of students is lower among the old patients and in the Questionnaire Series than in the new patients of the 1930 Series, but this is readily accounted for by the greater percentage of teachers, ministers and physicians. These are patients who first visited me as graduate students and when they were heard from later it was natural that a considerable number of them appeared among the professions for which they had been studying.

TABLE 2

PROFESSIONAL GROUP

	Per cent of Professional Group			Per cent of All Occupations		
	Questionnaire Series	1930 Series Old	1930 Series New	Questionnaire Series	1930 Series Old	1930 Series New
	%	%	%	%	%	%
1. Teachers	27	27	23	12	11	9
2. Ministers	20	17	14	9	7	5
3. Engineers, scientists	15	11	17	6	4	7
4. Lawyers	10	8	11	4	3	4
5. Students	8	10	18	3	4	7
6. Physicians	5	6	2	2	2	1
7. Other Professions	15	21	15	6	8	5
Total Professions	152 = 100%	82 = 100%	235 = 100%	152 = 42%	82 = 39%	235 = 38%
Total answers (all occupations)				360 = 100%	211 = 100%	623 = 100%

1. Includes college professors, instructors, tutors, and high and grade school teachers.
2. Includes ministers and directors of religious education.
3. Includes engineers, research scientists, psychologists, etc.
7. Includes social workers, artists, editors, authors, army and navy officers, etc.

STUDY II

WIFE'S OCCUPATION

TABLE 3

WOMEN'S OCCUPATIONS

	Questionnaire Series	1930 Series Old	1930 Series New
	%	%	%
1. Housewives only	68	67	63
2. Gainfully occupied	32	33	37
Total answering	345 = 100%	217 = 100%	635 = 100%
Blank	70	62	29

The difference between the group of new patients and the old group and Questionnaire Series is not large. It would not be unexpected for a certain number of women, originally with various occupations, to devote themselves to housewifery in the course of one or two years.

In classifying the gainfully occupied women we find very few business executives or owners of small businesses. These few are grouped with clerks and stenographers in one heading "Business."

TABLE 4

WOMEN GAINFULLY OCCUPIED

	Per cent of Gainfully Occupied: Questionnaire Series	1930 Series Old	1930 Series New
	%	%	%
A Professions	58	55	55
B Workers	12	6	9
C Business	30	39	36
Total	109 = 100%	71 = 100%	236 = 100%

The professions are teachers, students, social workers, artists and a very few of each of the other recognized professions (ministers, physicians, etc.).

Study III

RELIGION

My results here are strongly at variance with those shown by clinics. In the latter the percentage of the various religions has roughly corresponded to their percentage of the total population. I find a disproportionately small percentage of Catholics.

Table 5

RELIGION

	Questionnaire Series	1930 Series Old	1930 Series New
	%	%	%
A Protestant	69	63	63
B Jewish	15	16	18
C Catholic	7	9	10
D None	8	11	8
E Others	1	1	1
Total answering	345 = 100%	203 = 100%	581 = 100%
Blank	70	76	83

E includes Christian Scientists, Greek Orthodox, and Mohamedans.

Study IV

AGE OF WIFE

We have no data on this for the Questionnaire Series, the 1930 group will be considered as a single series.

TABLE 6

AGE OF WIFE

Age	Cases	Age	Cases
17	1	34	16
18	5	35	12
19	4	36	10
20	15	37	11
21	22	38	11
22	33	39	11
23	49	40	9
24	46	41	4
25	46	42	4
26	49	43	3
27	47	44	1
28	26	45	2
29	34	46	4
30	47	47	0
31	20	48	1
32	19	49	1
33	14	50	1

Total cases 578
Blank 365

Our series shows no mode at any one age. Taking successive overlapping five year groups, however, we find a definite mode in the group from age 23 through age 27, which can be seen from even a casual inspection of the above table. We will consider the central point of this group, age 25, as the mode. A similar procedure will be followed whenever ages are considered.

TABLE 7

AVERAGE AGE OF WIFE

Mean	28.2
Median	27
Mode (5 year period)	25

The five year group from age 23 through 27 contains 41% of the cases. The largest ten year group, obtained in the same manner, is from 21 to 30 and contains 69% of the cases.

Although we have not chosen to use an arbitrary five year grouping for our basic table on averages, it is nevertheless interesting to arrange our cases in this manner.

TABLE 8

AGE OF WIFE

By Arbitrary Five Year Periods

Age	Cases	%
17 to 20	25	4
21 to 25	196	34
26 to 30	203	35
31 to 35	81	14
36 to 40	52	9
41 to 45	14	3
46 to 50	7	1
	578	100%

Study V

YEARS MARRIED

There is no point in continuing to split the 1930 Series into two sub-series, since we have found them to be similar. We will, therefore, from this point on treat the 1930 patients as one series, bearing in mind that the primary statistical tables have been prepared separately for the old and new patients as well as for the combined series, and the decision to use the combined tables has been made only because the two sub-series are so nearly alike.

TABLE 9

YEARS MARRIED

Years Married	Questionnaire Series	1930 Series
	%	%
Less than 1	0	30
1	17	11
2	10	8
3	9	8
4	12	7
5	10	4
6	5	4
7	6	4
8	5	3
9	5	4
10	5	3
11 to 30	16	14
Total answering	370 = 100%	813 = 100%
Blank	45	130

TABLE 10

YEARS MARRIED

By Arbitrary Five Year Periods

Years Married	Questionnaire Series	1930 Series
	%	%
Less than 5	48	64
5 to 9	31	19
10 to 14	12	11
15 to 19	7	4
20 to 24	2	2
25 to 30	—(0.2)	—(0.3)
Total	370 = 100%	813 = 100%

We will rearrange the first table to show at a glance how many cases are married more than any given length of time.

TABLE 11

YEARS MARRIED

Cumulative Table

Years Married	Questionnaire Series	1930 Series
	%	%
1 or more	100	70
2 or more	83	60
3 or more	73	51
4 or more	64	43
5 or more	52	36
10 or more	21	17
15 or more	9	6

The reader, perhaps, will not require the average for years married in view of the detailed tables given above. However, such averages always have an interest for ready reference and we, therefore, give a table.

TABLE 12

AVERAGE YEARS MARRIED

	Questionnaire Series	1930 Series
Mean	6.2	4.5
Median	5	3
Mode	1	0

Because of the large proportion of patients married less than one year in our 1930 Series we will give the average for this series only, omitting all cases married less than one year.

TABLE 13

AVERAGE YEARS MARRIED

Omitting Cases Married Less Than One Year

1930 Series Only

Mean	6.3
Median	5
Mode	1

In the above tables we find a considerable difference between the figures in our Questionnaire Series and our 1930 Series. It is just the difference, however, which we

would expect considering that our Questionnaire Series shows the years married as of the present time, which for this series is six months to two years or more after the original visit of the patient. The 1930 Series gives the data as of the original visit.

Study VI

NUMBER OF CHILDREN

Throughout this work a blank answer to the question regarding children has been tabulated as "childless" unless a number of other questions were also unanswered. The years married should be considered in evaluating the data in this study. (See Study VII.)

Table 14

WITH AND WITHOUT CHILDREN

	Questionnaire Series	1930 Series
	%	%
With children	69	62
Without children	31	38
	396 = 100%	910 = 100%
Blank	19	33

We would expect the Questionnaire Series to show fewer childless couples because of the interval which has elapsed with this series. Certainly we do not expect a

Birth Control method to prevent people having children as soon as circumstances warrant.

TABLE 15

NUMBER OF CHILDREN

Children	Per cent of Those with Children: Questionnaire Series	Per cent of Those with Children: 1930 Series	Per cent of Total Cases: Questionnaire Series	Per cent of Total Cases: 1930 Series
	%	%	%	%
None	..	..	31	38
1	36	34	25	21
2	31	33	21	21
3	18	19	13	12
4	11	8	8	5
5	3	2	2	1
6	½	2	—(0.2)	1
7	½	1	—(0.2)	1
8	..	½	..	—(0.2)
11	..	¼	..	—(0.1)
13	..	¼	..	—(0.1)
	272 = 100%	567 = 100%	272 = 69% 396 = 100%	567 = 62% 910 = 100%

We will rearrange the data so as to show at a glance how many cases have more than any definite number of children. This cumulative table may be used in conjunction with the similar table under *years married.*

TABLE 16

NUMBER OF CHILDREN

Cumulative Table

Children	Per cent of Those with Children: Questionnaire Series	Per cent of Those with Children: 1930 Series	Per cent of total cases: Questionnaire Series	Per cent of total cases: 1930 Series
	%	%	%	%
None	...	...	31	38
At least 1	100	100	69	62
" " 2	64	66	44	41
" " 3	33	33	22	20
" " 4	15	14	10	9
" " 5	4	6	3	4

TABLE 17

AVERAGE NUMBER OF CHILDREN

Including Childless Cases

	Questionnaire Series	1930 Series
Mean	1.5	1.4
Median	1	1
Mode	0	0

Omitting in the computation the cases married less than one year, we obtain the following averages for the 1930 Series.

TABLE 18

AVERAGE NUMBER OF CHILDREN

Omitting Cases Married Less Than One Year

1930 Series Only

Mean	2.3
Median	2
Mode	2

STUDY VII

NUMBER OF CHILDREN FOR VARIOUS YEARS MARRIED

Our Years Married Study and our *Number of Children* Study gave us interesting data about our cases but the latter figure has added importance when related to the former. We will, therefore, show the average number of children for each year of marriage, giving at the same time the maximum number of children and the percentage of childless couples reported for each year. (See Table 19 on opposite page.)

In tabulating the number of children in Study VI we temporarily ignored an interesting correspondence between our two series. We found a considerable, although readily explained, difference between the two series under *years married,* and we would expect to find a related difference in the *number of children.* The two series taken without reference to length of marriage are startlingly alike in this respect, however, and our present study, showing a definite difference between the two series in the relationship of number of children to years married, gives the explanation. (See Study IX for a table showing this.)

Note in both series the rapid diminution in per cent childless with an increase in years married. The 1930

TABLE 19

NUMBER OF CHILDREN FOR VARIOUS YEARS MARRIED

Years Married	Questionnaire Series: Average number of children			Questionnaire Series: Maximum number of children	Questionnaire Series: Childless %	1930 Series: Average number of children			1930 Series: Maximum number of children	1930 Series: Childless %
	Mean	Median	Mode			Mean	Median	Mode		
Less than 1	..	..	..	..	..	0	0	0	0	100
1	0.02	0	0	1	98	0.5	0	0	2	51
2	0.4	0	0	1	56	0.8	1	1	2	28
3	0.7	1	1	2	38	1.2	1	1	2	16
4	1.0	1	1	3	28	1.6	2	2	4	15
5	1.3	1	1	4	19	1.9	2	2	3	7
6	1.6	2	2	3	11	2.2	2	2	4	3
7	1.9	2	2	4	4	2.2	2	2	6	0
8	2.4	2	2	4	0	2.5	2	2	7	9
9	2.9	3	3	5	6	2.8	3	2	7	9
10	3.3	3	3	4	0	2.5	2	2	6	0
11	3.0	3	3	4	0	3.0	3	3	6	0
12	3.0	3	3	4	0	2.5	2	2	5	7
13	2.4	2	2	4	0	3.1	3	3	7	5
14	3.5	4	4	5	0	2.9	3	3	7	0
15 to 19	2.7	2	2	7	4	3.6	3	3	8	0
20 to 30	3.1	3	..	5	0	3.7	3	2	13	7
Total Series	1.5	1	0	5	31	1.4	1	0	13	38
Total Series omitting less than 1 year married						2.3	2	2	13	15

Series shows 38% childless, but if we omit the cases married less than one year, only 15% of the remainder are childless. We will show the decrease in childless couples with increased length of marriage in a different way by means of another table in which we will take all the childless couples of each series and arrange them by years married.

TABLE 20

CHILDLESS COUPLES BY YEARS MARRIED

Years Married	Questionnaire Series	1930 Series
	%	%
Less than 1	0	72
1	53	13
2	16	6
3	11	3
4	10	3
5	5	0.6
6	2	0.3
7	1	0
8	0	0.6
9	1	0.9
10 or over	1	0.9
	121 = 100%	335 = 100%
Blank	3	8

A cumulative arrangement of the above table may give the data in a more interesting manner.

TABLE 21

CHILDLESS COUPLES BY YEARS MARRIED

Cumulative Table

Years Married	Questionnaire Series	1930 Series
	%	%
Less than 1	0	72
" " 2	53	85
" " 3	69	91
" " 4	80	94
" " 5	90	97
" " 10	99	99

We note that in our Questionnaire Series 90% of the childless couples were married less than five years; and in our 1930 Series 72% of the childless couples were married less than one year and 97% less than five years.

STUDY VIII

YEARS MARRIED BY NUMBER OF CHILDREN

In the preceding study we showed the average number of children for each year of marriage. The converse table showing the average years married for each size family may be interesting. The first figures for childless couples are averages obtained from Table 20. The other figures are averages obtained from similar tables.

TABLE 22

YEARS MARRIED BY NUMBER OF CHILDREN

Children	Questionnaire Series				1930 Series			
	Mean	Median	Mode	Minimum Years	Mean	Median	Mode	Minimum Years
0	2.2	1	1	1	0.8	0	0	0
1	4.8	4	4	1	3.7	2	2	1
2	8.8	7	7	3	7.2	6	4	1
3	10.2	10	10	4	10.2	10	..	4
4	11.7	10	10	5	11.2	10	..	4
5	13.9	9	9	9	14.0	12	15	7
6	1 case only, 18 years				11.4	10	..	7
7	1 case only, 16 years				12.5	13	..	8
8	...	..	..	..	1 case only, 16 years			
11	...	..	..	..	1 case only, 20 years			
13	...	..	..	..	1 case only, 23 years			

For ready comparison we will give the above averages separately for childless couples, and those having children.

TABLE 23

AVERAGE YEARS MARRIED

With and Without Children

	Questionnaire Series			1930 Series		
	Mean	Median	Mode	Mean	Median	Mode
Childless	2.2	1	1	0.8	0	0
With children	8.1	7	7	7.2	6	3
Total series	6.2	5	1	4.5	3	0

STUDY IX

OCCUPATION: YEARS MARRIED: NUMBER OF CHILDREN

It will be interesting to note in what respects our various occupational groups differ in length of marriage and number of children. We will, as previously, keep separate the Questionnaire Series and the 1930 Series.

TABLE 24

YEARS MARRIED BY OCCUPATIONS

	Questionnaire Series			1930 Series			
	Mean	Median	Mode	Mean	Median	Mode	Less than 1 Year %
E Small businessmen	8.7	7	..	7.1	6	0	22
D Business executives	8.1	7	..	6.1	5	0	23
B Workers	7.4	7	..	6.0	5	0	13
C Clerks and salesmen	5.4	5	1	3.5	2	0	37
A Professions	4.7	3	1	2.9	1	0	40
Occupation blank	6.4	6	..	5.5	4	1	15
Total all cases	6.2	5	1	4.5	3	0	30

TABLE 25

NUMBER OF CHILDREN BY OCCUPATIONS

	Questionnaire Series				1930 Series			
	Mean	Median	Mode	Childless %	Mean	Median	Mode	Childless %
E Small businessmen	1.8	2	2	16	1.8	2	2	24
D Business executives	1.8	2	2	25	1.6	2	2	28
B Workers	2.1	2	1	17	2.3	2	..	21
C Clerks and salesmen	1.2	1	0	40	1.0	1	0	47
A Professions	1.0	1	0	45	0.9	0	0	54
Occupation blank	1.9	2	1	16	1.9	2	1	18
Total	1.5	1	0	31%	1.4	1	0	38%

The small businessmen, business executives, and workers show almost twice the length of marriage when compared with the professions and clerks and *for this factor* we seem to have two general groups.

TABLE 26

YEARS MARRIED

By Grouped Occupations

	Questionnaire Series			1930 Series			
	Mean	Median	Mode	Mean	Median	Mode	Less than 1 Year %
Group I (Business owners, executives and workers)	8.0	7	..	6.3	5	0	19
Group II (Professions and Clerks)	4.9	4	1	3.1	1	0	39
Total	6.2	5	1	4.5	3	0	30%

While the various occupational groups show a considerable difference in years married and in number of children, inspection of the above tables seems to show a certain relationship between these two factors. We will, therefore, prepare a table showing this relationship.

TABLE 27

Ratio

NUMBER OF YEARS MARRIED PER CHILD

	Questionnaire Series	1930 Series
E Small businessmen	4.9	4.0
D Business executives	4.7	3.9
B Workers	3.4	2.8
C Clerks and salesmen	4.6	3.8
A Professions	4.6	3.8
Occupation blank	3.6	3.0
Total Series	4.3	3.5

The ratios of years married to number of children in this and other studies were not obtained directly from the average years married or average number of children, because those averages included cases in which we knew one factor and not the other. To obtain these ratios we first discarded all cases in which either *years married* or *number of children* was blank.

Within each series the average years married per child is fairly constant except for the workers, who show a definitely lower figure than any of the other occupations.

It will be noted that the two series differ throughout in this factor. The 1930 Series shows a lesser number of

years married per child than the Questionnaire Series—the latter having used an approved Birth Control method for an average of a little over a year.

We will now note to what extent, if any, the gainfully occupied women differ from the housewives in years married and number of children.

TABLE 28

YEARS MARRIED BY WOMEN'S OCCUPATIONS

	Questionnaire Series			1930 Series			
	Mean	Median	Mode	Mean	Median	Mode	Less than 1 Year %
Gainfully occupied	4.0	3	1	1.9	0	0	59
Housewives	7.1	6	5	6.0	5	0	12
Blank	6.7	6	..	5.0	4	0	23
Total Series	6.2	5	1	4.5	3	0	30%

TABLE 29

NUMBER OF CHILDREN BY WOMEN'S OCCUPATIONS

	Questionnaire Series				1930 Series			
	Mean	Median	Mode	Childless %	Mean	Median	Mode	Childless %
Gainfully occupied	0.6	0	0	62	0.4	0	0	76
Housewives	1.8	2	2	20	1.9	2	2	19
Blank	1.8	2	..	22	2.1	2	..	18
Total Series	1.5	1	0	31	1.4	1	0	38

The gainfully occupied women show fewer years of marriage and fewer children than the housewives. Over half of these gainfully occupied women in the 1930 Series are married less than one year and over three-quarters are childless.

It will be particularly interesting here to note whether among our gainfully occupied women we merely have fewer years of marriage and fewer children, or whether the years married per child is different with them than with our housewives and our Series in general.

TABLE 30

Ratio

NUMBER YEARS MARRIED PER CHILD

	Questionnaire Series	1930 Series
Gainfully occupied	6.4	5.0
Housewives	4.0	3.3
Blank	4.1	3.0
Total	4.3	3.5

We find, as we would expect that the gainfully occupied women show a higher ratio of years married per child.

STUDY X

RELIGION: YEARS MARRIED: NUMBER OF CHILDREN

In this study we will determine whether there is any difference with respect to religion in the years married and number of children. We will also see whether the ratio of years married to number of children varies with the different religious groups. This study will be made for the 1930 Series only.

TABLE 31

RELIGION: YEARS MARRIED

1930 Series Only

	Mean	Median	Mode	Less than 1 Year
				%
Protestant	4.3	2	0	31
Jewish	5.6	4	0	22
Catholic	7.1	7	0	11
None	2.9	1	0	44
Blank	3.7	2	0	36
Total Series	4.5	3	0	29

TABLE 32

RELIGION: NUMBER OF CHILDREN

1930 Series Only

	Mean	Median	Mode	Childless
				%
Protestant	1.3	1	0	40
Jewish	1.5	1	2	25
Catholic	2.7	3	3	19
None	0.6	0	0	69
Blank	1.5	1	0	35
Total Series	1.4	1	0	38

We note that the Catholics show a considerably greater length of marriage and number of children than the Protestants, our largest group. The Jews come in between and those with no religion come lowest of all.

We will complete this study with a table showing how the various religious groups differ in the length of marriage per child.

TABLE 33

Ratio

YEARS MARRIED PER CHILD

1930 Series Only

Protestant	3.5
Jewish	3.9
Catholic	2.6
None	4.8
Blank	3.3
Total Series	3.5

The ratio of years married to number of children runs about the same as the number of children. The Catholics show the fewest years of marriage per child, those with no religion the most years.

STUDY XI

AGE: YEARS MARRIED: NUMBER OF CHILDREN

We have shown how the years married and number of children vary by occupations and by religions.

We will complete our study of general statistics by considering the relationship between the woman's age and years married, and the age and number of children. We have the age data for our 1930 Series only.

TABLE 34

AGE: AVERAGE YEARS MARRIED

1930 Series Only

Age	Mean	Median	Mode	Maximum	Less than 1 Year %
17 to 20	0.4	0	0	3	12
21 to 25	1.3	0	0	8	53
26 to 30	3.5	3	0	15	28
31 to 35	7.5	9	0	16	14
36 to 40	12.6	13	15	21	2
41 to 45	15.4	13	..	30	0
46 to 50	21.7	22	22	28	0

We will consider this same data (except the maximum and per cent less than 1 year) for our series when the cases less than one year married are omitted from consideration.

TABLE 35

AGE: AVERAGE YEARS MARRIED

Omitting Cases Married Less Than One Year

1930 Series Only

Age	Mean	Median	Mode
17 to 20	1.3	1	1
21 to 25	2.8	3	1
26 to 30	4.9	4	2
31 to 35	8.8	9	10
36 to 40	12.9	13	15
41 to 45	15.4	13	..
46 to 50	21.7	22	22

The converse of these tables is in some ways more fruitful. It was necessary in the above tables to use an arbitrary five year grouping because of the inevitable variation from one age to the next in a series of this size. The following table giving the average age per year of marriage uses the absolute ages except on the mode where it is obtained, as noted in Study IV by taking the central points of successive overlapping five year groups.

TABLE 36

YEARS MARRIED: AVERAGE AGE

By Arbitrary Five Year Periods

1930 Series Only

Years Married	Mean	Median	Mode
Less than 5	25.3	25	25
5 to 9	29.5	29	28
10 to 14	34.7	34	32
15 to 19	37.3	38	38
20 to 30	43.7	45	..

From the age of the patient at her first visit to me, and the number of years married, we can readily calculate the age at marriage. We have this data directly for those married less than one year, and a simple subtraction gives it for the other cases.

We will give the usual three averages and also the minimum age and the maximum. The mode will be computed as explained in Study IV.

TABLE 37

AGE AT MARRIAGE

1930 Series Only

Mean	23.6
Median	23
Mode (5 year period)	23
Minimum	15
Maximum	39

The five year period from age 21 to 25 contains 52% of the cases.

We will now tabulate the average number of children by ages, using the same five year grouping as above.

TABLE 38

AGE: NUMBER OF CHILDREN

1930 Series Only

Age	Mean	Median	Mode	Maximum Number	Child-less
					%
17 to 20	0.2	0	0	2	88
21 to 25	0.5	0	0	6	66
26 to 30	1.2	1	0	7	42
31 to 35	1.9	2	0	7	28
36 to 40	3.0	2	2	8	6
41 to 45	3.6	3	..	13	0
46 to 50	2.5	3	..	6	17

As with the years married, we retabulate the ages giving the average number of children for each five year group when all cases are omitted which are married less than one year.

TABLE 39

AGE: NUMBER OF CHILDREN

Omitting Cases Married Less Than One Year

1930 Series Only

Age	Mean	Median	Mode
17 to 20	0.7	1	1
21 to 25	1.1	1	1
26 to 30	1.7	2	2
31 to 35	2.2	2	3
36 to 40	3.0	3	2
41 to 45	3.6	3	2
46 to 50	2.5	3	..

We will also give the converse table showing the average age of the wife for each size family. The mode is again the central age of a five year group.

TABLE 40

NUMBER OF CHILDREN: AGE

1930 Series Only

Children	Mean	Median	Mode (5 Yr.)	Minimum	Per cent of Cases in 5 Yr. Group (Mode)
0	25.4	25	24	17	54
1	27.3	26	25	18	50
2	30.2	30	29	20	51
3	33.7	33	31	25	49
4	34.3	35	39	23	44
5	35.0	34	*5 cases scattered from 25 to 43*		
6	32.2	30	*6 cases scattered from 25 to 46*		
7	32.2	33	*5 cases scattered from 28 to 37*		
11	*1 case age 36*		..	..	..
13	*1 case age 43*		..	..	..
Total	28.2	27	25	17	41

CHAPTER XIX

Contraceptive Used and Attitude Towards Sex

Previous Contraceptive, Contraceptive Prescribed, Attitude Towards Sex

OUR 1930 Series offers information regarding the contraceptive used by the patient before visiting me and the type of contraceptive which I prescribed. It also gives data regarding the general attitude of the woman towards sex.

Study XII

PREVIOUS CONTRACEPTIVE

Our records give data regarding the previous contraceptive method employed by the patient in 487 cases. Some of the remainder are newlyweds to whom the question does not apply. The others are merely due to my failure, under the press of a busy practice, to put this question. I can remember no case in which the question was asked where I was informed that no previous contraceptive had been employed. In other words the patients did not come to me for a contraceptive method but for a *better* contraceptive method.

It will be noted that because of the number who vary between coitus interruptus and condom, this has been

given a separate listing under C. A 6 and C 6 must be combined to determine the total who use coitus interruptus at all, and B 6 and C 6 those who use a condom at all. D 6 and K 4 show the total who employ the douche for any contraceptive purpose and F 6 and K 5 show the total who employ paste for any contraceptive purpose.

TABLE 41

CONTRACEPTIVE PREVIOUSLY USED — NUMBER OF CASES

	1 Used Alone	2 Two Methods Varying	3 Three Methods Varying	4 With Supplementary Douche	5 With Supplementary Paste	6 Total
A Coitus interruptus	107	6	2	18	5	138
B Condom	143[1]	7	2	11	10	174[2]
C Condom or coitus interruptus	...	63	3	6	1	73
D Douche	31	2	0	..	..	33
E Suppository	14	11	1	6	..	32[3]
F Paste	3	0	0	0	..	3
G Sponge	2	0	0	1	0	3
H Pessary	0	1	0	25	2	28
I Gold button	1	0	0	1	0	2
J Continence	1	0	0	..	..	1
K Total	302	90	8	68	18	487

[1] Two of these use two condoms, one uses three condoms.

[2] One of these uses suppository as a supplement.

[3] Note also one case which uses suppositories as a supplement to condom (B 6).

TABLE 42

CONTRACEPTIVE PREVIOUSLY USED—PER CENT OF TOTALS

	1 Used Alone	2 Two Methods Varying	3 Three Methods Varying	4 With Supplementary Douche	5 With Supplementary Paste	6 Total
	%	%	%	%	%	%
A Coitus interruptus	22.0	1.2	0.4	3.7	1.0	28.3
B Condom	29.4[1]	1.4	0.4	2.3	2.1	35.9[2]
C Condom or coitus interruptus	...	12.9	0.6	1.2	0.2	14.9
D Douche	6.4	0.4	0	...	...	6.8
E Suppository	2.9	2.3	0.2	1.2	...	6.6[3]
F Paste	0.6	0	0	0	...	0.6
G Sponge	0.4	0	0	0.2	0	0.6
H Pessary	0	0.2	0	5.1	0.4	5.7
I Gold button	0.2	0	0	0.2	0	0.4
J Continence	0.2	0	0	...	...	0.2
K Total	62.1	18.4	1.6	13.9	3.7	100%

[1] Two of these use two condoms, one uses three condoms.
[2] One of these uses suppository as a supplement.
[3] Note also one case which uses suppositories as a supplement to condom (B 6).

The above tables speak for themselves and need little comment. Two short supplementary tables may help for ready reference.

TABLE 43

TOTAL USING VARIOUS METHODS

(This table includes many cases twice or more)

	Number of Cases	Per cent of Cases	
Coitus interruptus	211	43	
Condom	247	51	
Douche	101	21	
Suppository	33	7	
Paste	21	4	
Sponge	3	0.6	
Pessary	28	6	
Gold button	2	0.4	
Continence	1	0.2	
Total	647		487 = 100%

TABLE 44

THOSE USING ONLY ONE METHOD

	Number of Cases	Per cent of Those Using Only One Method
Coitus interruptus	107	35
Condom	143	47
Douche	31	10
Suppository	14	5
Paste	3	1
Sponge	2	0.66
Pessary	0	0
Gold button	1	0.33
Continence	1	0.33
Total using only one method	302	100%

STUDY XIII

CONTRACEPTIVE PRESCRIBED BY ME

In this study we will list the various methods prescribed by me during the year from June 1, 1929 to June 1, 1930 giving the types and sizes of appliances. The material will be tabulated separately for newlyweds, cases following childbirth, and regular cases.

TABLE 45

GENERAL TYPE OF CONTRACEPTIVE

Newlyweds

(Within Three Months After Marriage)

	Number of Cases	Per cent of All Cases	Per cent (discarding "Paste only")
Vault pessary	24	13	15
Diaphragmatic pessary	138	76	85
Total given pessary	162	89	100%
Paste only	19	11	
Total	181	100%	

Recent Mothers

(Within Six Months Following Childbirth)

	Number of Cases	Per cent of All Cases
Vault pessary	55	34
Diaphragmatic pessary	106	65
Flat pessary	1	0.6
Total given pessary	162	99+
Paste only	1	0.6
Total	163	100%

Regular Cases

(*Last Method Given, Excluding Newlyweds and Recent Mothers*)

	Number of Cases	Per cent of All Cases
Vault pessary	132	20
Diaphragmatic pessary	510	79
Total given pessary	642	99+
Paste only	5	0.8
Total	647	100%

It will be noted that the totals of these three tables exceed the number of cases in our series. This is because a few cases appearing early in the year as either newlyweds or recent mothers returned later as regular cases. It was felt worth while to consider these cases twice since they represented two different physiological conditions.

The tables need little comment. As was to be expected, the Newlyweds show a larger percentage of "paste only" than the Regular cases or Recent Mothers. These Newlyweds may be expected to return shortly for the fitting of a pessary.

TABLE 46

TOTAL PESSARIES PRESCRIBED

Including Separately Every Size and Type Even When Given to the Same Person.

	Cases	Per cent of Total Pessaries
Vault	222	22
Diaphragmatic	790	78
Flat	2	0.2
Total Pessaries	1014	100%

TABLE 47

SPECIFIC TYPES AND SIZES OF PESSARIES

Newlyweds

Type or size Pessary	Cases	Per cent of Type	Per cent of Total Pessaries
		Vault	
Number 38	16	67	10
Number 240	2	8	1
Stopes	3	13	2
Mizpah	2	8	1
Crown "A"	1	4	0.6
Total Vault Pessaries	24	100%	15–%
		Diaphragmatic	
50 mm. diaphragmatic	1	1	0.6
55 mm. "	14	10	9
60 mm. "	43	31	27
65 mm. "	43	31	27
70 mm. "	30	21	18
75 mm. "	5	4	3
62½ mm. "	1	1	0.6
67½ mm. "	1	1	0.6
Total Diaphragmatic	138	100%	85+%
Total All Pessaries	162		100%

Recent Mothers

Type or size Pessary	Cases	Per cent of Type	Per cent of Total Pessaries
		Vault	
Number 38	1	2	0.6
Number 240	27	49	17
Jumbo	13	23	8
Stopes	10	18	6
Mizpah	2	4	1
Crown "A"	2	4	1
Total Vault Pessaries	55	100%	34–%
		Diaphragmatic	
65 mm. diaphragmatic	14	13	9
70 mm. "	39	37	24
75 mm. "	32	30	20
80 mm. "	16	15	10
67½ mm. "	2	2	1
72½ mm. "	3	3	2
Total Diaphragmatic	106	100%	66%
Flat Pessary	1		0.6
Total All Pessaries	162		100%

Regular Cases
(*Last Pessary Given*)

Type or size Pessary	Cases	Per cent of Type	Per cent of Total Pessaries
		Vault	
Number 38	32	24	5
Number 240	65	49	10
Jumbo	13	9	2
Stopes	9	7	1.4
Mizpah	2	2	0.3
Crown "A"	5	4	0.8
120	1	1	0.2
100	1	1	0.2
Vault, type unknown	4	3	0.6
Total Vault Pessaries	132	100%	20+%
		Diaphragmatic	
50 mm. diaphragmatic	1	0.2	0.2
55 mm. "	5	1	0.8
60 mm. "	36	7	6
65 mm. "	122	24	19
70 mm. "	212	42	33
75 mm. "	94	19	15
80 mm. "	21	4	3
62½ mm. "	3	0.5	0.5
67½ mm. "	7	1	1
72½ mm. "	7	1	1
Dia., size unknown	2	0.3	0.3
Total Diaphragmatic	510	100%	79+%
Total All Pessaries	642		100%

Study XIV

ATTITUDE OF PATIENT TOWARDS SEX

Only lately have I to any great extent been asking for information on the patient's attitude towards sex. I have 411 cases showing this. The 532 blanks are either older cases, or newlyweds to whom the question did not apply. I have never felt any constraint about asking the question and have been surprised at the ready response by all patients regardless of their attitudes towards sex.

Table 48

ATTITUDE TOWARDS SEX

	Cases		Per cent of Total	
Usually has orgasm	259		63	
Sometimes has orgasm	65		16	
Never has orgasm	87		21	
(a) no enjoyment whatsoever		55		13%
(b) some enjoyment		32		8%
	411		100%	

There is no doubt, of course, that certain patients with a normal attitude towards sex have mistaken a pleasurable response for a true orgasm.

The following tables give this information in greater detail. They are similar to tables 41 and 42 for previous contraceptive, but less complicated. The table will be given twice, once with absolute numbers and once with percentages.

TABLE 49

ATTITUDE TOWARDS SEX

Detailed Table—Number of Cases

	Always Orgasm	Sometimes Orgasm	Never Orgasm	Total
Normal attitude, enjoys sex	259	36	32	327
Afraid of pregnancy	...	12	23	35
Sometimes too tired	...	10	0	10
Not interested in sex	...	7	19	26
Husband unsatisfactory	...	0	8	8
No explanation	...	0	5	5
Total	259	65	87	411

TABLE 50

ATTITUDE TOWARDS SEX

Detailed Table—Percentage of Cases

	Always Orgasm	Sometimes Orgasm	Never Orgasm	Total
	%	%	%	%
Normal attitude, enjoys sex	63	9	8	80
Afraid of pregnancy	..	3	5	8
Sometimes too tired	..	2	0	2
Not interested in sex	..	2	5	7
Husband unsatisfactory	..	0	2	2
No explanation	..	0	1	1
Total	63	16	21	100%

CHAPTER XX

Use, Convenience and Success of Pessary

FOR my 1930 investigation of the results obtained with a pessary, I decided to use the group of patients seen by me between January 1, 1928 and July 1, 1929. The latter limit was chosen in order that at least six months use might be shown, the earlier date was a purely arbitrary one to keep the number of cases from going beyond my means of handling them. I was dependent upon my own finances for postage and other necessary expenses, and upon the kindness of friends for the necessary work in compiling the data. It might have seemed advisable to go further back, taking every second or third case over a longer period. This plan was abandoned in order to avoid complications in handling the data, and to have gone back more than two years would have increased the percentage of envelopes returned because of incorrect addresses. With the limited means at my disposal it was important to make every bit of work count.

I had already made out report cards for a few cases recently seen by me. To the remainder the following card with the case number written on it, was sent with a return stamped envelope.

CARD

Please fill out this card. It will be of greatest help to me in collecting scientific information. You need not sign your name. Return in enclosed envelope.

Have you used the rubber appliance continually: Yes?..... No?.....
If not, why not? .....
If yes, how long have
you used it with success?..... Has it proved convenient?.....
Have you used an antiseptic paste with it?..... How long married?.....
Husband's Occupation?..... Religion?.....
Wife's Occupation?..... Age of Children?.....
Remarks or suggestions:.....
.....

Kindly oblige, Sincerely yours
DR. ANTOINETTE F. KONIKOW

The card was not as well worded as it might have been but its defects were overcome by using it in conjunction with my record cards and by carefully following up all doubtful answers. The "Remarks" were particularly helpful, and were used as supplements to the printed questions.

TABLE 51A

BASIS OF DATA FOR QUESTIONNAIRE SERIES

			Per cent of Cards sent out
	Total Cases January 1, 1928, to July 1, 1929	758	
1	Recently seen by me and report cards made	18	
2	Cards sent out	740	
3	Returned as undelivered	79	11
4	Returned with data	280	38
5	Not returned but seen by me while statistics were being compiled	117	16
6	Not reported	264	35
	Total	740	100%

The 117 cases under "5" comprise patients coming within the original group either as successes or failures who visited my office between February, 1930, and July 1, 1930, and upon being interrogated stated that they had not returned my Inquiry Card, with usually some comment such as "Oh, yes, I forgot it," or "Everything was all right, why should I bother?"

TABLE 51B

Omitting the 79 cases in 3, and combining 1 and 5 we have:

	Cases	%
A Reports made out by me	135	20
B Reports received by mail	280	41
C Total reports	415	61
D Unreported	264	39
E Total	679	100%

The following study concerns itself with the 415 cases under "C." All percentages of use, convenience, success and failure are to be considered as based on this group only. No statements are made regarding the 264 unreported cases under "D" or the 79 who could not be located by the postal authorities.

These unreported cases have for years been the subject of much friendly and some unfriendly discussion among Birth Control students. Some Birth Control advocates have, for all practical purposes, included them as successes. Other authorities have considered them as more probably failures. Mrs. Robinson in her recent work,[1] while avoiding the pitfalls of the two extremes, attempts to derive a percentage of failure which includes

[1] *Seventy Birth Control Clinics,* by Caroline Hadley Robinson. The Williams & Wilkins Company, Baltimore, Md., 1930.

this group, by estimating the various probabilities. Except in a most general way this seems to me to be futile since a slight change in the percentages arbitrarily assigned to various groups completely changes the results.

The difficulty of obtaining results valid for one's entire series of cases, lies in the inability to obtain an indubitable sample. The expense of sending an investigator to interview the unreported cases is not justified by the results due to the number of "not at home," "moved," or "unwilling to talk" cases. The reader can draw his own conclusions regarding this group, bearing in mind that the disgruntled failure is frequently most anxious to express her displeasure. One can suit oneself, but one cannot, ex-cathedra, claim that the failures remain silent. It seems to me—and this is given as a supposition only—that the enthusiastically satisfied and the disgruntled disappointed patients probably report in equal proportion, but that the careless and indifferent are less apt to take the trouble. If one could obtain results for this unreporting group, I should expect to find *of those using faithfully* about the same percentage of success and failure as in my sample; but a considerably higher percentage of cases using the method only part of the time, and also of non-users and successful users alike who felt the method inconvenient and troublesome.

In tabulating our general data in the previous chapter, we have noted the remarkable correspondence between the Questionnaire Series and the 1930 Series. While this does not prove anything regarding the success or failure of the unreported cases, it does show that the reporting group is a fair sample of the original series corresponding with the control group in practically every respect. If

there were a large discrepancy in success between the reporting and unreporting group, we should expect to find the reporting group different from our 1930 control group. The fact that it corresponds so closely tends to make us feel more confidence in the results of our Questionnaire Series.

Two cases of our Questionnaire Series, who were given paste only, are not included in this part of the study. We likewise discard two other cases from the series.

One of these cases visited my office with her period already past due. I ordinarily, in such cases, send the patient away and instruct her to return after her period. If she is pregnant, I do not see her again—if she is not, she usually returns. This particular patient, however, came from a considerable distance and would not be able to return. Since the state of her health absolutely indicated Birth Control, I fitted her to a pessary; but she did not menstruate again and was proved to be definitely pregnant at the time of her visit.

The other discarded case is not quite so clear cut. I always make a point of telling every patient that I have no guarantee she is not already pregnant and that only from her next menstrual period on will the method be definitely on trial. There is no way of protecting against the possibility of such a pregnancy unknown to doctor and patient at the time of fitting. She did not menstruate again and in my opinion must have been pregnant when fitted. With this possibility *in every case* it is not too much to expect one such result in 411 cases, and it would not be fair to charge this as a defect in the method even from a "human element" point of view. We have, therefore, discarded this case.

We are left with a series of 411 cases, fitted by me with a pessary and not pregnant when fitted. What results did these 411 patients have?

Study XV

Is the method used?

In compiling the following table a patient who for any reason has discarded the method and is not using it at the time of the report is listed as not using—with two exceptions. If she has used it, be it for a short or long period, and has failed, or if she has used it at least six months and has temporarily discarded it because of a desired pregnancy, it is listed as used, either faithfully or partially as the case may have been. These exceptions have seemed necessary in order to correlate use with success and failure.

Table 52

Use of method

	Cases	%
Using faithfully	379	92.2
Using partly	12	2.9
Total in use	391	95.1
Not using	20[1]	4.9
	411	100%

[1] Includes one case used faithfully for three months and then discarded for a desired pregnancy.

Let us consider this separately for the various occupational groups:

TABLE 53

USE BY OCCUPATIONAL GROUPS

		Faithfully Using		Using Partly		Not Using	
		Cases	%	Cases	%	Cases	%
150	Professions	138	92.0	4	2.7	8	5.3
50	Business executives	46	92.0	0	0	4	8.0
53	Clerks and salesmen	52	98.1	1	1.9	0	0
39	Small businessmen	35	89.7	3	7.7	1	2.6
65	Workers	59	90.8	2	3.1	4	6.1
54	Blanks	49	90.8	2	3.7	3	5.6
411	Total	379	92.2	12	2.9	20	4.9

Let us also study this factor for the gainfully occupied women:

TABLE 54

USE OF METHOD: GAINFULLY OCCUPIED WOMEN

	Cases	%
Using faithfully	102	93.5
Using partly	4	3.6
Total in use	106	97.2
Not using	3	2.8
	109	100%

STUDY XVI

IS THE METHOD SUCCESSFUL?

The question of success is the most important one confronting us. It is comparatively easy to get figures showing the percentage of success when the method is used more or less faithfully with more or less care. It is more difficult to rule out of our failures those who have taken a chance "just once," either by dispensing with the appliance or by omitting some part of the technique. We will attempt to do this but there is no doubt that some listed as "failures with faithful use" are cases in which the patient was knowingly careless but is ashamed to admit the fact.

In tabulating failures care has been taken to scrutinize carefully every case showing a pregnancy since the method was prescribed and a letter has been written to all doubtful cases asking whether this was a desired pregnancy or a failure of the method.

TABLE 55

TOTAL USING METHOD 391

	Cases	%
Success	373	95.4
Failure	18	4.6

Six of the above failures showed use of the method only part of the time, or some gross carelessness in (*not ignorance of*) the technique. Some of the remaining twelve show a definite reason for the failure, others remain unexplained, although we can have no doubt that some of them belong with our six who admitted human

weakness. In deriving our percentage of failure with faithful use, we have deemed it advisable to discard six successes who stated the method was used only part of the time. Without doubt we would be justified in giving a certain fractional weight to these cases and including them, but we have preferred to avoid this complication. We then have:

TABLE 56

USING METHOD FAITHFULLY 379

	Cases	%
Success	367	96.8
Failure	12	3.2

In my opinion this last table represents the fair test of our method—and we can be sure that 3.2% is high.

TABLE 57

SUCCESS BY OCCUPATIONS

391 Cases Using All or Part of the Time

		Success		Failure	
		Cases	%	Cases	%
142	Professions	133	93.7	9	6.3
46	Business executives	45	97.8	1	2.2
53	Clerks and salesmen	53	100	0	0
38	Small businessmen	36	94.7	2	5.3
61	Workers	57	93.4	4	6.6
51	Blanks	49	96.1	2	3.9
391	Total	373	95.4	18	4.6

379 Cases Using Faithfully

		Success		Failure	
		Cases	%	Cases	%
138	Professions	132	95.7	6	4.3
46	Business executives	45	97.8	1	2.2
52	Clerks and salesmen	52	100	0	0
35	Small businessmen	33	94.3	2	5.7
59	Workers	56	94.9	3	5.1
49	Blanks	49	100	0	0
379		367	96.8	12	3.2

TABLE 58

SUCCESS FOR GAINFULLY OCCUPIED WOMEN

Using At All, 106

	Cases	%
Success	101	95.3
Failure	5	4.7

Using Faithfully, 102

	Cases	%
Success	99	97.1
Failure	3	2.9

STUDY XVII

IS THE METHOD CONVENIENT?

Our card contains a question "Has it proved convenient?" If this was answered "No," or "Partly," the case was tabulated accordingly. An answer of "reason-

ably" was tabulated as only "partly convenient." An answer of "Yes" was only tabulated as "convenient" if the remainder of the card bore this out. If the remarks contained a suggested improvement, or the slightest complaint of the method, the case was tabulated as only "partly convenient."

TABLE 59

CONVENIENCE

	Cases	%
Convenient	356	91.5
Partly or reasonably convenient	17	4.4
Not convenient	16	4.1
	389	100%
Not answered	22	

Only three of those reporting as not convenient are using the method. The other thirteen are not using. Our previous study showed twenty cases not using the method. Deducting the thirteen who find it inconvenient, this leaves seven cases whose failure to use is not due to inconvenience but to other causes; in compiling this study on convenience, the "non-use" cases have been carefully scrutinized and have been included as inconvenient if this could be reasonably inferred from the data at hand. The question of convenience usually does not apply when the method is a failure and the failures, therefore, comprise most of the blanks in the above table.

TABLE 60

CONVENIENCE BY OCCUPATIONS

		Convenient		Partly Convenient		Not Convenient	
		Cases	%	Cases	%	Cases	%
141	Professions	124	87.9	11	7.8	6	4.3
47	Business executives	44	93.6	1	2.1	2	4.3
52	Clerks and salesmen	49	94.2	3	5.8	0	0
35	Small businessmen	33	94.3	0	0	2	5.7
61	Workers	55	90.1	2	3.3	4	6.6
53	Blanks	51	96.2	0	0	2	3.8
389	Total	356	91.5	17	4.4	16	4.1

TABLE 61

CONVENIENCE FOR GAINFULLY OCCUPIED WOMEN

	Cases	%
Convenient	93	89.4
Partly convenient	8	7.7
Not convenient	3	2.9
Total	104	100%
Blank	5	
	109	

STUDY XVIII

IS PASTE USED WITH PESSARY?

Our question of use, tabulated above, ignored temporarily the question of paste. There are a number of blanks in this table, partly because the preliminary cards filled out by me did not contain this question. I also used

the same cards for some of the patients seen by me after the inquiries had been mailed and I frequently failed to note whether or not paste was used.

TABLE 62

USE OF PASTE WITH PESSARY

	Cases	%
Paste is used	278	91.4
Paste is used sometimes	6	2.0
Paste is not used	20	6.6
	304	100%
Blank	87	
	391	

Unfortunately over one-half of our failures do not show whether or not paste was used and it would, therefore, be meaningless to attempt a correlation between success or failure of method and use or non-use of paste.

STUDY XIX

LENGTH OF TIME PESSARY USED SUCCESSFULLY

TABLE 63

	Cases
6 months up to 1 year	72
1 year	178
2 years	74
3 years	26
4 years	9
5 years	5
6 years	4
7 years	2
8 years	2
9 years	1
	373

We intentionally arranged our study so as to have at least six months of use. The average length of time used is between one and two years.

Study XX

The Effect of Possible Sterility and Selection

It may be claimed that our success ratio is high due to the possibility of a number of sterile women among our successes. The only sure proof of fecundity readily applicable to all cases is the birth of a child, and we will therefore discard from our 391 cases using the method (379 using faithfully) all who have not given birth to a child *before visiting me.* This leaves us with 242 cases known to be fertile when fitted with a pessary. Six of these did not use the method faithfully, leaving 236 known fertile cases with faithful use.

Table 64

Known Fertile

	Using At All		Using Faithfully	
	Cases	%	Cases	%
Success	233	96.3	228	96.6
Failure	9	3.7	8	3.4
	242	100%	236	100%

It might further be claimed that with patients of many years standing the failures have already dropped out, leaving a selected group. We will accordingly further discard all cases showing more than two years' use. We

are left with 206 new patients known to be fertile. Six of these have used only partly, leaving 200 of these showing faithful use.

TABLE 65

NEW PATIENTS KNOWN FERTILE

	Using At All		Using Faithfully	
	Cases	%	Cases	%
Success	198	96.1	193	96.5
Failure	8	3.9	7	3.5
	206	100%	200	100%

Our general series gave:

	Using At All	Using Faithfully
	%	%
Success	95.4	96.8
Failure	4.6	3.2

The change in the percentage for faithful use is so slight as to show little or no sterility or selection in our original group. The *reduction* in failures with partial or careless use calls for attention however. This obviously cannot be due to the causes which led us to make this particular study because they would operate to increase the percentage. Exactly what have we here? Briefly we find a lower percentage of failures due to carelessness if we omit all previously childless couples from consideration. This would seem to show that persons who have had children are more careful in the use of a method than those who have not. To be sure this is a strong conclusion for our study to uphold, but the fact (arrived at incidentally) that all but one of the "careless" failures had previously been childless seems worthy of consideration.

STUDY XXI

VAULT PESSARY VS. DIAPHRAGMATIC

TABLE 66

USE, CONVENIENCE AND SUCCESS

	Vault		Diaphragmatic		Type Unknown
USE	Cases	%	Cases	%	Cases
Used faithfully	64	92.7	307	92.2	7[1]
Used partly	2	2.9	10	3.0	
Not used	3	4.4	16	4.8	1
Total	69	100%	333	100%	8
CONVENIENCE					
Convenient	59	90.8	289	91.8	7[1]
Partly convenient	3	4.6	14	4.4	
Not convenient	3	4.6	12	3.8	1
Total	65	100%	315	100%	8
Not answered	4		18		
SUCCESS					
Faithful use					
Success	61	95.3	298	97.1	1
Failure	3	4.7	9	2.9	
Using at all					
Success	61	92.4	304	95.9	
Failure	5	7.6	13	4.1	

[1] There is also one flat pessary which is used faithfully with success and is convenient.

The series of vault pessaries — 64 — is very small and therefore not representative of real success with this type of pessary. One of the cases (Newlywed) failed within six weeks which proves that either the fitting or the application was wrong. Two cases admitted that they were not faithful in the use of the pessary; two cases were successful for two years, failing at the end of the second

year. One of these latter patients I hadn't seen for two years, the other for more than one year and during this time the uterus might quite possibly have returned to normal position. The last two cases point out the importance of seeing each such patient at least once in six months.

The higher per cent of failure with the vault than the diaphragmatic pessary seems to contradict my opinion of the great usefulness of the vault in retroversion. I am still convinced of the correctness of this viewpoint because I consider the number of cases, 64, very inadequate to pass judgment on the value of the pessary, and because returns from vault pessaries usually come in slower since very often this type of pessary does not deteriorate for four or five years. During the last two months (too late to include in this study, under the rule that the patients must have reported by July 1, 1930) I have had a number of patients return for refitting of vault pessaries, after having used them successfully for years. One woman returned a French pessary received six years ago, still in usable condition. It may be interesting to note that of the thirteen cases who failed with a diaphragmatic pessary, nine had obtained success for less than a year before failing, whereas out of five failures with vault pessaries, only one had failed within the first year. (See Study XXII.)

The small number of reports on the use of the vault pessary points out the importance of impressing patients to return yearly or in retroversion uteri every six months even if the pessary is still in good condition. I did not sufficiently stress this point formerly but now make the date the patient is expected to return very emphatic.

STUDY XXII

ANALYSIS OF FAILURES

We had eighteen failures out of our 411 cases, twelve who claimed to have used faithfully and six who admitted using carelessly or intermittently.

TABLE 67

LIST OF FAILURES

USING FAITHFULLY

Series No.	Pessary	At time of failure how long since last visit to me?	How long used successfully before failure?	Remarks
255	70 mm. dia.	3 mos.	3 mos.	
137	70 mm. dia.	9 mos.	9 mos.	French pessary had previously been used successfully for three years.
165	65 mm. dia.	2½ mos.	2½ mos.	Pessary may have been too small. When fitting her I judged patient to be neurotic and unreliable.
107	70 mm. dia.	6 mos.	3¾ yrs.	
38	70 mm. dia.	1 yr.	1 yr.	
394	65 mm. dia.	10 mos.	10 mos.	Patient lost weight. Pessary too small.
365	70 mm. dia.	3 mos.	3 mos.	
135	67½ mm. dia.	4 mos.	4 mos.	Patient blames change in position of uterus due to heavy work during menstruation.
40	65 mm. dia.	1 yr.	1 yr.	Fitted as a newlywed. She should have returned after three months for a refitting. Pessary was probably too small at time of failure.
313	No. 38	6 wks.	6 wks.	Newlywed when fitted. Probably badly fitted or else carelessly used.

Series No.	Pessary	At time of failure how long since last visit to me?	How long used successfully before failure?	Remarks
21	No. 240	2 yrs.	2 yrs.	Patient answered Inquiry Card reporting complete success and convenience. While statistics were being compiled she failed. Pessary was two years old and in very bad condition.
361	No. 240	2 yrs.	2 yrs.	Two years is too long a time. Should have returned sooner for check-up on fit.
PARTIAL OR CARELESS USE				
134	65 mm. dia.	1 mo.	1 mo.	Did not use all the time.
366	60 mm. dia.	3 mos.	3 mos.	Did not use all the time.
370	65 mm. dia.	5 mos.	5 mos.	Neglected douching.
102	60 mm. dia.	8 mos.	8 mos.	Patient complained that method was unreliable. She stated that method was used "nearly" always.
387	No. 240	1 yr.	1 yr.	Once did not douche.
413	No. 38	14 mos.	2 yrs.	Admitted partial relations without pessary.

Study XXIII

ANALYSIS OF "INCONVENIENT" REPORTS

As noted in Study XVII a certain number of patients reported the method inconvenient or somewhat inconvenient, or else made certain comments which would justify us in classifying them under one of these headings. We found 16 patients who found the method was inconvenient, all but 3 of whom were not using the method for this reason. 17 replies were classified as partly convenient.

TABLE 68

PESSARY INCONVENIENT

Analysis of Cases

Series No.	Pessary	Does patient use?	Patient's Remarks (*Italics show my comment*)
51	Diaphragmatic	Yes	"Convenient in that it does what is required but offers considerable interference."
140	60 mm. dia.	No	"Not at all suitable for country homes." *Correspondence showed that difficulty was with douching.*
142	60 mm. dia.	No	Patient used three times only and feels appliance was responsible for kidney trouble. *After correspondence I am convinced her complaint was without foundation.*
162	65 mm. dia.	No	"The bother of inserting it takes away all the joy."
175	65 mm. dia.	No	Used successfully four or five months. Stopped using because of "unpleasant odor, especially because of the paste."
192	No. 240	Yes	"This probably the best method but rotten inconvenient for the woman."
195	Jumbo	No	Used four months only, "uncomfortable." *Pessary was Jumbo—could not be fitted with any other.*
233	67½ mm. dia.	No	Used only "once or twice." "It was unpleasant."
243	60 mm. dia.	No	"Found it inconvenient. Will try it again, have not given a fair trial."
250	No. 240	No	Did not use because husband did not like it.
260	75 mm. dia.	Yes	Does not use paste which she finds "irritating."
263	75 mm. dia.	No	"Too large—hard to insert."
269	65 mm. dia.	No	Too difficult.
282	60 mm. dia.	No	"Clumsy and caused irritation." *After correspondence patient revisited me. A 60 mm. dia. proved too small and I refitted her to a 70 mm. which she is now using.*
388	72½ mm. dia.	No	*Husband complained of paste which was used freely in vagina. Patient promised to try again, using only a little paste inside the pessary.*
392	?	No	*Did not use, claims pessary hurt her.*

TABLE 69

PESSARY PARTLY CONVENIENT

Analysis of Cases

Series No.	Pessary	Does patient use?	Patient's Remarks (*Italics show my comment*)
23	Diaphragmatic	Yes	"Fairly" convenient.
37	Diaphragmatic	Yes	"Somewhat inconvenient."
84	70 mm. dia.	Yes	"Paste has a slightly disagreeable odor. Would it be possible to insert . . . a slight bit of perfume?"
106	67½ mm. dia.	Yes	"Nothing to offer except could wish for something less perishable, however, am grateful for it anyway." *Pessary had lasted a year.*
120	No. 38	Yes	"It is a little difficult for me to adjust with confidence."
139	65 mm. dia.	Sometimes	"Not always convenient when traveling. Have found both rubber appliance and fishskin condom satisfactory."
158	75 mm. dia.	"Not steady"	"Afraid." *Neurotic patient, referred to me by psychiatrist.*
169	55 mm. dia.	Yes	"Fairly" convenient.
173	No. 240	"Mostly"	"Bath room too cold. Very helpful and satisfactory."
174	No. 240	Yes	"Fairly" convenient.
224	72½ mm. dia.	Yes	"Not very" convenient.
235	65 mm. dia.	Yes	"Wore out after six months. Appliance most satisfactory."
272	65 mm. dia.	Sometimes	"Alternate with condom because latter gives wife more satisfaction and some discomfort from pessary."
277	62½ mm. dia.	Yes	"Very near perfection. Suggest an odorless paste."
295	65 mm. dia.	Yes	"Paste is rather inconvenient to use."
317	70 mm. dia.	Yes	"Not very" convenient.
337	67½ mm. dia.	Yes	Does not like odor of paste.

Of those who found the method definitely inconvenient, three used it nevertheless. The other 13 do not use it. Of the 17 who feel it is only partly convenient, 13 use it faithfully whereas 4 use it only part of the time.

It may be in place here, lest the reader feel the weight of the criticisms just set forth, to state that 73 of the replies used the "Remarks" to show enthusiastic approval of the method and to express their gratitude.

TABLE 70

SUMMARY OF COMPLAINTS

	Definitely Inconvenient		Fairly or Partly Convenient	
	Using pessary faithfully	Not using pessary	Using pessary faithfully	Using pessary sometimes
Paste irritating	1	1	..	..
Odor of paste	..	1	3	..
Paste inconvenient	..	..	1	..
Total complaints of paste	1	2	4	..
Pessary uncomfortable	1	5	..	..
Bothersome or difficult for wife	1	3	1	1
Less satisfaction for wife	..	..	..	1
Less satisfaction for husband	..	1	..	..
Difficulty with pessary	2	9	1	2
Difficulty with douching	..	1	..	1
Claims physical injury[1]	..	1	..	..
Too perishable	..	..	2	..
Afraid	..	..	..	1
Unspecified	..	..	6	..
Total complaints	3	13	13	4

[1] I am convinced this is groundless.

Conclusions

My group of 411 reported cases shows 3.2% failure with faithful use, or 4.6% failure if we include those failures and successes who use occasionally or carelessly.

In conclusion and to enable those who so prefer to figure their percentages on a different base, I append the following table:

Table 71

SUMMARY OF EXPERIENCE WITH PESSARY

	Prescribed	Per cent of total	Per cent of those using	Faithful users	Per cent of faithful users
	Cases	%	%	Cases	%
Using, convenient (entirely or fairly), and successful	370	89.6	94.6	364	96.0
Of the above, those *entirely* convenient and successful	(353)	(85.4)	(90.3)	(351)	(92.6)
Using, inconvenient but successful	3	0.7	0.8	3	0.8
Using, total successful	373	90.3	95.4	367	96.8
Failures	18	4.4	4.6	12	3.2
Total using	391	94.7	100%	379	100%
Inconvenient, not using	13	3.1	..	..	..
Not using for other reasons	7	1.7	..	..	..
Discarded	2	0.5	..	..	..
Total pessaries	413	100%	..	..	..
Cases given paste	2	..	..	..	..
Total Series	415	..	..	..	..
Unreported	264	..	..	..	..
Mail returned	79	..	..	..	..
	758	..	..	..	..

APPENDIX

APPENDIX

Addresses of Concerns Furnishing Pastes, Pessaries and Models

PASTES

Gelakta Gelaquin	Blair & Curtis, Inc. 100 Fifth Avenue, New York City
Hyva	Maternal Health Products, Inc. 124 W. 18th Street, New York City
Koromex	Holland-Rantos Co., Inc. 156 Fifth Avenue, New York City
Lactikol Lactikol B	Durex Products, Inc. 156 Fifth Avenue, New York City
Lukorol	Peck & Sterba, Inc. 6 W. 24th Street, New York City
Prekonsol	The Prekonsol Co. 309 E. 10th St., New York City

PESSARIES

Akma Hydome Akma Vagiphragm	The Prekonsol Co. 309 E. 10th St., New York City
Dumas (Flat)	Every surgical supply house
Durex	Durex Products, Inc. 156 Fifth Avenue, New York City
French	Every surgical supply house
Mensinga	Pro-Race Ltd. 60 and 62 Queen's Rd., Dalston, E.8, London, Eng. In America, Mensinga type pessaries are made by the Akma and Durex Companies.

(Continued on next page)

MIZPAH	Every surgical supply house
PRO-RACE	Pro-Race Ltd. 60 and 62 Queen's Rd., Dalston, E.8, London, Eng.
RAMSES	Blair & Curtis, Inc. 100 Fifth Avenue, New York City
RANTOS	Holland-Rantos Co., Inc. 156 Fifth Avenue, New York City

MODEL OF PELVIC CROSS-SECTION

Perfectfix Rubber Co.
50th Street at Menominee River, Milwaukee, Wis.

INDEX

INDEX

In general, we have not indexed the statistical studies. For a list of the statistical tables, see page 159. Except in the case of proper names, the more important references under each subject are in bold type.