

**The hymen : an essay, delivered (by appointment) before the New York Medical Union / by T. Gaillard Thomas.**

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# THE HYMEN:

AN ESSAY,

DELIVERED (BY APPOINTMENT) BEFORE THE "NEW YORK MEDICAL UNION."

BY T. GAILLARD THOMAS, M.D.

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GENTLEMEN: In the virgin there exists, at the entrance of the vagina, a thin veil, formed by a reduplication of the vaginal mucous membrane, which, while it precludes the entrance of any bulky substance into the canal above, admits in its normal condition of the free passage outwards of uterine and other discharges. This delicate membrane, in itself of so little importance, that its uses are even now unknown, and that its very existence was for centuries doubted by able anatomists, is, by its associations, and collateral relations, so important to the practitioner of medicine, that I trust you will not regard as injudicious the choice of the subject of my remarks for this occasion.

*Origin of the term Hymen.*—The names which we find by various authors applied to this membrane, are "Eugion," as sometimes called by old writers; the "Flower of Virginity," as styled by others; and "Hymen," as designated in the nomenclature of modern times.

The etymology of the last appellation is somewhat uncertain. In the mythology of ancient Greece, a god named Hymen, the offspring of Bacchus and Venus, was supposed to preside over marriage, and it is possible that his name was given to

that membrane, the rupture of which was regarded as the carnal consummation of the ceremony of which he was the patron.

From its crescentic shape, it is by some supposed to have been the symbol represented upon the brow of the virgin goddess Diana; the outward and visible sign of inward purity and unblemished chastity; But as Diana and Luna were the same spirits, it is more natural to suppose that the sign which she bore had reference to the crescent moon.

Anatomy, and not poetry, was probably mother to the name, the origin of which, it is likely, was the Greek word "*ὑμῆν*;" in the Latin rendered "hymen;" and in the Saxon tongue "a membrane." By some of the old writers the word hymen was applied not only to this structure, but to any membrane, as the serous covering of the lungs, liver, heart, etc., as will be seen by reference to the "*Chirurgia Universalis*" of Francis Joel, edition of 1663. We see an analogous use made of the word in entomology, where all that class of insects whose wings are membranous, are called Hymenoptera, from "*ὑμῆν*" a membrane, and "*πτέρον*" a wing, and a beautiful similitude exists between its use in botany and anatomy; in the former it designates the fine pellicle which incloses the flower in the bud; in the latter it defines the gauze-like veil, which guards the budding functions of womanhood; both about to expand and culminate coincidentally with its rupture.

*Literature of the Hymen.*—An examination into the history of the hymen, presents one of the most singular instances of direct contradiction of authorities, on a subject which one would at a first glance imagine admitted of no doubt, or diversity of opinion. Indeed, were proof wanted (which, alas! is not the case) of the great uncertainties environing the reception of even the simplest facts in medicine, none more convincing could be given than that arising from a review of the opinions held on this subject at various periods.

That the most ancient people of whom we know aught, were acquainted with the existence of the hymen, there cannot be any reasonable doubt; for a distinct allusion is made to it in the writings of the Hebrew legislator, Moses, who lived Anno Mundi 2433, his death occurring 1,490 years before the birth of Christ. After this I have met with no allusion to it until 194 years before Christ, when Terence seems to allude to it in describing the pain and hemorrhage attending the first conjugal approaches of a virgin. Cicero, who lived 42 years before Christ, points plainly to it in the following line (*De Divinat. lib. ii.*), referring to a woman of whom he had dreamed, "*quæ obsignatam habebat naturam;*" and Pliny (*Hist. Nat. lib. vii., c. 16*), A. D. 23, tells of Cornelia, mother of the Gracchi, "con-

creti genitali nata fuerat;" a probable though not positive allusion to it. But the most perfect and intelligent allusion to it, which exists in the writings of the olden time, is that contained in the old Jewish work called the Mishna. The exact date of this work is unknown; its parts were put together in the second century of the Christian era, but it dates certainly much farther back than that period. There, it is not only mentioned, but its characters were evidently pretty well understood, as will appear from a quotation which will be made from it later in this essay.

It may well be a matter of surprise to you that I thus quote from vulgar writers, and draw nothing from the works of Hippocrates, who flourished 456 years before Christ, nor from the writings of the Alexandrian school, nor yet from the 300 volumes left us by Galen, who lived 201 years after Christ. Curious as it may appear, no mention of the hymen occurs in the medical productions of those periods; Hippocrates, Galen (if we except this meagre allusion, vol. ii. p. 907, "Qua vero parte dilatato uracho membrana incipit enasci, satis multa ac veluti scabra quædam asperitas apparet"), and the disciples of Alexandria, all are alike silent concerning it.

Coming now to the time when learning took up its abode among the Arabians, we find, according to Paul Portal, that so much obscurity attaches to the allusions to the hymen by physicians of that period, that doubt exists as to their knowledge of it. Avicenna, however, who is regarded as having compiled, in a great part, his works from those of his predecessors, Galen, Rhazes, and Halyabbas, and who died in the year of our Lord 1036, speaks of it as a structure composed of veins.

I have now said, I think, enough to show that it is extremely probable, to say the least, that the existence of the hymen was recognized by the ancients: let us now leave those remote ages, and coming to the period when science rose from its long submersion during the middle ages, bring the subject to the present day.

In the 16th, 17th, and 18th centuries, anatomists were entirely divided as to the existence of this membrane, and the very first authorities of the time were arrayed against each other in opinion. Thus, Oribasius, Ambrose Paré, Varolius, Palfyn, Dionis, Buffon, and many others denied its existence, while the equally weighty names of Vesalius, Morgagni, Ruysch, Bartholinus the younger, Riolanus (whom Haller compliments with the quaint title of "restitutor hymenis"), Osiander, Smellie, Winslow, Meckel, and a host of others supported it.

Some even who found it, regarded its existence as abnor-

mal; thus, Varolius thought it an adhesion of the nymphæ; others regarded it as a morbid stricture of the parts; Fernelius and Ulmus viewed it as a vaginal adhesion, while Buffon pronounced it a myth. Well might Bichat say that it was impossible to explain this diversity of opinion; but as it is curious, and may be profitable, let us try to do so as far as possible. The following considerations will, in some degree, account for it. First.—During the fifteenth, sixteenth and seventeenth centuries, dead bodies for dissection were obtained with great difficulty (as the familiar and suggestive picture of Vesalius dissecting in an obscure and secret cell, will readily bring to mind), and the material, which did afford the means for investigation, was generally the remains of the most abandoned prostitutes, or executed criminals. In such subjects, of course, the hymen was generally absent.

Second.—Just after the dark ages, when theory passed for fact, and proof was not required to render assertions valuable, physicians were more willing than at present to accept the errors of their predecessors, and indorse them without examination; and thus, it is probable, that many inconsiderately joined in a view, of the correctness of which they had made no effort to inform themselves.

Third.—It may be said that libertinism was at that period much more unbridled, and its domain much more extensive than at present. It is easy for moralists to point to the backslidings of our times, and bewail the fearful increase of immorality; but that the world has, since the dark ages, steadily advanced in morality as civilization has spread, is, I think, a fact supported by evidence too strong to be shaken by bald assertions, or overturned by specious arguments.

A fourth reason may yet be given. It is natural for the mind to reject even positive evidence, from a multiplicity of sources, when that evidence differs in each case in many important particulars. Now, all the descriptions of this membrane, so hard of discovery, differed more or less; thus, one would describe it as a slender band, another as a circle pierced with holes, and a third as an unopened disk, hard and unyielding; so that even an unprejudiced investigator might (in ignorance of the fact that, like the mouth or nose, the hymen may assume a variety of forms) reject the small amount of positive evidence which he could obtain, and agree with those who regarded this "slight outward curtain to the nuptial bed" as the offspring of poetic imagination.

*Anatomy of the Hymen.*—Of the divers descriptions given of the hymen by the pioneers in anatomy, the following are specimens. Avicenna, of the Arabian school, regarded it as "a

piece formed of fine veins, at the middle of the neck of the womb (vagina), inserted on either side." Riolanus considered it fleshy; Fallopius nervous; while one old writer, Piccolomini described it very much as it is now regarded.

At present it is known to be, simply, a fold of the mucous membrane which lines the vagina, stretching from side to side of that canal, just within the ostium. Like the rest of the vaginal mucous membrane, it is covered by pavement epithelium, the largest in the body, and between the two folds of membrane, cellular tissue may be found, in which run vessels coming from branches of the internal iliac arteries, and nerves from the internal pudic; while its absorbent vessels communicate with the sacral and inguinal glands. Velpeau describes in it, likewise, some muscular fibres which he has found crossing each other, and resembling the fibres of the uterus; no other author, however, as far as my knowledge goes, supports this statement.

In color the hymen is of a reddish, fleshy hue, and generally in texture thin and delicate; though in the infant it is somewhat thicker than in the adult. In the infant it differs, also, in direction from that of the adult; lying against the vaginal walls, extending from behind forwards, like the lips, it gradually stretches itself across the canal as the parts enlarge with increasing age.

As a rule, there is but one hymen, though cases in which two existed, one above the other, are mentioned by Willis, Ruysch, Legros and others.

As regards the shape of this structure, much might be said, as may be supposed from the fact that thirty different varieties have been enumerated. It is not my intention to consume your time with a mention of them, but I will be satisfied by exhibiting to you, by means of the accompanying diagrams, those forms which are most commonly met with in practice.

The most common form which it assumes is that of a crescent, with concavity above, towards the symphysis pubis; next to this is met with most frequently the circular, with fringed border and opening of greater or less size at the centre; after this come, in unascertained order, the disk, covering the mouth of the whole canal, perforated by holes; irregular bands, stretching across from wall to wall; and lastly, a disk without opening, occluding the passage entirely.

This membrane appears in the foetus, according to Cruveilhier, after the sixth month of intra-uterine life, and unless broken, continues to be found until the sixtieth or seventieth year, and even beyond those periods. When it is ruptured, a good deal of pain is caused, and a flow of blood generally (though it is said not always) takes place. This flow is not profuse, and

ceases of its own accord; the only case which I have seen recorded to the contrary being one by Dévilliers, where surgical aid had to be called in to check it.

*Comparative Anatomy.*—The comparative anatomy of the hymen was for a long time overlooked; it was supposed to be peculiar to the human female; but, as first demonstrated by Duverney, and subsequently abundantly supported by facts ascertained by others, it is by no means so. In a paper read by Mr. Duverney, before the "Institute," in 1805, its presence was pointed out in virgin mares and asses, in which it is semi-lunar in form; and in the brown bear, in which it consists of a thick fold shutting up a large part of the vaginal orifice. In the ape and monkey (according to the *Nouveau Dict. d' Hist. Nat.*), it consists of two bands, crossing from side to side. It is found, also, in the hyena, the coati, the otter, the hare, and Velpeau says, the giraffe. The elephant is likewise provided; and Stellar has discovered it in the seal, the daman and the lamantin.

In these animals, as in woman, it is generally ruptured by the first sexual approaches.

*Physiology and uses.*—What wise purpose does the hymen subserve? It is, indeed, difficult to say. Some, and among others Haller, erroneously supposing it to exist only in the human female, regarded it as a protection against vice; as the thorn of virtue, which so often we see, reminding us not to cull too eagerly the flower of gratification, and of sin. But why, then, should it exist in the lower order of animals, where no such restrictions are needed? nay, where they would be absolutely hurtful, in controverting the command, "increase and multiply," obedience to which so much conduces to the benefit of mankind?

Thomas Bartholinus expressed the opinion, that it was to guard the internal organs against contact with external objects, and to act as a test for virginity; and in a part of this, Cuvier seems to agree, attributing to it, as a function, the keeping unimpaired the sensibility of the delicate internal organs until the period of conjugal life.

Support for this view might perhaps be found in the analogy which exists, with regard to this membrane, between the vagina and other canals leading outwards from delicate internal cavities. According to a general law of the economy, such passages are provided in some part of their courses, and generally near their entrances, with a sphincter, the action of which is rendered more perfect by a fold or folds of mucous membrane. The object of such reduplications seems to be to exclude more perfectly external influences; to retain until a fitting time the contents of the cavity which they guard; or to

furnish a surplus tissue for the more easy and safe distension of the passage. Thus, in the rectum, the late Mr. Houston, of Dublin, described "certain permanent folds or valves of semilunar shape," situated just within the sphincter ani, and extending upwards one above the other for a space of three inches. When the intestine is empty, these folds overlap each other, and will catch a bougie and stop its passage; while in the distended state of the gut they disappear.

In the fauces a somewhat similar arrangement exists, in the velum pendulum palati and palatine arches; in the larynx, in the epiglottidean folds and in the urethra, in the sinuses of Morgagni, or in the special valve situated on the superior surface of that canal described by Guérin de Vannes in the *Gazette Médicale* for 1849.

It appears to me, however, that in search of a more probable and rational explanation of the presence of the hymen, we are forced to rest on the striking analogy which exists between the male and female generative systems, acknowledging at the same time that its special uses are by no means clear. By some of the Greek, Roman, and Arabian physiologists, among whom may be cited Aristotle, Galen, Rhazes, and Avicenna, it was supposed that the two sexes were typical of each other; that the female was an inverted male, and that in her the penis and testicles were merely turned inwards to form the uterus and ovaries; and this doctrine has, in modern times, received extensive credence, and caused considerable discussion.

As this is not the place to discuss the subject, let me merely call your attention to some of the most evident and important of these analogies:

The Testes are analogues of the ovaries.

- |                                     |                    |                |                 |
|-------------------------------------|--------------------|----------------|-----------------|
| " Prostatic vesicle                 | is the analogue of | the uterus and | vagina.         |
| " Penis                             | "                  | "              | " clitoris.     |
| " Scrotum                           | "                  | "              | " labia majora. |
| " Perineal closure of genital sinus | "                  | "              | " hymen.        |

Thus the hymen would appear to be only the partial closure of a fissure, which in the male is complete; when it goes on to completion in the female it constitutes an abnormality, as the falling short of completeness in the male likewise does.

*Singular customs and superstitions regarding the hymen.*—For the ancients, the hymen was invested with much that was mysterious and inexplicable, and they seemed to have delighted in surrounding it with the most curious superstitions, and attaching to it the greatest importance.

Scaliger, who flourished, I believe, in the latter part of the sixteenth century, in describing the properties of a certain root which had the power of causing lustful thoughts, declares



that "Virgins that look to cattle in the fields, if they sit thereon, or make water, it is said that the skin in their privity will break, as if they had been defloured by a man." Here an entirely emotional cause was deemed sufficient for its rupture.

But they even supposed that the wind, the sun's rays, and similar causes, would break it; thus the "most learned Bartholinus" states that the Prayan virgins of Campania had it so thin that it was ruptured in them at the twelfth year, "partly by the heat of the sun, partly of their own bodies."

Its rupture was regarded by them as a proof of immorality, and its presence a guaranty of chastity. In cases where impregnation occurred without such rupture, they easily escaped conviction of error, by supposing that it took place through the influence of the winds, as Ludovicus Carius reports, or from the imagination, as in the case of Magdalena d'Auvermont, "who did conceive a son called Emanuel only by imagination."

Scott, in the following lines, refers to these old superstitions, in describing the Hermit of Benharrow :

"Of Brian's birth strange tales were told :  
His mother watched a midnight fold,  
Built deep within a dreary glen,  
Where scattered lay the bones of men  
In some forgotten battle slain,  
And bleached by drifting wind and rain."  
"She said no shepherd sought her side ;  
No hunter's hand her snood untied ;  
Yet ne'er again to braid her hair  
The virgin snood did Alice wear !  
Gone was her maiden glee and sport  
Her maiden girdle all too short.  
Nor sought she from that fatal night,  
Or holy church, or blessed rite,  
But locked her secret in her breast,  
And died in travail, unconfessed."

But not only was the presence of this membrane regarded as a test of virginity, its rupture must be accompanied by an effusion of blood, or the good name of the unfortunate was gone forever, and she given over to the censure of the world.

In the twenty-second chapter of Deuteronomy, the following commands appear, offering a marked evidence of the stern requirements of the age which gave birth to the laws of the Hebrew legislator: "If any man take a wife, and go in unto her, and hate her, and give occasions of speech against her, and bring up an evil name upon her, and say, I took this woman, and when I came to her, I found her not a maid," then shall the parents of the girl show the tokens of her virginity to the elders of the city, in the gate, "and they shall spread the cloth before the elders of the city" If the cloth

was found to have the requisite tokens upon it—namely, blood stains—then the elders were ordered to chastise the man, to fine him a hundred silver shekels, and make him adhere to his covenant with the woman. But, alas for his unfortunate wife, if no hemorrhage has occurred! “Then they shall bring out the damsel to the door of her father’s house, and the men of the city shall stone her with stones that she die; because she has wrought folly in Israel, to play the whore in her father’s house.” Who can tell how many an innocent damsel may, under this law, have fallen a sacrifice to the fearful necessities of the times!

The custom of allowing the reputation of a woman to depend upon the occurrence of this slight and unimportant hemorrhage is said by Gardien to exist among the Bedouins; by Mahon it is said to be found still in Siberia; by Niebuhr among the Arabs in Yemen; while others assert the same of parts of Russia, Asia and Africa. Among the Jews of the present day, as I am informed by the learned Doctor Raphall, it exists in no part of the world, and has ceased to do so for a very long period. Even in the Mishna, already alluded to, the following passage appears, showing conclusively that its writers not only appreciated the existence of the hymen, but were cognizant of the fact that its absence did not prove want of chastity. In the treatise Ketuboth, chapter i, 7th paragraph, may be found this advice to the husband who suspects the virginity of his bride, “Should she assert, ‘I have been fractured by accident,’ while he replies, ‘No, thou hast been deflowered by a man;’ Rabbi Gamaliel and Rabbi Eleazer say, she is to be believed; but the Rabbi Joshua saith, ‘Not by her assertion are we to be guided; she is presumed to have been deflowered by a man, unless she adduces proof.’”

In the “*Arabic Proverbs*,” a curious work, by John Lewis Burckhardt, at p. 117, will be found the following description of a certain part of the marriage ceremony among the lower classes of the Moslem, at Cairo. The husband, after the marriage ceremony has been completed, and in fact as a part of that ceremony, goes to the chamber of the bride and breaks the hymen with a cambric handkerchief, or a part of her under garment, spread over his finger. Should the cloth come forth stained with blood, she is regarded as worthy of being his wife, if it comes forth unstained, she is viewed as an unchaste woman, and cast aside.

The cloth, if bearing the requisite evidences, is then, with great noise and triumph, taken by the female relatives of the woman, and paraded in the neighboring houses, as proof of her virginity.

Burckhardt, in his travels in Africa, affirms that those races residing on the banks of the Nile, between Sennaar and Thebes, are unwilling to trust even to these means for securing virgin wives, and make for themselves a barrier to deception, in addition to that which nature offers. At the age of from three to six years, the daughters of the chiefs have the clitoris cut off, and by aid of scarifications of the labia, they are made to adhere, so as to shut up the genital fissure, except at the pubic extremity, where a small opening is left for the escape of the menstrual blood. This practice is said to exist, likewise, among certain tribes of India.

But the most curious superstition relating to this subject, that I have ever heard of, is that described in the "Revue de l'Orient," 1st series, 4th volume, upon the authority, I believe, of the Abbé Dubois. In speaking of the tribe called "Namboury," as one of its peculiarities, is mentioned the fact of that singular people believing that the existence of the hymen after death constitutes a bar to the proper and decent interment of the body. The honor of the family requires that it should be broken before the ceremonies of the burial take place. But only in the natural way must this be done. Accordingly, a member of the caste is bribed into the performance of an un-earthly and revolting deflourment, and the burial then proceeds. If, in any case, this ridiculous and disgusting ritual is not observed, the relatives of the deceased are regarded as disgraced forever.

*Medico-legal relations.*—It behoves every physician to be sufficiently familiar with this subject to answer, intelligently and positively, the following questions: Does the presence of the hymen indicate chastity, or its absence the contrary? This point, kept for an unfortunately long period sub judice, is now entirely put at rest with a negative answer to both questions.

That its presence is not a reliable sign of chastity, is conclusively and fully proved by numerous cases, from which I will select a few.

Blundell saw four cases where pregnancy had occurred without impairment of its structure; Ruysch was called upon to divide it, to allow parturition to take place; Capuron saw labor retarded by an unyielding hymen; and Baudeloque tells of one which the advancing head caused to rupture. Tucker reports a case in which not only did conception occur without injury to it, but remaining until labor, it resisted two or three successive and severe pains before yielding; and, to crown all, Parent Duchatelet, in his celebrated work on prostitution, tells of public prostitutes, who had for years followed their degrading profession in the streets of Paris, with the hymen so perfect

as to leave even the most acute and experienced examiner in doubt as to their chastity.

The following interesting incident is related of Dr. William Hunter, who always expressed great confidence in the changes occurring in the areola around the nipples, as a sign of pregnancy. One day a subject was brought into the halls of anatomy, which Hunter, judging by his favorite sign, at once pronounced to contain a foetus in utero. A vaginal examination was made to settle the point, when lo! a perfect hymen was found guarding the passage so faithfully to all appearances, that the defeat of the diagnostician was viewed as complete. Regardless of this, Hunter persisted in his diagnosis; section of the cadaver was performed, and, surely enough, a foetus appeared as confirmation of his assertion.

But surprise at these statements will cease entirely, when the still more surprising (though not less authentic) one is made, that even parturition may occur without breaking it. Tolberg quotes a case from the elder Meckel, in which a foetus of five months, surrounded by its membranes, passed without destroying it; Paré (who regarded its presence as abnormal) relates an instance in which he had to cut it after parturition, and Meigs in his "Obstetrics" says: "I have attended in all her confinements (and she has several children) a woman in this city, whose hymen is still perfect, and which never was torn, even in her labors."

With an accumulation of evidence like this, it might be supposed that jurists, as well as physicians, would be fully agreed as to the value of this membrane as a sign of chastity, and yet more than one instance has occurred within the present century to show that this is not the case. Thus, in the case of *Rex versus Gammon*, the Baron Gurney, before whom it was proved that violence had been done by the virile organ to the sexual parts of a young girl, pronounced the following as his opinion: "I think that if the hymen is not ruptured, there is not a sufficient penetration to constitute the offence. I know there have been cases in which a less degree of penetration has been held to be sufficient, but I have always doubted the authority of these cases." Such an opinion may well be pronounced to be a libel against the physicians of his time and the good sense of his century. This decision has since been overruled, and my conviction is that no conscientious and capable magistrate could at the present day screen an offender, with a mere quibble, the non-rupture of a membrane, the existence of which neither assures nor protects the sufferer from the fearful penalty of illegitimate maternity. How, then, is the physician who is called upon to examine the female

organs in a suit for rape to judge in this matter? Surely by the circumstances of each case, untrammelled by rules which will not apply to all. Should the hymen be thin and delicate, and still uninjured, the aggressor could not have been very energetic nor successful in his attack. On the other hand, should it be found hard, elastic, or very yielding, the act may have been fully accomplished without injury to it.

Let it not be forgotten, while guarding ourselves against the error which will arise from an indiscriminate reliance, that the presence of a delicate and perfect hymen will often render it almost certain that the bearer is chaste. *As a link in the chain of evidence, the hymen is of value; as a conclusive and universal test, it is utterly worthless as a proof of virginity.*

As the presence of the hymen is not a reliable test of chastity, so is its absence no evidence to the contrary; for it may be in childhood or in adult years ruptured by ulcerative disease, prolapsus uteri, an imprisoned menstrual discharge, masturbation, falls, sudden separation of the thighs, the finger of a careless nurse in washing the parts, and a number of other causes. In some cases, too, it is congenitally absent, an occurrence by no means so remarkable as absence of the nose, the eyes, or any of the extremities. A case of this kind is recorded by Capuron, and Meigs expresses himself on the point in the following language: "There are thousands of pure, chaste, and not-to-be-suspected unmarried women in whom no vestige of the hymen is to be found."

*Diseases of the hymen.*—I approach this part of my subject, gentlemen, with a good deal of hesitation, from the fact that I have been unable to meet with any systematic arrangement of the diseased states affecting this structure, and of some I can even find no account in such works as I have been able to examine. I do not say that none such exist, but in the short time allotted by you for the preparation of this essay, I have not been able to find them. As examples of the diseases which will be mentioned, I will detail cases occurring in the practice of physicians of this city which have never yet been published, and which it gives me great pleasure to record.

The diseases of the hymen may be enumerated as,

1st.—*Fibroid, or Cartilaginous degeneration.*

2d.—*Ossification.*

3d.—*Apthous ulceration.*

4th.—*Inflammatory ulceration.*

5th.—*Irritability accompanied by spasm.*

6th.—*An imperforate condition.*

The first of these states, fibroid degeneration, is by no means uncommon, and frequent mention of it will be found in works

on obstetrics. It was probably due to it that, as Dr. Tucker reports, a hymen in his practice resisted several powerful uterine efforts which forced a child's head against it, and that Ambrose Paré was called upon to cut one which resembled parchment in a woman who had borne a child.

The courtesy of Dr. Valentine Mott enables one also to offer the following examples of it. Dr. Mott informs me that he has met with four cases in which the hymen had undergone this degeneration; in two he discovered it while making a digital examination of carcinoma uteri; in both it was hard, strong, and unyielding, so that the finger could be hooked against it and pulled with some force without any sign of yielding. The third case occurred in a lady in good society, who went to consult him, because she was entirely unable to perform the act of copulation, although she had been married for a length of time. Upon examination, he found the hymen so strong and resisting that it would have been impossible for the male organ to have broken it. Under these circumstances, he resorted to the bistoury, and making an incision through the obstructing veil, rendered the act at once practicable.

The fourth case (which is now under treatment by him) is that of an unmarried female, who is suffering from a fibrous growth, from the uterus, which hangs into the upper part of the vagina. The hymen "resembles in strength and resistance the fascia lata of the thigh," and shutting up the greater part of the mouth of the vaginal passage precludes all possibility of operating, or even of fully examining the morbid structure above. It is probable that, in this case, section will have to be performed.

The second of the diseases enumerated, ossification or calcific degeneration, is exceedingly rare, and after careful search I am unable to find a recorded case of it. The following very interesting instance of it, for which I have to thank Dr. William H. Van Buren, will substantiate the fact of its occurrence. While going around the wards of one of the hospitals of Rouen, Dr. Van Buren was shown by M. Flaubert, the surgeon in attendance, a case of fractured thigh in an old French woman, probably about seventy-five years of age. In a vaginal examination called for by some uterine trouble, the hymen had been discovered in a complete state of ossification. This was verified by Dr. Van Buren's examination; the membrane gave to the touch the ordinary sensation of calcification, and when struck by a probe, it distinctly gave the sound which an ossific patch on the aorta yields to a metallic instrument which strikes it.

The third form of disease, aphthous ulceration, may affect

this, as it may any other mucous surface, and in itself is of little importance. Sometimes, however, it produces obstinate vaginal leucorrhœa, more especially in young children, which may be readily removed if attention is directed to this as its cause. In one case which has fallen under my notice, marital intercourse appeared for some time delayed by these little abrasions which rendered the parts exceedingly sensitive; they were not, however, confined to the hymen, but existed on the labia likewise.

The fourth disease of our classification is one which has been ably described by Mr. Percival, in the "Medical Ethics;" Mr. Kinder Wood, in the "Medico-Chirurgical Transactions," and Mr. Lawrence, in his "Surgical Lectures;" each differing somewhat from the other in his description of what appears to be very much the same affection. The disease is characterized by swelling of the organs of generation, which assume a dusky red color, and soon ulcerate. This action is not confined to the hymen, but it suffers in company with the other organs of generation. My reason for drawing attention to it here is, that its ravages have been repeatedly mistaken for the results of rape; and in an inquiry instituted to settle the point, the ruptured state in which it was found might be erroneously regarded as confirmative of that charge, unless the physician was on his guard against this source of error.

The medical examiner who gives evidence in a case of rape, should keep this fact clearly before his mind, for death is the frequent result of the disease, the relatives of the female are convinced of the justice of their cause, and a case pressed, under such circumstances, might, by very slight corroborative testimony from him, turn against an innocent man. From a note received by me upon this subject from Dr. John W. Francis, I extract the following: "In one instance, the female, aged near twelve years, had lost the membrane by vicious practices; in another case, aged thirteen years, ulcerative action had occurred in the private organs, and the absence of the hymen was thus accounted for. I have repeatedly known this disordered action to occur in those parts, in young subjects, at a period of life earlier than six years; the individuals having labored under that sad constitutional infirmity which years ago prevailed among the poor inmates of our old almshouse." He has known "two cases of alleged rape; one on the body of a child five years of age, the other on that of a girl eight years old, which were quashed, from the medical testimony advanced being grounded on the circumstances of the genital organs being affected with an affection not unlike that of the character described by Lawrence."

A striking case is mentioned by Dr. Percival, in which a girl, aged four years, after having slept with a boy aged fourteen, for two or three nights, showed the evidences of severe inflammation in the external organs of generation, and declared that her bed-fellow had hurt her during the night. The girl died, and the boy was arraigned for trial on the charge of rape and murder, and would probably have been executed, had not several similar cases occurred in the neighborhood just after, which enlightened the medical examiners, who had testified against him, as to the true nature of the case.

The name, "irritability," which I have applied to the fifth of the disorders of the hymen, is not satisfactory to me; and yet I know of no other which has yet been applied to it, or which would characterize it better. This condition seems to consist in a peculiarly irritable or hyperæsthetic state of the nerves supplying the hymen, which, by reflex action, causes spasm in the elastic tissue surrounding it, as thought by Dr. Tyler Smith, or in the sphincter vaginæ, as thought by Dr. Marion Sims. It comes on sometimes soon after marriage, the hymen being entirely ruptured, or only partially so, and either interferes with, or prevents coition for a period varying in time according to circumstances. From such information as I have been able to gather concerning this peculiar condition, it is by no means rare. Dr. Tyler Smith, in his excellent work on obstetrics, alludes to it in these words: "There is a considerable amount of contractile tissue in the situation of the carunculæ, and in some cases the irritation and spasmodic painful contraction at this point is so great as to render intercourse difficult or impossible long after marriage." Already, I have been able to collect six cases of it, the histories of some of which will be given below.

As regards its pathology, I have been able to find nothing published. It appears to me to be due to a morbid condition of the nerves supplying the hymen consequent upon mechanical violence done to that structure, as, for instance, to partial or complete rupture during coit. And reasoning from analogy, I think that a perfectly logical conclusion may be drawn, that the morbid action may arise from that state of the nerves described by Romberg as "hyperæsthesia," or as Dickson expresses it: "A plus state of excitability or susceptibility." This, we know, may exist with very slight mechanical irritation, or from very trifling disease; thus it is that we see severe spasm occur in the small bronchial tubes from inhalation of the aroma of certain kinds of grass, the powder of ipecacuanha, etc., and that we meet with spasmodic action at the neck of the bladder, from the injection into the urethra of very



mild astringent solutions. That a great morbid influence may be exerted upon the nerves of a diseased part by a very insignificant malady, is readily proved by reference to the severe and tormenting neuralgic pains which sometimes attack the seat of an old eruption of herpes zoster, and which sometimes continue for years after the cutaneous trouble has entirely disappeared. Sometimes we see this result upon the hymen continue long after marriage, accompanied with a low grade of inflammatory action established in the carunculæ myrtiformes, which may degenerate into warty growths, cause obstinate leucorrhœa, and require excision, as stated by Denman, Velpeau, and others. At other times there are no evidences of inflammation, but the morbid action seems to have left its impress on the nerves, and spasm lasts for years. The following cases, for the notes of which I am indebted to the kindness of Dr. J. Marion Sims, will illustrate the remarks which I have just made.

“Mrs. H., aged twenty-one years, had been married one year, during which period sexual congress had been perfectly impracticable, the effort being attended with such excruciating agony, as to forbid perseverance. The introduction of the finger produced the most intense suffering, with general nervous agitation, involuntary weeping, and even screaming. As soon as the finger was passed in, violent spasm would occur in the sphincter vagina, which could be felt like a hard tendon; and as it was withdrawn, immediate and perfect cessation of suffering would occur. Upon a minute examination, it was discovered that the hymen itself was the seat of this excessive irritability, and that the slightest touch was sometimes more intolerable than firm pressure. Pressure on the verge of the anus, the perineum, the labia, the meatus urinarius, the clitoris, and the mons, gave no unusual manifestations; but the moment that the hymen was touched, all the above symptoms were reproduced, and with this peculiarity, viz.: touching the vaginal surface of the hymen gave no pain, but the instant the probe was brought in contact with any point in the line or fold between the hymen and the labia, the suffering was excruciating.

“I felt satisfied that this spasmodic stricture of the sphincter was due to a morbid sensibility of the hymen, and its proper nerve expansion at the os externum; and that the two conditions naturally reacted, as we see in fissure of the anus. Here the fissure when touched, or irritated in any way, produces a rigid spasm of the anal sphincter, and although the fissure is the original disease, it can be cured only by the division of the muscle, which (as a rule) should be made through the fissured

chasm; thus, severing not only muscular fibre, mucous membrane and cellular tissue, but also diseased nervous filaments, that are exposed in the fissured surface. So in this *vagino spasmus* (if I may be allowed to coin a name), we have the same indications, viz., to divide the tissues of the part implicated, and also the muscle.

"As the case was one for observation, Dr. Emmet suggested that I should divide the hymen on both sides. This was accordingly done, cutting carefully through it and the vaginal mucous membrane on each side, for the distance of an inch, but not going through the sphincter. The patient was under the influence of chloroform.

"An examination, made a few days after this, showed that her condition was the same as before.

"A month after, another operation was performed, cutting laterally on each side downwards and backwards. Hemorrhage was profuse, requiring the use of a tampon, which was removed on the third day. It produced great suffering. On the 5th day a violent arterial hemorrhage occurred, which it was difficult to control on account of the extreme sensibility of the parts. I sent for Dr. Emmet to give chloroform, but fortunately succeeded in arresting it before his arrival. This tampon was removed in three days, but no examination was made for about three weeks, when it was ascertained that two fingers could be easily passed into the vagina, and that, without exciting any undue suffering. This partial success leads me to believe that another, and more perfect operation, will make her physically competent to perform all the duties of the marital relation.

"I have seen," Dr. Sims goes on to say, "two other cases like this. One in a lady, now married twenty-seven years, in whom it is almost impossible to pass the finger through the sphincter vagina. Indeed, the first attempt was an entire failure, and it was only after etherization, that I could ascertain that the vagina and its outlet were normal; the closure being entirely spasmodic. During the twenty-seven years passed by this lady in married life, sexual congress has never been effected. The hymen is still perfect.

"The other case is in a lady, of twenty-five years of age, who has been married four years, during which time the act of coition has been impracticable. She had a sanguineous, mucous tubercle growing from the meatus urinarius, and I supposed that all her troubles sprung from this, as it was very sensitive to the touch; but its excision brought no relief, and upon a minute examination, I found the hymeneal condition precisely as described in the first case."

We come now to the sixth and last of the abnormal conditions to which the hymen is liable, and upon which, as it is fully described in all modern works upon the diseases of females, I will speak at very short length. Imperforate hymen is a congenital condition, accompanied by so marked and such painful symptoms, that it could not fail to have arrested the attention of very old observers. The Greeks provided for those who suffered from it a special name, they being called "*απρήται*" while the Latins styled them "*clausæ*" or "*velatæ*," and the Italians "*coperchiati*." Almost all the old writers alluded to this obturator membrane sometimes found in the vagina, and Ruysch advises its treatment by incision in these words: "*Menses a membrana vulvam claudente suppressi, per-que hujus incisionem evacuati.*"

In these cases the uterus often enlarges under the distending force of retained fluid, the *mammæ* sympathize with its disturbance, vomiting comes on, and a confident diagnosis of pregnancy may be made; the erring physician adding the severest of pangs to the already unfortunate and suffering woman. Such cases are recorded by Frank, Montgomery, Denman, Smellie and others, and in one instance Dr. Macauley was not only deceived thus far, but mistaking the arched and bulging hymen for the presenting part of a child, and the expulsive pains caused by uterine distension for the throes of parturition, pronounced the patient to be in labor. The fluid discharged by incision of the membrane in such cases has amounted to quarts, and by one authority two gallons, it is averred, were thus retained.

The treatment of imperforate hymen suggests itself at once, namely, incision through the obstructing membrane.

As Dr. Rigby, in his work on diseases of women, says, "the operation is simple, and usually performed without difficulty," but he makes no mention of the serious results which sometimes follow so easy a procedure. Dangerous constitutional disturbance, peritonitis and even death have been known to follow a small crucial incision through the hymen under such circumstances, and any one about to perform the operation would do well to guard himself against censure by informing the friends of the patient of this fact before undertaking the operation. Denman says, "I once saw an instance of inflammation of the peritoneum being immediately produced after the operation, of which the patient died, as in the true puerperal fever, and no other reason could be assigned for the disease. Dr. Ramsbotham has reported five fatal cases from the same slight cause. It is difficult to account for these grave results after so slight a surgical interference; the only explanation

which I can offer for them is this. When the operation is called for, the uterus and fallopian tubes are much distended, and their mucous surfaces disordered by lengthy contact with the contained blood, and when atmospheric influences are for the first time exerted upon them the ordinary symptoms of inflammation of these parts are developed.

The following case, the notes of which the politeness of Dr. Hubbard, of this city, enables me to present to you, will illustrate these remarks.

“Miss A., of robust constitution and sanguine temperament, at thirteen and a half years of age, had symptoms of menstruation. These symptoms continued at regular monthly periods for something like one year, when I was sent for to relieve her of retention of urine. On introducing the catheter I discovered that there was a tumor of soft character pressing forward the hymen; that the abdomen was somewhat distended and tender, and the hymen imperforate.

I proposed an operation, but consent to it was not obtained. After suffering several times from retention of urine, produced by accumulation of menstrual fluid pent up in the vagina, and as often relieved by the catheter, the patient submitted to an operation.

Two years had now elapsed since the first symptoms of menstruation. The abdomen was found distended to the size of a first pregnancy at the seventh month of gestation, and the hymen tense, and pushed forward between the labia. Her general health had suffered to some extent, her countenance pale, and appetite not good. A crucial incision of one fourth of an inch was made through the hymen, through which flowed slowly a fluid of dark, pitchy appearance, without odor, of the consistence of liquid tar. After this a bandage was applied, and the patient ordered to be kept in a recumbent position. The discharge continued for three days, when it was supposed by the mother to have amounted to four quarts.

On the third day, the patient began to have fever and great tenderness of the abdomen, and for some days her condition was thought alarming. But by free leeching, and the use of fomentations, the inflammatory action was subdued, and in two weeks she entirely recovered.

*Causes of the persistence of the hymen after copulation and conception.*—It may not be unprofitable in this connection to investigate the causes of the singular persistence of the hymen after copulation, conception, and even as we have seen, after parturition. They may be thus enumerated:

1. *Degeneration of its structure.*
2. *Extreme elasticity and distensibility.*

3. *A small male organ and a hymen with a large fenestra.*

4. *The existence of vaginal or uterine discharges.*

1. Of the first little need be said; its mode of action is evident, and I have already given cases where section of the abnormally strong membrane had to be performed to permit the marital act.

2. It is a well-known fact, that in certain cases the hymen is very thin, and easily stretches out against the vaginal walls under the influence of pressure of the virile organ. The distending force being withdrawn, its elasticity enables it again to recover its former position, from which it again retreats on a repetition of the attack upon it. It is undoubtedly to this variety that is due the fact that even repeated parturition does not rupture it, as already quoted from the writings of Dr. Meigs.

3. Regarding the third cause, I would merely call to your minds the fact that we sometimes meet with the hymen so largely fenestrated as to permit us to pass a small speculum into the vagina, and examine the os uteri above. In the same way, a small male organ has been known to pass and cast the seminal fluid on productive soil. Although the act of copulation be in this case often repeated, the rupture of the hymen may be left for the presenting part of the product of conception to perform.

4. The relaxing influence exerted upon this membrane by vaginal or uterine discharges has long been known. Mahon, and Foderé, and most of the writers upon legal medicine, make mention of it. Ruysch has said that if coit take place just after menstruation, it is often not ruptured, and Bartholinus even goes so far as to give to girls about to marry this advice: "But if her courses flow or have flowed a little before, the yard is easily admitted by reason of relaxation of those parts, whence there is little or no pain and little or no flux of blood. And therefore maids should not be married at that season lest the bridegroom come to suspect the virginity of his bride."

*The carunculæ myrtiformes.*—Our subject would be incomplete without a mention of the carunculæ myrtiformes, the little fleshy bodies about the size of myrtle leaves which exist in the track of the hymen after its rupture. Some diversity of opinion has existed, and still exists, as to the source of these little bodies. Old Severinus Pinæus, quoted by one of his contemporaries as "a most expert surgeon of Paris who hath wrote an whole book of the notes of virginity, not unprofitable to be read," originated the idea that the carunculæ myrtiformes were so many points of attachment for a membrane

which, running off from them, makes the hymen, and this membrane, being ruptured, leaves them visible.

MM. Rigaud, Tolberg, Belloc, and others of more modern times, have regarded them as simple reduplications of the vaginal mucous membrane which exist before the rupture of the hymen; but the weight of opinion at the present time is very decidedly in favor of their being the débris of the broken hymen, which gradually shrivel and occupy an unimportant position in the vaginal passage. The number of these bodies cannot be fixed, varying according to circumstances from two to six, or perhaps more. Two of these little eminences, as thought by some physiologists, appertain to the medium columns of the vagina; they are a little anterior to those formed by rupture of the hymen.

The carunculæ are liable to inflammatory action, as already stated, and sometimes degenerate, become warty in appearance, cause an obstinate leucorrhœal discharge, and necessitate excision, as advised by Denman, and practised by Velpeau.

But time presses, and we must conclude. Before leaving the subject, however, gentlemen, let us for a moment reflect upon the singular importance which has from the earliest ages been attached to the existence of a little fold of mucous membrane, the presence of which is, as a general rule, of as little value as a proof of chastity, as its absence is of the contrary. When we bear in mind that at various periods of the world's history the life, the honor, and the holiest affections of the female heart have been jeopardized by a blind reliance in it, how plainly can we see the important duties which are owed to society by that profession whose function it is to enlighten and instruct it upon points like these! How strongly and painfully does it impress upon us the fearful responsibility of our calling when we see such gigantic interests, the guardians of which we are, revolving around so insignificant a pivot!

