THE HISTORY OF MOLE PREGNANCY.

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IT IS but natural to suppose that the occurrence of mole pregnancy must have puzzled mankind from the earliest times, and that a careful review of such manuscripts and tablets as we possess would reveal many references to these strange and unusual processes of childbirth. Difficult it is, however, to glean the facts from the volumes in which they lie concealed. In fact, the history here given is by no means complete. It presents merely a general outline with a short account of such original pamphlets and books on the subject as were at my disposal.

First, as to the etymology of the word "mole." It can hardly be derived from the Latin *moles,* meaning huge mass, since after all a mole pregnancy is a small object. Nor does there seem any apparent reason to trace it back to the Greek μυλή signifying machine. On the other hand, the Persians have the word *molin,* meaning piece of flesh. From this, in all likelihood, our term "mole" is derived. Many synonyms exist. such as fausse germe, false conception, fœtus mendosus, tumor carnosus, moon-calf, Mondkalb, Mutterkalb, Teufelsbruth, Kielkopf, Sonnenkind, Nierenkind, etc.

Of special interest is the use of the word "Moon-calf." Ballantyne in his "Antenatal Pathology" cites this as an instance to show the belief of people in the stars and moon as teratogenic causes. J. O. Halliwell in his "Dictionary of Archaic and Provincial Words" quotes Cotgrave's definition: "a moon-calfe, a hard swelling or shapeless piece of flesh in the womb, which makes women believe they are with child when they are not." The word moon-calf cannot be traced further back than the sixteenth century. In Holland's English version of Pliny (1601), the word moon-calf appears as a translation of mola. It is moreover unlikely that the ending *calf* did not mean the young of the cow but a swelling or lump (as in calf of the leg). Thus, moon-calf would signify monthly or menstrual lump.

The history of mole pregnancy dates back, as do so many things in medicine, to Hippocrates. He, however, included under this head all kinds of false conception, imaginary pregnancy, etc. Hydatid moles were also not unknown to him and in one place

he declares that this degeneration of the membranes was a not infrequent cause of miscarriage. Kossmann ascribes this observation to Diocles of Carystos. At this time the division was already made into true and false moles. True moles according to Hippocrates were always a product of gestation. His successors, however, did not hold the same view. According to Galen the term could be equally applied to any tumor of the uterus, to dermoids or to the membranes occasionally expelled by dysmenorrhoic women.

Pliny, living in the days of Vespasian, about 69-79 A.D., said: "The only being that has a monthly bleeding is woman. Hence she alone has in her uterus the so-called moles. This is a shapeless fleshy mass without life that is cut with difficulty by a knife. It hinders the monthly flow just as pregnancy does. Occasionally it is fatal to women; at times they retain it for many years, at times it passes away from their bodies."

The next important reference to moles we find in the writings of Aetius of Amida, about 600 A.D. He describes a condition of hydrops uteri in which bladder-like bodies were expelled, some viscid, some watery. Kossmann shows that this description of uterine hydrops is clearly that of a hydatid. Moles, according to Aetius, might arise after inflammation or a local ulcer.

In the succeeding centuries, when Arabian medicine flourished, every object or tumor that developed in the cavity of the uterus was termed a mole.

We find no further reference to this subject until 1564 when Christopher of Vega in his "Ars Medendi" described the expulsion of a twelve pound hydatid mole. An even more accurate account of such a mole was given by Schenk of Grafenberg (1565). Valleriola (1573), describing a like specimen, assumed that the vesicles developed from the female ova that were not impregnated by the male semen.

Tulpius who is so familiar as the central figure in Rembrandt's painting, "The School of Anatomy," in his "Observationes Medicæ," published in 1672, gives a very good description of a hydatid mole. "The wife of Philip Borealis," he relates, "afflicted for some time with irregular profuse menstrual flow, expelled a shapeless bloody mass, containing in its interior innumerable vesicles, partly filled with water, partly with air. It came away not in one piece but bit by bit. So numerous were these pieces that they filled an entire bucket of the sort

that are used by our women to carry water. This mole being expelled there flowed so much water and blood from the inflamed vulva that the patient fainted away. This extreme prostration likewise occurred in another woman, whom I saw give birth to a similar mole. But both were readily revived and quickly recovered their former health."

The first book dealing solely with the subject of moles was written by Lamzweerde, concerning whom little is known except that he was born in Brabant, became practicing physician in 1657 at Amsterdam, and in 1683 was made Professor of Anatomy at Cologne. The "Historia Naturalis Molarum Uteri," a volume of 341 pages, was published at Leyden in 1686.

In the opening chapter of this work he reviews the various definitions of moles given by writers in the past. In general, there are two sides: the one, including Hippocrates, Aristotle, Actuarius, Fernelis Roderigo a Castro, etc., believed that no virgin could produce a mole, in other words, that the mole is only a product of pregnancy; the other, including Plutarch, Avicenna, Ruysch, and others, believed that a virgin might produce a mole. Lamzweerde thought that these opposing views could be reconciled by dividing moles into *Molæ generationis*, those following conception, and *Molæ nutritionis*, those tumors that develop in virgins as well as married women not associated with pregnancy but at times expelled like a product of gestation.

Under the head of causes of mole formation, he first takes up the *material* cause. Moles have the same composition as embryos, since the true ones or *Molæ generationis* always follow impregnation. They have three distinct principles, a germinal, a milky and a bloody one. The germinal principle is that from which the color, the consistency, the form and other characteristics of the body are developed. The milky principle is that which feeds the individual after it has assumed form, converting the maternal food particles into similar particles for the fetus. The sanguinous principle is that portion of the maternal blood by means of which growth is alone possible. The material cause of moles, says Lamzweerde, is modified or diseased birth (*genitura morbosa et modica*). The *predisposing* cause of mole formation he attributes to some changed property of the sexual elements either male or female. The *direct* cause of mole formation finally may be fourfold: first, a congenital absence of certain elements necessary for the construction of the heart; second, an

insufficient development of these elements; third, a malformation or misplacement of these elements; fourth, external pressure interfering with development. Only in the uterus can moles be

FIG. 1.—Frontispiece to Lamzweerde's "Naturalis Molarum Uteri Historia," descriptive of the story concerning the birth of rats.

formed, and they may be retained many years without putrefying, even to the end of life. (See Figs. 2 and 3.)

An interesting chapter is that devoted to the various forms of moles. Here a number of strange occurrences are cited. Forestus tells of the fat wife of Bartholomew Simon, the

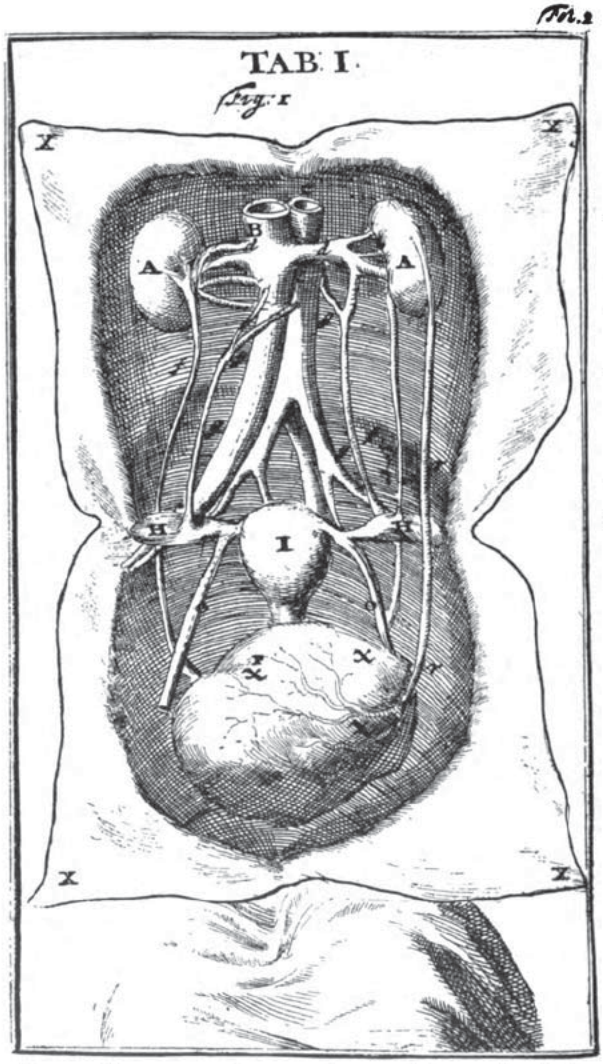

FIG. 2.—Lamzweerde's case of a nutrition mole of the uterus.

merchant, who thought she was several months pregnant but afterwards began to doubt this. Finally, after a year had passed, she succeeded by the use of certain remedies in expelling

a bloody mole, that seemed as if filled with many eyes, was round, and was larger than the palm of the hand. (See Fig. 4.)

Another even more remarkable story is that ascribed to Philip Salmuth. A woman, apparently at the conclusion of a normal gestation, gave birth to five living rats, that slipped from out the womb between the hands of the attending midwife, and, according to the habit of rats, ran to the cabinet (*hypocaustum*). Four of them were instantly killed by the attendants. The fifth being caught in the corner of the wall was pounced upon by a cat that happened to be about, and was quickly devoured.

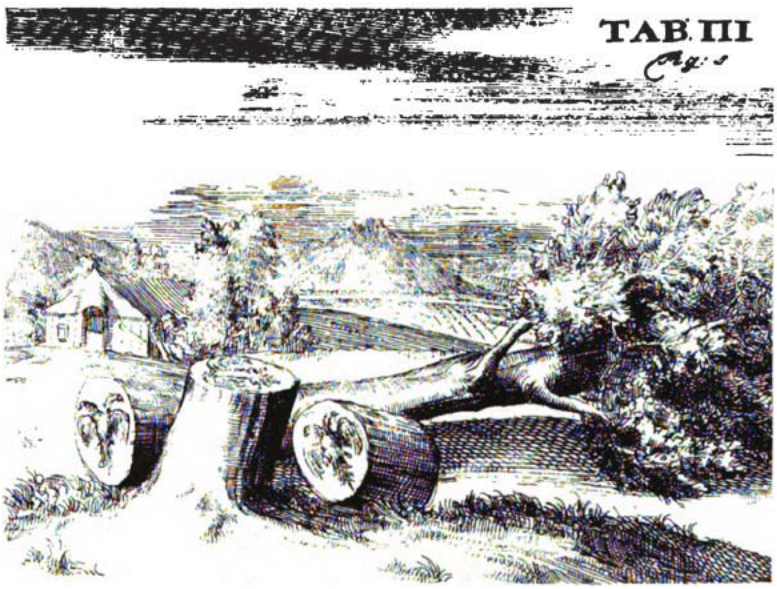

FIG. 3.—Illustrative of the way in which the human seed bears the impress of its parentage. (Lamzweerde.)

Thereupon the cat became crazy, and jumping on the bed of the woman who had just been confined, scratched her. Nor did she desist until she too had been beaten to death by those present. In corroboration of this story he concludes with: "and this deed occurred in Sienna in the year 1596." (See Fig. 1.)

As to the method of treatment, Lamzweerde cites the experiences of Harvey (*magnus Harvæus*), he calls him, who removed mole pregnancies by surgical means, using a delicate silver instrument for the purpose. Several women were saved by opening the internal os of the uterus and allowing the putrid

and evil smelling material within to flow out. So terrible was the character of this material that no internal medication would have been of any avail against it. Hence Lamzweerde favors surgical interference rather than drugs for these cases.

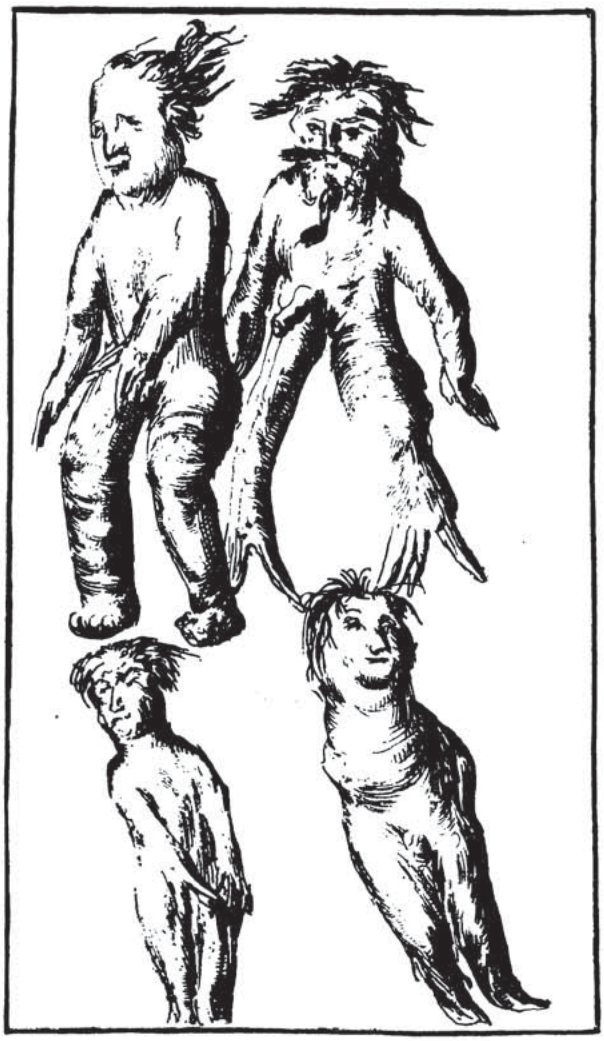

FIG. 4.—Showing the various kinds of deformed embryos to be found in mole pregnancy. (Lamzweerde.)

Regarding the possibility of a virgin conceiving a true mole without sexual intercourse, he concludes that this is impossible. Nor can a widow, after the death of her husband, by virtue of

elements still remaining within her from him, produce moles. Nor can virgins or widows by mere force of the imagination produce these objects. Another chapter considers whether a virgin or a widow, from bathing in the same tub or sleeping in the same bed that a man had bathed or slept in, could contract such a mole. A concluding section, taking up much ecclesiastical evidence, considers whether these moles may originate from the devil. The answers are always in the negative.

In the "Maladie des Femmes" of Mauriceau, published in 1712, we find a chapter of eight pages treating *De la Mole et du Faux-germe*. "The mole is nothing more," writes he, "than a fleshy mass without bones, without joints, and without distinct limbs, that has no true form or regular figure, and following coitus is engendered in the womb contrary to nature from the impaired seed of the man and woman. It is absolutely certain that woman cannot give birth to moles unless she has had sexual intercourse, for the two seeds are as necessary for this as they are for true conception."

He gives, in observation No. 377, a very accurate description of a hydatid mole and then continues: "Certain visionary doctors, having examined this mass of vesicles thought that these same vesicles could authorize their belief that conception took place in women by means of little eggs which detached themselves from the testicles and entered the uterus by some way at present unknown to us. But the arrangement and excessive number of these vesicles show the error of this chimerical hypothesis, I believe. The formation of this strange body happened in this case because of some indisposition that occurred to her during the weeks that she conceived, and this indisposition interfered with that divine arrangement which puts each part in its proper place. Hence there was formed only this chaos of simple vesicles." He further believed that one of the main factors in the formation of moles was too frequent intercourse, the seed thereby becoming enfeebled and the resulting organism imperfectly formed.

Friedrich Ruysch, who for sixty-five years was Professor of Anatomy at Amsterdam, dying in 1721, taught that moles might also be formed from portions of placenta. Such pieces might be retained for months without injuring the woman, and by the pressure of the uterus be made to assume a globular shape and a hard fleshy consistency. Occasionally these placental

pieces might degenerate into bunches of hydatids or innumerable vesicles.

Toward the latter half of the eighteenth century there were many who wrote upon the subject of mole formation. Van Swieten and Noortwyk, in Holland; Apel, Voigt, Rickmann, Kaltschmied, Berger, and Roederer, in Germany; Smellie, in England; and many others might be mentioned. I was able to obtain a copy of Voigt's "De Mola seu Conceptu Fatuo," published in 1761, and Rickmann's pamphlet, "Programma quo vera molarum theoria explicatur," published in 1769. Voigt gives a rather complete bibliography, but adds nothing new. Rickmann emphasizes with what frequency there are found in these moles minute deformed and often partly liquefied embryos, out of all proportion to the duration of the pregnancy.

Baudelocque, writing at the end of the eighteenth century, included the hydatids among the moles, saying that moles sometimes are spongy, like the placenta, and at other times are formed of a collection of little bladders filled with water. Some ignorant women believed as a consequence of their shape that they had been delivered of a branch of a gooseberry tree or a bunch of grapes, and that these productions were the effects of certain longings in the early periods of pregnancy which they were not able to satisfy. As to the blood moles, Baudelocque relates that they rarely contain any fluid, and are often so dried up that scarcely a drop of blood can be squeezed from them. They are generally retained for three to four months, sometimes, however, to the sixth month and even longer.

Gregorini's description of a hydatid mole with well-developed fetus, in 1795, is of a special interest inasmuch as it includes the report of an autopsy by Meckel on a patient who had had a hydatid mole and subsequently, to judge by the description, developed a metastatic syncytioma. The latter was interpreted as a malignant tumor independent of the mole.

In 1819, Bremser suggested that the cause of hydatid mole was a parasitic one. The vesicles were in reality pseudohelminthia. Two French authors, Percy (1811), and Cloquet (1822), interpreted them as worms and called them *Acephelocystis Racemosa*. But Madame Boivin (1827), who gave a very good illustration of a hydatid mole, together with other writers, refuted these assumptions.

On the more recent history of moles I will not dwell except

to say that Virchow's interpretation of the hydatid form as a true neoplasm, a myxoma of the chorion, was for many years accepted as true, until the work of Marchand and L. Fraenkel clearly showed that the proliferation of the fetal epithelium was primarily responsible for its formation.

The subject of blood-moles and retained abortions has also received much attention. Pernice in 1853 gave a very clear picture of a form of mole associated with polypoid hematomata, and Breus in 1892 described this form as the tuberous subchorial hematoma of the decidua. Whether it deserves to be grouped as a separate class of moles is a question still under discussion.

To review in a few words: Hippocrates with amazing insight expressed views on moles that practically coincide with modern conceptions. Certainly his interpretation of hydatid moles as a degeneration of the fetal membranes was most up-to-date. Then for centuries no advance was made until the Renaissance when observations began to be recorded more carefully. Lamzweerde did valuable work in clearing our ideas from the cobweb of superstition that clung about them. When we come to Tulpius and Mauriceau, the value of extensive clinical observation becomes apparent, but ignorance of the processes of reproduction led to many wrong hypotheses. Hydatid moles were classed as hydrops of the uterus. Even more ridiculous was the more recent view classing them as worms. Modern pathology, with Virchow as the leader, finally gave us some insight into the true etiology of these products of gestation.