

## THE BEGINNINGS OF MODERN JAPANESE OBSTETRICS <sup>1</sup>

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It was not until the second half of the 18th century that Japanese physicians began to take an active interest in the practice of obstetrics, which until that time had been largely in the hands of midwives. More than to any other man the change was due to Kagawa Genetsu, a student of acupuncture and massage who, according to the Japanese medical historian Kaku Kashiro,<sup>2</sup> used that study merely as a pretext to acquire a secret knowledge of medicine.<sup>3</sup> While practicing acupuncture and manipulation in Kyoto, Kagawa Genetsu was called by a neighbor to the house of a woman in protracted labor. He found an extremely difficult arm-and-leg presentation, and only after deliberating all night did he hit upon a procedure which eventually succeeded in delivering the child. This episode was the turning-point in his career. From then on he devoted himself to an intensive study and practice of obstetrics, until, in 1765, he published the *San Ron* (産論) or "Treatise on Obstetrics," the first Japanese work on the subject based primarily on actual experience.

The importance and influence of this work, a curious blend of Chinese universalistic philosophy, of adapted European methods, of traditional practices and personal observation, cannot be evaluated without an understanding of the forces that went to make up the medical background of the author. For while the important element of the *San Ron* is undoubtedly the skeptical attitude that led to an experimental approach, Kagawa Genetsu was also a child of his time, a product of an ambience that had for many centuries soaked up and adapted various foreign medical practices, often contradictory and without synthesis.

A medical art indigenous to Japan existed only until the first contact with other peoples was established; then the Japanese adopted the foreign

<sup>1</sup> The material for this study is part of the oriental collection of the late Dr. Howard A. Kelly, which is deposited at the Institute of the History of Medicine, The Johns Hopkins University. I am indebted to Dr. Sanford V. Larkey, Librarian and Director of the Welch Medical Library, for his permission to use these rare books.

<sup>2</sup> Kaku Kashiro: 皇國醫事沿革小史 ("Short History of Japanese Medical Progress") Tokyo, 1884.

<sup>3</sup> Kaku Kashiro does not explain why Kagawa Genetsu should have had to find a pretext to study medicine, but it may be presumed that Kagawa was interested in Western methods, the study of which was then forbidden.

healing arts successively, adding one system to the other and never entirely giving up the system previously adopted. Until contact with Portuguese and Dutch medicine took place after the middle of the 16th century, the chief influences on Japanese medicine had been Korean and Chinese. Japanese adaptations of Chinese texts still formed the backbone of Japanese medical practice in the 18th century, and must have furnished the basic element of Kagawa's training. These works were highly schematized and far removed from actual observation. They showed a general lack of knowledge of the human anatomy, as is evident from the stylized illustrations to be found in anatomical studies and the frequently absurd conclusions derived aprioristically from Chinese Taoistic principles. The authors of these works had no understanding of physiology that might have led to a realistic representation of the process of gestation and parturition.

For a century and a half before the appearance of the *San Ron*, Sino-Japanese medicine had undergone certain changes as a result of contact with European practices, but the conditions under which the contact took place makes it difficult to determine in detail the degree of influence. The Japanese policy of rigid seclusion limited the absorption of European medicine to the trickle of knowledge that emanated from a tiny trade settlement at Deshima, near Nagasaki, which the Dutch had been permitted to establish early in the 17th century. From the writings<sup>4</sup> of the physicians who were attached to the Dutch settlement we learn that while the Japanese government tolerated the presence of the foreigners for economic reasons, it forbade under threat of severe punishment the study of the Dutch language, the reading of foreign works, and, as a consequence, the textual study of Western medicine. Since, however, this policy of complete isolation was relaxed somewhat in the case of the Japanese interpreters attached to the Dutch settlement, who were allowed to acquire a limited knowledge of the Dutch language, it was through these interpreters that Western medicine began to affect native practice. So many of these interpreters made use of the opportunity of medical training afforded by association with the Dutch physicians at the settlement that it appears that they must have sought out this employment primarily for this purpose. They attended lectures given by the foreign physicians and accompanied them on their rounds, thus acquiring some knowledge of clinical medicine; but the secrecy forced upon them by the attitude of the authorities for the most part prevented more detailed studies.<sup>5</sup>

<sup>4</sup> Engelbert Kaempfer, *Histoire naturelle, civile et ecclésiastique de l'empire du Japon* (La Haye, 1729); and others.

<sup>5</sup> To be sure, certain of the interpreters must have defied the edict against the use of

Although several of the rulers of Japan who held the shogunate prior to the middle of the 18th century were sufficiently aware of the superiority of Western medicine to employ Dutch-trained native physicians and even to permit the Dutch doctors of Deshima to give short courses of instruction to the court physicians at Tokyo, it was not until 1745 that shogun Yoshimune rescinded the edict against the possession and reading of foreign books. This marks the beginning of the era of systematic study of the Dutch language and medical texts. Two Japanese physicians of the Meiwa Era (1764-1772), Riōtaku Mayeno and Sugita Gempaku, were greatly instrumental in furthering that study by translating a work on anatomy by Johan Adam Kulmus<sup>6</sup> and compiling a Dutch-Japanese dictionary and grammar.<sup>7</sup>

As a consequence of the century-old edict against the use of European books, however, the Japanese had never developed the custom of making acknowledgements to the original author, for such reference had been tantamount to the admission of a crime. Therefore, the Japanese adapted, condensed, paraphrased, copied the Dutch works they were able to acquire, but did not identify them; so that in many cases it is impossible now to disentangle those elements that were taken directly from the Dutch and those that might have been part of the intellectual property previously assimilated by Japan.

It thus becomes obvious that the *San Ron*, proceeding as it did from this mingled background of Chinese formalism and obscure Dutch practice, must retain features of both, but while Chinese elements which derived from a completely accepted tradition can be easily distinguished, it is not so easy to identify specific Western practices. It should be further clear that Kagawa Genetsu's theoretical training in obstetrics scarcely prepared him in any consistent way for a scientific approach to his subject.

As for any practical training that Kagawa might have obtained from the traditional lore and practice of his day, it must be realized that until the middle of the 18th century the practice of obstetrics in Japan was almost entirely in the hands of midwives, whose training, procedures, and point of view, although based on Chinese precepts, did not differ greatly from the methods of their European counterparts. There were, however, two practices that might be termed characteristically Sino-Japanese and

foreign texts, for in 1713 appeared two Japanese books on surgery which were obviously based on the writings of Ambroise Paré. These works are: Yeikyū Marabayashi, *Geka Soden* (1706); and Gentetsu Nishi, *Kunsō Tetsuboku Ryōjji* (1713).

<sup>6</sup> Sugita Gempaku, *Kaitai Shinsho* (1774).

<sup>7</sup> Sugita Gempaku: 蘭學事始 (“Beginning of the Study of Dutch in Japan”) 1869.

that appear to be without equivalent in Europe. These were the use of the abdominal binder and the rolled mattress. The abdominal binder was a girdle worn by the pregnant woman from the fifth month until the birth of the child. This practice, whose origin goes back to the legends of Japanese antiquity, was held to be effective in preventing excessive growth of the foetus and thus facilitating delivery. The rolled mattress was generally used as a delivery chair. In these deliveries, male physicians were seldom consulted, and then only in cases of protracted labor, which was held to be caused by a state of internal disease. The cure of such a disease, which in terms of Chinese universalistic philosophy meant the restoration of internal harmony, was no longer a part of obstetrics but belonged to internal medicine. Thus it was that during the 18th century, in spite of the almost exclusive employment of midwives in the practice of obstetrics, a number of Japanese physicians became acquainted with abnormal conditions arising during pregnancy and labor. The limitations of that acquaintanceship stand out when one realizes that these physicians, in treatment of their patients, merely prescribed medicines, instead of proceeding to deliver the child.

The paucity of Kagawa Genetsu's training in obstetrics both theoretical and practical prior to his dedication to the field thus becomes evident, and highlights the importance of the *San Ron* as the foundation of modern Japanese obstetrics. The *San Ron* or "Treatise on Obstetrics" is divided into four main sections and a supplement, which is entirely devoted to the description of the author's own experiences. The main sections deal with the following topics:

1. The development of the embryo: theories and practices concerning gestation.
2. On the choice of the place for delivery and the position of the parturient woman.
3. Postnatal treatment.
4. On the use of the mattress and the abdominal binder.

The material contained in the *San Ron* was elaborated in 1774 in an explanatory treatise entitled *San Ron Yoku* (産論翼) or "Explanations of the *San Ron*" (Fig. 1) and composed by Kagawa Genteki, a pupil and adopted son of Kagawa Genetsu.<sup>8</sup> This later work contains a number of

<sup>8</sup> In keeping with the rigidity governing Japanese society, the profession of the doctor was generally hereditary. However, the physician's obedience to the caste system was entirely voluntary, and often the son of a physician would choose another profession, while an outsider would take up the study of medicine. In such instances, the prevailing custom was followed, inasmuch as the physicians generally adopted their students.

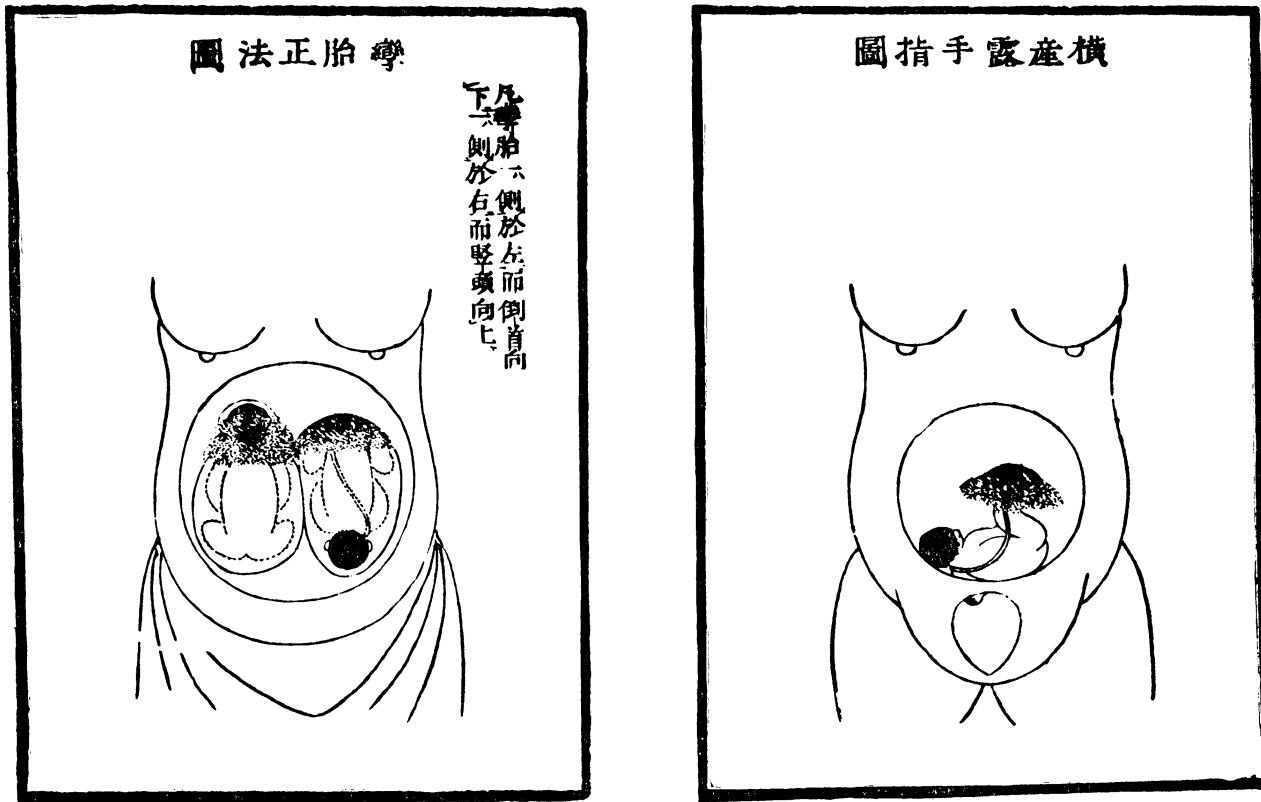


Fig. 1. From Kagawa Genteki: *San Ron Yoku*, 1774

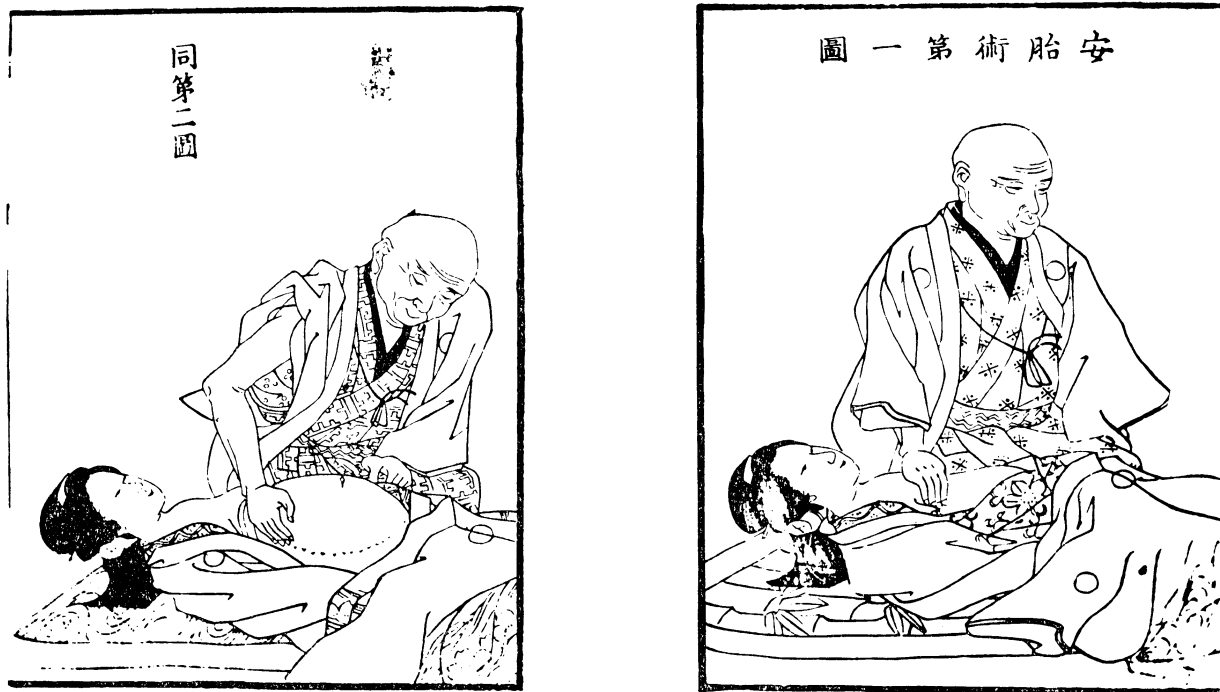


Fig. 2. From Tatsuno Ryūtei: *Sanka Shin Ron*, 1821

additional chapters, whose titles follow: "The diagnosis of pregnancy and the examination of the womb"; "The diagnosis of the dead foetus"; "On lactation"; "The diagnosis of the position of the embryo and possible repositions"; "The diagnosis of twin pregnancy"; "Massage of the abdomen and evacuation of the waters"; "The cutting of the umbilical cord and the treatment of the newborn"; "On the reposition of the prolapsed intestine, uterus and rectum"; and finally "On the treatment of haemorrhages, dizzy spells, cramps and tetanus." Then follows a list of 24 rules concerning the most frequent pathological conditions with the treatment indicated in each case.

A study of these works reveals the odd reconciliation of traditional beliefs with accurate clinical observation that their background led us to expect. As example of the continuance of ancient practices and points of view, the Kagawas advocated gentle massage during pregnancy as salutary and corrective for both mother and child (Fig. 2). They also expressed faith in two ideas which were clearly rooted in ancient Chinese universalistic philosophy. The first of these concerned the diagnosis of pregnancy which was established by the physician on the basis of the pulsation he believed to feel in the patient's finger-tips when placed against those of his own. The other idea, even less touched by realism and experience, referred to the nature and composition of the embryo aborted during the first three months. Such an embryo, it was stated, was round; if it was cut apart it would show the five colors representing the five elements. This, they held, furnished absolute proof that man was composed of water, fire, air, earth and wood, the five elements composing the universe. Also touched by tradition is the Kagawas' emphasis on conditions supposedly caused by psychological disturbances.<sup>9</sup> Thus, vomiting of blood, nose-bleed or sudden pains in the breasts are said to be caused by violent anger. Excitement, irritability and melancholia during pregnancy are said to lead to fainting spells and even insanity after delivery. As for cramps, the *San Ron* states, "Cramps arise by the incitement and then artificial suppression in the patient of all or any of the seven emotions (joy, anger, grief, pleasure, love, hatred and avarice). In such cases the inner fire becomes very strong, the large intestine is heated, and this heat is then passed on to the other intestines. Thus arises the *shikan*."<sup>10</sup>

While it is evident that the Kagawas had not entirely escaped the

<sup>9</sup> For a contrast of these beliefs with those of the contemporary Western world, see "Geburtshuelfliche Vorurtheile unserer Zeit" in Dr. Joh. Ant. Schmidtmueller's *Der Stand der Geburtshuelfe der Neuesten Zeit* (Erlangen, 1807), p. 271 ff.

<sup>10</sup> (子痛) Now generally translated as eclampsia or puerperal convulsions.

traditions of their time, an examination of their texts reveals that they had begun substituting observation for some of them. Thus, they rejected the accepted idea of possible foreknowledge of the sex of the child on the basis of its position in the womb;<sup>11</sup> they proved unfounded the hypothesis that the foetus stood upright in the uterus until the tenth lunar month and that it then turned upside down;<sup>12</sup> they condemned the use of the abdominal binder, an action requiring considerable courage of conviction, in view of the venerability of the practice, because it was, as they said, like placing a heavy stone upon a young plant and thus arresting its growth; they considered harmful the custom of preparing a pregnant woman for sleep by encircling her head and thighs with a strap, so that she lay in a doubled-up position:<sup>13</sup> and they even warned against the use of the uncomfortable rolled mattress as a delivery chair.<sup>14</sup>

With these works by the Kagawas, Japanese obstetrical practice emerged from its dark age and began to approach the Western level, without, however, revealing any clearly discernible European source of inspiration. Later authors, although following the Kagawas, were also influenced by Europeans, who in some cases can be identified. For example, in 1774, the same year Kagawa Genteki's sequel to the *San Ron* appeared, Katakura Kuwakuryō published an obstetrical work entitled *Sanka Hatsumō* (産科發蒙) or "Enlightenment in Obstetrics." This work is concerned with the delivery of children in abnormal positions, twin pregnancies and their delivery, and the correction of transverse positions. Katakura states that twenty-seven of his illustrations were inspired by the *Oranda-Ryū-Geka*, the "Surgical School of Orange," as the Dutch medical group was called by the Japanese. In keeping with the Japanese practice of his time, Katakura failed to specify which of the books of the "School of Orange" served as his model; but a comparison of his figures with those of Dutch medical books then extant reveals beyond doubt that he derived them from

<sup>11</sup> A Chinese work on obstetrics, published in 1785, makes reference to this belief. See *Shou-Shi-Pien; Ein Chinesisches Lehrbuch der Geburtshülfe*, Aus dem chinesischen Urtext uebersetzt und erlaeutert von Dr. med. et phil. Hübotter (Berlin, 1913), p. 13.

<sup>12</sup> *Ibid.*, p. 31.

<sup>13</sup> This practice was followed so as to prevent the child's legs from sliding into the outstretched thighs of his mother, much as they might, so Kagawa explained, into a pair of trousers. With the common sense typical of the man, Kagawa held this practice to be more harmful than beneficial, maintaining that the forcefully bent thighs of the mother crowded the child's legs upward while the abdominal binder pressed him downward, and that the result of these pressures tended to lead to a transverse position.

<sup>14</sup> For a more detailed discussion of the contents of the *San Ron* see: Masakiyo Ogata, *Beitrag zur Geschichte der Geburtshuelfe in Japan* (Freiburg, 1891), p. 26 ff. I am indebted to Dr. Owsei Temkin for bringing Ogata's book to my attention.

*The Art of Midwifery* by Heinrich van Deventer (1651-1724),<sup>15</sup> (Figs. 3 and 4), and that his text is based on the works of Deventer, Smellie,

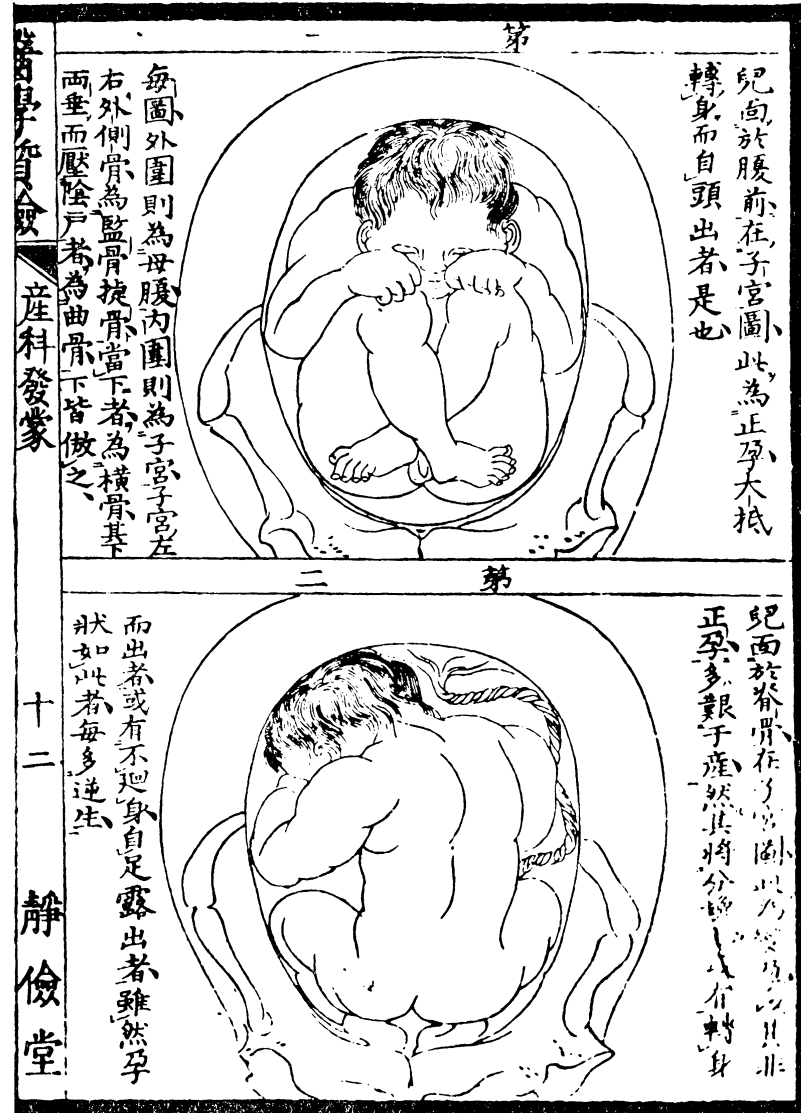


Fig. 3. From: Katakura Kuwakuryō: *Sanka Hatsumō*, 1774

and other European authors, as well as on the writings of the Kagawas. In addition to the copies of Deventer's twenty-seven illustrations, Kata-

<sup>15</sup> Originally published as *Dagcrat der Vroedvrouwen*, Leyden, 1696, then translated and published in Latin in 1701; the Latin edition was translated and amplified in French in 1773; in English in 1728; in German in 1740.



kura also shows two pictures of forceps delivery, drawn very much in keeping with the pattern established by the European obstetricians of the



Fig. 4. From: Heinrich van Deventer: *Neues Hebammenlicht*, Jena, 1740, 4th edition.

18th century. The forceps shown in the Japanese illustrations appear to be Smellie's double-curved instrument (Fig. 5).

An interesting feature of Katakura's book is his acceptance of a belief

already abandoned by the Kagawas, that of the difference of position of the male and female embryo in utero (Fig. 6). His text and diagrams are



Fig. 5. From: *Sanka Hatsumō*

graphic illustrations of the fact that the Japanese physician was not yet always able to apply independently the anatomical knowledge gained through the study of Western books and the teaching of Western doctors.

Although the diagrams appear on the page facing the illustrations of the forceps delivery and the illustrator's technique is similar on both pages, the



Fig. 6. From: *Sanka Hatsumō*

diagrams depicting the ancient beliefs are devoid of apparent knowledge of the female anatomy.

The forceps mentioned above were not the only instruments used by

the Japanese obstetricians, but the other mechanical aids appear to have been invented without European pattern. Thus, Mizuhara Gihaku, in the 19th century,<sup>16</sup> devised a noose of whalebone, the ends of which were fastened to a wooden handle. This noose, made pliable in hot water before being used in forcible extractions, was introduced into the uterus and



Fig. 7. From Kondō Taizō: *Tassei Zu Setsu*, 1858.

slung around the child wherever possible. Although Mizuhara's noose was changed and improved by many of his colleagues, it still remained a hazardous instrument, frequently causing lacerations and even death to mother and child.

These disastrous results were often attributed to the patient's initial fear, and in keeping with this hypothesis the doctor was advised to carry his instruments in his wide sleeves and to apply them under a cloth covering, so that neither the patient nor her family could see them (Fig. 7). This

<sup>16</sup> Mizuhara Giharu, *San Iku Zen Sho* (産育全書), (1850), 11 vol.

ruse does not seem to have been sufficiently effective, for soon the whale-bone sling had to be replaced by a silk net. Tatsuno Ryūtei, the inventor of this net,<sup>17</sup> suggested that it be inserted into the uterus by means of two

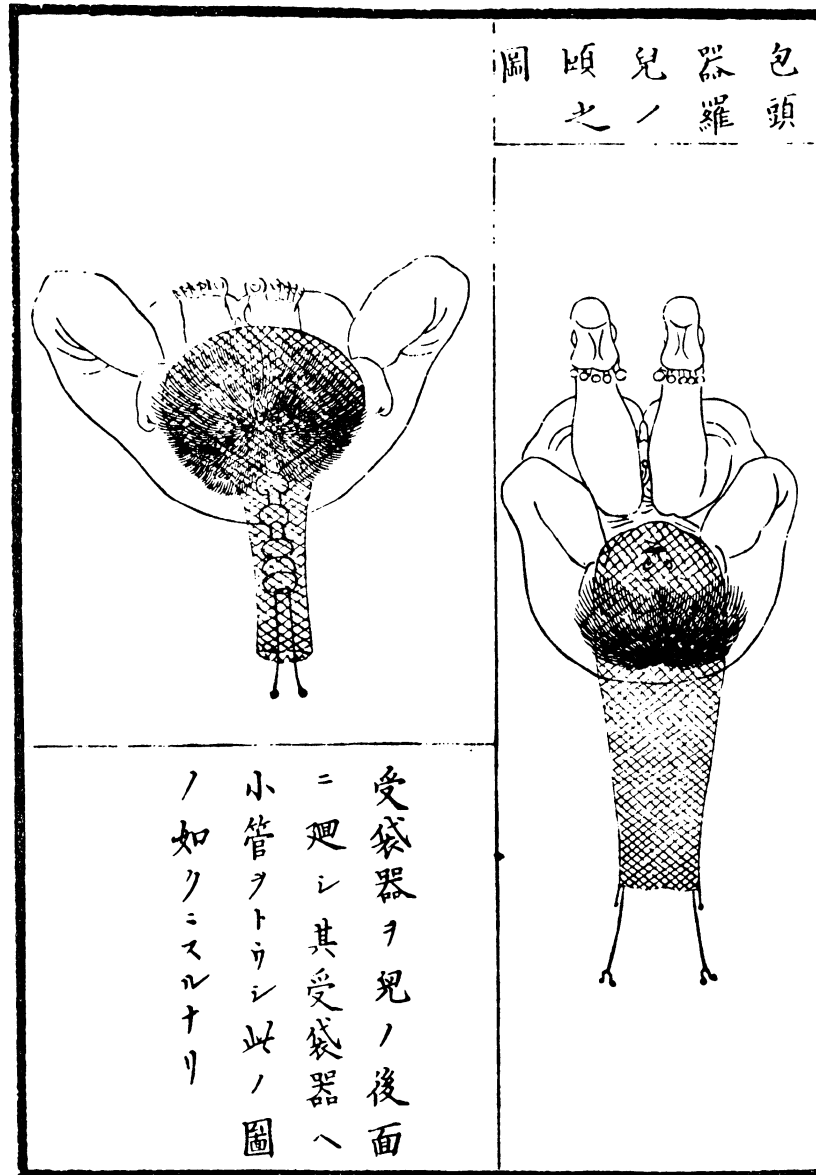


Fig. 8. From: *Sanka Shin Ron*.

detachable thin rods and then unrolled over the head of the foetus (Fig. 8). After the rods were withdrawn, the physician could manipulate the net by its ends and achieve a version and a safe extraction.

<sup>17</sup> Tatsuno Ryūtei, *Sanka Shin Ron* (産科新論), 1821.

European obstetricians of the 18th century also knew of such a net. It had been devised by Pierre Amand and described in 1714 in his *Nouvelles observations sur la pratique des accouchements avec la manière de se servir d'une nouvelle machine, très commode et facile, pour tirer promptement et sûrement, la tête de l'enfant, séparée de son corps, etc.* But the construction and appearance of Amand's net was so different from that designed by Tatsuno Ryūtei in 1821, that one may safely accept the latter as an independent effort.

Whether Kagawa knew of any mechanical aids is open to question; at any rate he did not suggest their use.<sup>18</sup> Kagawa stressed that massage and proper manipulation could bring about version and safe delivery, even in cases of extraction by the hands or feet, and his advocacy of these theories curbed such desperate measures, then prevalent, as the amputation of the protruding limb. It also stimulated further research along the lines of his own efforts and facilitated the adoption of European methods (Fig. 9).

Furthermore, the writings of Kagawa and his successors appear to have been directed to the physician, rather than to the midwife, for while the illustrations occasionally show a woman helping the physician, the person in charge is the physician himself. Needless to say, the physician never completely replaced the midwife in Japan. But since the majority of the books deal with abnormal positions of the foetus, one may draw the conclusion that after the end of the 18th century physicians were generally called in when a delivery was accompanied by unusual circumstances. In pre-Kagawa days the physician was consulted in cases of difficult labor because of his supposed knowledge of internal medicine; after the publication of the *San Ron*, the physician could inform himself to some extent on the physiology of gestation and parturition, and on the relief of abnormal conditions, and could thus function as an obstetrician at a time when even in the Western world there still persisted some occasional doubt as to the wisdom of having men attend to women in labor.<sup>19</sup>

<sup>18</sup> According to Masakiyo Ogata (*op. cit.*, pp. 32, 35 and 36) Kagawa recommended five manipulations (*Handgriffe*), only four of which he described. Dr. Ogata advances the opinion, then prevalent in Japan, that Kagawa's fifth and secret manipulation may have consisted in the use of a sharp hook, which he employed in desperate cases where forcible extraction or decapitation of the child was necessary. Dr. Ogata suggests further that Kagawa may have been unwilling to describe this instrument in his writings, since such a technique would have detracted from his new theories of non-operative assistance at difficult deliveries.

<sup>19</sup> John Stevens, *Man-Midwifery Exposed; or the Danger and Immorality of Employing Men in Midwifery Proved; and the Remedy for the Evil Found*, 3rd edition (London, 1866?).

The obstetrical writings of Katakura, Mizuhara, and Tatsuno were by no means the only books on midwifery, since the first Kagawa had laid down his fundamental theories on the subject in 1765; but by the second quarter of the 19th century, the first impetus of reform had spent itself,

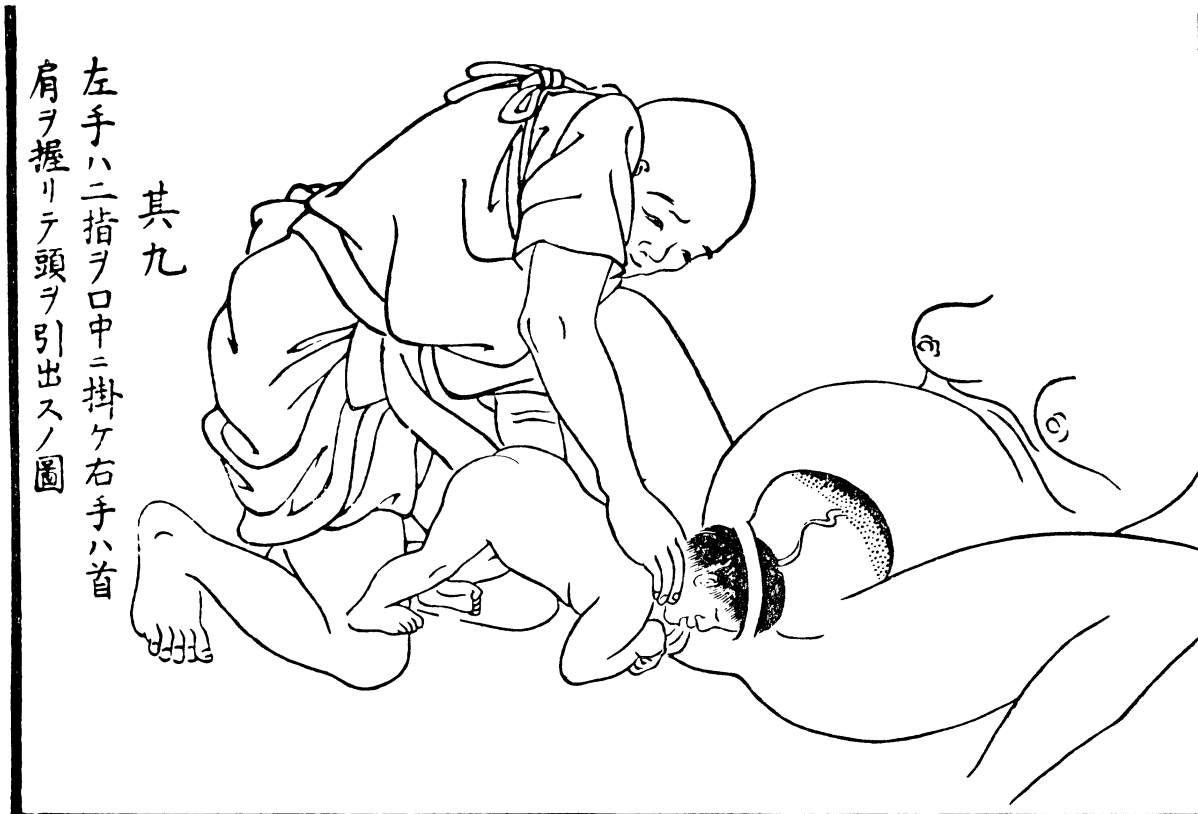


Fig. 9. From Kondō Taizō: *Tassei Zu Setzu*, 1858.

and later efforts scarcely surpassed the earlier ones. Thus, with the works of the Kagawas, Japanese obstetrics had freed itself to a large extent from ancient Chinese authorities<sup>20</sup> and, adding the results of native observation to assimilated European practice, had developed a blend of its own, ready to be completely westernized at any given moment, but thoroughly acceptable to the population of Japan, even before westernization of medicine became recognized as desirable in the latter part of the 19th century.

<sup>20</sup> As was to be expected, some of Kagawa's successors did not accept all his reforms. Thus, Kondō Taizō in his *Tassei zu setsu* (達生圖說), 1858, continued to recommend the rolled mattress as a delivery chair.