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Case of a Monstrous Birth—described in a Letter from Dr. G. W. BŒRSTLER, of Lancaster, Ohio, to Dr. MEIGS, of Philadelphia—*with remarks on the Case.* By C. D. MEIGS, M. D., Professor of Midwifery, &c., in Jefferson Medical College. (With two lithograph illustrations from Daguerreotypes by Root.)

CASE—*Dear Sir:* In compliance with my promise, I now give you a history of the highly interesting, and, as far as I have had the means of reference, altogether *unique* monstrosity.

On Tuesday evening, 16th January, I visited the wife of one of our most respectable citizens, who was in her ninth labour; the uterine contractions being strong, and at fifteen minutes' intervals. At 7 o'clock I touched, and found the os high up the sacrum, and dilated to a dime's size. 7½ o'clock, touched again—os dilating rapidly; 8 o'clock revealed it fully dilated, and the membranes slightly protruding.

This examination gave the impression that a knee or elbow presented, and I at once placed the mother in the usual position for turning. I could not satisfy my mind as to the presenting part, and therefore ruptured the membranes, and then felt what I believed a groin, the hip resting in the left iliac region, the body oblique across the maternal pelvis. Into this supposed groin I hooked two fingers, and, with some little traction, brought the breech into the proper axis of the pelvis, congratulating myself on finding only an ordinary breech presentation, which would give me little trouble.

Waiting to see whether the fœtus would now advance, and finding this not so, after some very vigorous throes, I again introduced the left hand, for the purpose of bringing down the inferior extremities; and, feeling the supposed groin, I slipped up my hand to the knee, and in attempting to flex it I was foiled. Continuing the examination of this limb, I felt the spinal column along, and parallel to it. Reflection could bring to my mind no such presentation, and, partly withdrawing the hand to search for the

fœtal pelvis, I found the two lower extremities flexed on its abdomen, both of which I brought down, unfortunately separating the left femur from its epiphysis.

Having now three legs to deal with, the idea of twins was naturally fixed in my mind. The uterine contractions being vigorous, and the tractile force applied greater than in ordinary breech cases, I believed the leg of the other child to be the impeding obstacle, and at once introduced the hand to correct the entangled posture of the *twins;* carefully feeling this third leg, I found it firmly united to the body of the child whose two legs I had brought down, and arising from the dorsum of the ilium. A malformation was now evident; its character unknown. Hooking two fingers above the attachment of this back leg, and grasping the two other thighs with the right hand, I acted with considerable force on these two points, and found the pelvis and body of the child gradually advancing through the inferior strait, until it reached the junction of two bodies united by an intergrowth of the ensiform cartilages. At this point I met the greatest resistance during the labour. This being happily overcome, I found two bodies diverging from each other, which, however, passed the strait without much trouble; and, by passing the hand up, I felt two apparently well-formed heads, each as large as that of an ordinary child. To my mind it seemed impossible that those two heads could pass the strait at once, and I looked to the probable necessity of lessening one or both; but, to my great gratification, they passed without any extraordinary efforts being called for. This could not have resulted, but for the *good fortune* of the head of the smaller child resting upon the neck and cheek, up to the malar bone, of the larger. Thus was completed a delivery of a most extraordinary *lusus naturæ*, to the well-being of the mother and children. The mother's recovery was rapid; the children are living—one vigorous, the other feeble; both take food, and urinate and defecate. There was one ordinary placenta, and one cord.

Description of the children.—The heads, faces, arms and hands, and the chest down to the ensiform cartilages, are well developed and in proper proportions. From the junction downwards, one body, its anterior surface from side to side broader than in an ordinary child; the abdominal muscles well developed; the umbilicus *in situ;* two spinal columns, perfect; the coccyx of each terminating on each side of the anus, and about half an inch from it; two pelves *united*, the left one belonging to the larger child, encroaching upon and lessening that of the right side. The sex female; one vulva and one anus, the opening of the latter not larger than an ordinary rye straw—the two lower extremities are of proper size and proportions. Upon the back, and from the dorsum of the two ossa ilia arises a leg running up between the two spines and the two inner shoulders, and terminating in a right and left foot joined at the heel. This is, in truth, a double leg, enveloped in one common integument, having two femurs, two tibias, and two fibulas; the leg admits of partially moving it directly backwards to a distance of several

inches from the back of the child. I have no doubt that nature designed one of these legs for each child—for, when the right child is awake, it moves its lower extremity, as also the left foot of the double leg; when asleep, the limb is quiet; and so with the other child. Tickling the sole of either foot, movement follows in the limb; but I have not perceived motion in the opposite leg to the one tickled. The two bodies have each its heart and lungs; puerile respiration distinct; the action of each heart easily felt; though the first and second sounds cannot be distinguished, owing to the rapid systolic and diastolic movements. So far as I have been able to detect, I believe the respiratory and cardiac action of both children to be synchronous, though the harmony of the former is interrupted by the crying of either child. I have frequently observed that, when one of the children is nursing and the other crying, the latter falls asleep; so frequent is this occurrence, that I hold it to be the rule, and it shows the strong sympathetic relations between these *two distinct human beings joined in one.* What the union of organs may be in the abdominal cavity we, of course, have no means of knowing; all reasoning thereon must be hypothetical. That the viscera are duplicated, we think probable. In the feeble child there existed the anomaly of the *frænum linguæ* arising from the dorsum of the tongue, about half an inch from the tip, and inserted into the palatine arch, of course rendering the tongue useless in sucking.

The following admeasurements were made, in the presence, and by the aid of Drs. Effinger, Davis, and Wagenhals. Owing to the want of calipers, the *circumference* was taken :—

Occipito-frontal, 13¼ inches in the larger, 12½ inches in the smaller; biparietal, 6 inches—5½ inches. This is half the circumference, having measured from one parietal protuberance to the opposite, across the vault. Mental, 4¾ inches—3¾ inches; occip. bregmatic, 13½ inches—13¼ inches; shoulders, 10 inches—9 inches; junction of bodies, 16½ inches; pelvic, 13½; length from head to foot, 17¼ inches—17 inches; weight, 10 pounds.

These are the facts in this, to me, exceedingly interesting case, and I very much regret the absence of men fully capable to examine it in all the lights which our science demands from its votaries. In the development of embryos in utero, certain starting points are always *essential* to the production of particular organs or limbs; this law is clearly manifested in the production of the double leg—for in the fusion of the two pelves, the *acetabular portion* is preserved, and hence the development of this extra limb.

A letter from Prof. Meigs refers me to the great work of M. Serres, on Monstrosities; to it I have no access, but from the Professor's letter I learn that a specimen, approaching mine, was born in Sardinia a few years ago, and brought to Paris for public exhibition. The union in this case was in the two pelves, and called, by M. Serres, a *hepatodym.* In mine, the union is from the xiphoid cartilages down; and, hence, I ask if it is not properly called an hepato-pelvidym?

Death of the children.—On Tuesday morning, 20th February, the mother observed the larger twin gasp a few times, and at fifteen minutes before 6 o'clock breathing ceased. At 8½ o'clock I saw it, and could not detect any respiratory act, nor pulsations of heart or arteries. Drs. Effinger and Wagenhals pointed out to me the apparent movements of the carotids. We, however, all became satisfied that *these movements depended upon the circulation of the smaller child.* The asphyxiated condition continued for *four and a half hours; no respiration; no pulse; the capillaries of the skin filled with dark blood,* giving a purple hue to its entire body, and *beautifully showing* the *demarcation* between *the asphyxiated and living child.* This line from the junction down, extended half an inch to the right side of the umbilicus. A violent effort in coughing by the smaller child communicated a shock to the larger, convulsive movements of its limbs followed, and it uttered a few feeble cries, when it again relapsed into its condition of suspended animation, and so remained till 5 o'clock in the evening, when the smaller child died. One gasp in the larger, and in ten seconds it slept with its sister. Thus these children fortunately survived their unfortunate union only five weeks.

Accompanying this history you will have daguerreotypes of the front, back, and side views. These pictures are *fac similes* of the original, and executed by my fellow-townsman, V. M. Griswold, in his usual style of accuracy and beautiful finish.

You have seen the children, and I ask you to add to the above any remarks and reflections you may think proper.

Believe me to be truly your obliged friend,

To Prof. C. D. Meigs. G. W. Bœrstler, M. D.

I cannot allow the present opportunity to pass without expressing my thanks to Dr. Bœrstler for his liberal kindness in sending me this valuable specimen as an addition to my collection in the Museum of Jefferson College. I am indebted to his kindness also for the privilege of presenting the accompanying lithographs, taken from crayon-size daguerreotypes by Mr. Root, an inspection of which may show the reader the external peculiarities of the specimen. It is with Dr. B.'s consent that I have caused them to be preserved entire, instead of destroying them by a dissection, which appeared to me wholly unnecessary, since the children so closely resemble in every particular those that were dissected by the late Mr. Serres, and delineated by him in the Atlas to his work entitled *Anatomie Transcendente.*

The birth of so curious a specimen of humanity as that described above by Dr. Bœrstler would hardly fail in any part of the world to excite feelings of astonishment among the people, because it would present an appearance of mystery not to be accounted for, except by persons duly instructed as to the causes of such strange combinations. No surprise, however, would be experienced were it understood that the development of such a monster is due to the regular operation of natural laws, which, by a mere accident, have been diverted from a normal way of action.

Most persons, unacquainted with the doctrines of embryology, would regard such a creature as a double child, and such an opinion would tend to increase the astonishment of the observer, since any excess in the production of parts or organs is known to be in absolute violation of the powerful and invariable law of species or specific forms. But there would be no surprise if it were everywhere understood that it is not a double child that has been thus unfortunately born, and that the specimen represents two distinct individuals, who have become more or less completely fused or welded together in the womb, each depriving its twin sister of certain parts of its organization.

In regard to the specimen now under consideration, it requires only a casual glance to see that the child on the right has contributed one-half of the abdomen, and the left child the other half. The two livers have become compounded into one mass, constituting what Mr. Serres, in his anatomy of *Rita-Christina*, denominates a complex hepatodym; a word derived from *hepar* and *didymus*.

These complex hepatodyms always result from a lateral union of twins in the womb, according to Mr. Serres, because in every instance of such lateral union the livers must become compounded together into one mass composed of those two individual organs. In case, however, the union of the twins should take place in front, that is, face to face, or nearly so, then the result is the production of an acomplex hepatodym, a case in which the livers remain separate.

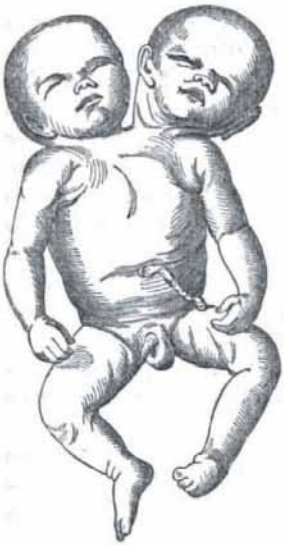
The complex hepatodym gives two heads, and, for the most part, two trunks with four arms; whereas the acomplex hepatodym gives one compound head, one thorax, two arms, four bellies, and four lower extremities. In either of these cases there must be combination or fusion of some portion of the bowels of the children, owing probably to changes or obstruction, at a very early stage, in the arrangement and distribution of the omphalo-mesenteric bloodvessels, and the excretory tubes of the two umbilical vesicles.

When the union takes place laterally, we therefore should find a pelvidym; and when it takes place in front, we ought to have a cephalodym, because the complex hepatodym implies that the two pelves are compounded more or less completely, and the heads separate, while the acomplex hepatodym implies that the two pelves shall remain separate, but the thoraces and heads compounded together under one form.

The lateral union is sometimes so complete as to present the appearance of a very perfect single child, having two well-formed heads growing from common and perfect shoulders. To show that this is the case sometimes, I annex a wood-cut taken from a life-size portrait by Mr. Jno. Neagle, an account of which I have already published in my work called *Obstetrics, the Science and the Art*, at p. 220.

An inspection of the wood-cut shows that while there was a single pelvis, abdomen, and thorax, there were also two sets of cervical vertebræ, and probably two sets of at least a large moiety of the dorsal range of vertebræ. It

is not known how far downwards in the ranges the duality of the rachis proceeds before it acquires its condition of unity. It is at least evident that the duality is lost in unity in the lumbar series, and that only a single sacrum could exist in the specimen. Indeed, I have sometimes thought that it might have been possible, in this very case, that the union should have gone even further, so as, in fact, to have confounded the two heads into one, leaving the spectator in doubt and uncertainty as to whether he had before him one child, or two half children united into one. It is, however, to be believed that Mr. Serres's law as to the complex and the acomplex hepatodym is invariable, and that in every instance we can have only a pelvidym on the one hand or a cephalodym on the other.



To look at my wood cut, or to examine the lithograph, it becomes clear that the left child is an absolute identity, while the right one equally retains its unity or individuality. The left child, which has its head and left arm entire and perfect (*vide* wood-cut), has also preserved half of its thorax, abdomen, and pelvis; *i. e.*, it has the left half of its sacrum and the whole of its left os innominatum. The conservation of its left os innominatum implies also the conservation of its left acetabulum, which may be fancifully compared to a bud from which to develop its left leg and foot, which are accordingly seen to be in all respects complete. This left child lost its right os innominatum, and, having no right acetabulum, could by no means develop a right leg, which is a dependency of that acetabulum. The same observations apply to the child on the right, *mutatis mutandis*.

When the embryos came together in mutual contact they became fused or welded by a process not dissimilar, I suppose, from that called by gardeners *enarching*, or budding, or grafting. The dermal surfaces are not formed at a very embryonal age, and contact leads to fusion or blending as certainly as contact of freshly incised surfaces leads to surgical union by the first intention. And this is what has happened in Dr. Bœrstler's specimen, in the case represented by the wood-cut, in *Ritta-Christina*, and probably in all the cephalodyms and pelvidyms that have appeared to astonish the world. Individuality or personal identity is not lost in such cases, for the specific or generic law operates invariably; and, though each of the children has lost something, it is a loss by default only, and is never a case of excess.

In Dr. Pfeiffer's case (*vide* wood-cut) there were, doubtless, two independent stomachs. The duodenum of each child was separate, as well as the jejunum

and part of the ilium, but one-half of the lower part of the ilium, the cæcum, colon, and rectum was lost by each embryo respectively, each of which contributes its half of the cæcum, colon, and rectum, one ovary, half the bladder of urine, half a clitoris, nympha, vagina, and womb, the remainder being mutually lost by default. As there is only one navel and umbilical cord, it is true to say that each child owns one-half, as well as half of the allantois, one umbilical artery, and probably one-half of the umbilical vein. The confounding together of some part of the small intestines, which must lose their duality, is an unavoidable result of the early confusion of the omphalo-mesenteric system, and the tubes of the vesicles or vitellary sacs.

To touch and tickle the left foot, while the child was sleeping, would be to waken it and cause it to smile, without exciting any reflex or other sensibility in its twin brother.

When Ritta's foot was tickled, it did not wake the sleeping twin Christina, and *vice versa*. Dr. Bœrstler observed the same phenomenon in his cases.

There appears to me, upon the whole, to be less matter for surprise at witnessing the birth of such twins than there is in the reflection, how rare are the cases. Thus, Madame Lachapelle, who had the superintendence of more than thirty-seven thousand births while she was at the head of the Maternité at Paris, found only 444 cases of twins in that great number, which affords about one twin case to every one hundred births. I have no means of knowing how many cases of monstrous births like that under consideration may occur in the course of a year: I should suppose, however, that three or four such instances would hardly be met with, in every year, in the whole globe; though it is computed that 24,000,000 of children are born annually. And this leads to the inquiry, What is the cause of such abnormities, or what is the reason why they do not oftener occur?

If a gardener, in performing the act of enarching, or budding, or grafting, should place a bit of membrane betwixt the surfaces to be united, he would wholly fail of success. In like manner, if two or more children should be carried in the same womb, there would be interposed betwixt their growing surfaces a membrane produced by each embryon, the amnios; the interposition of which would effectually debar the possibility of such unfortunate conjunction of the fruit of the womb. It may, therefore, be safely assumed that, wherever the amniotic sac is in a normal state, such unhappy duplicity as in the case before us is rendered impossible; and, consequently, that all such instances of conjunction are events that depend upon rupture or incomplete development of the amnion. I have purposely left out of question the state of the chorion, because I do well know that, although in twin pregnancies there are sometimes found two absolutely distinct chorions and placentas, there are very numerous instances in which both of the children, and sometimes three, are contained within a single chorion, on the outer surface of which is developed a single placenta. This observation I have made so carefully, and so many different times, that I rest assured of the correctness of the opinion. But in all these

examples of a single chorion covering twins or triplets, I have invariably found a distinct amniotic sac enveloping each child. Indeed, I cannot well conceive of an embryo in the womb as existing without its amnion, save in the cases where it is absent by default of arrest of development, or by accidental rupture.

I fully conclude, therefore, that the cause giving rise to the hepatodym-monster, whether it be complex or acomplex, and no matter how or where the union is effected, is a dependency on the accidental imperfection of the amniotic sacs of the twins; and that it is necessary that both of the amnions should fail, since the existence of a single one must prove an effectual bar against the union of the embryons.

It is well known that in the complex hepatodym or pelvidym, although there is never more than one navel and cord, there may or may not be developed, in addition to two perfect lower extremities, other rudimental limbs, more or less complete—a case that is strictly dependent upon the amount of injury done to or of interference with the development of the acetabulum.

Dr. Bœrstler describes the singular leg that is seen in my lithograph lying upon the back of the conjoined twins. This member is inclosed in a common tegument, and rises up along the posterior surface of the hepatodym, and loses its apparent, but unreal unity, only at the tarsus, where the two imperfect organs acquire a visible duality. To show that they belong each to a distinct individual, Dr. Bœrstler made the experiment of tickling the foot, which the reader has noticed in the doctor's interesting letter. To examine the specimen, or even to scan these lithographs, one may readily solve the problem as to the apparent unity of these two hind legs, as I may call them. In *Ritta-Christina*, and in Dr. Pfeiffer's case (*vide* wood-cut), the fusion of the pelves in their lateral union was so complete as to make it impossible to produce more than two legs. (See M. Serres, Plate XI. of the skeleton of *Ritta-Christina*.) That gentlemen gives us, in Plate XX., the skeletons of united twins, having a perfect right and left leg to each, an abortive left leg for the right child, and only a rudimental right femur for the left child.

Let the reader look again at my lithograph to see that, in the lateral or pelvidym union of these two children, there was a tendency of the embryons to approach each other face to face, and that the contact took place in such a way as to cause fusion and partial arrest of development of the horizontal or body-portions of the left and right pubes. Now, as the pubis contributes one-fifth of the acetabulum, and the ischium and ilium each two-fifths, it has happened that the pubal fifths of the two acetabula were arrested and lost, and that the ischial and iliac two-fifths of each party being left unruined, there sprung from them the curious back leg which thus lost, apparently, its duality, which has been unavoidably inclosed within a common integument, and was compelled to take its place upwards along the dorsal region.

If the turn on their axes had been a backward instead of a forward turn, it is probable that this compound and imperfect leg would have been developed in a direction upwards, and in front of the common abdomen.

T Sinclair's lith Phil

BŒRSTLER'S CASE OF COMPLEX HEPATODYM MONSTER.