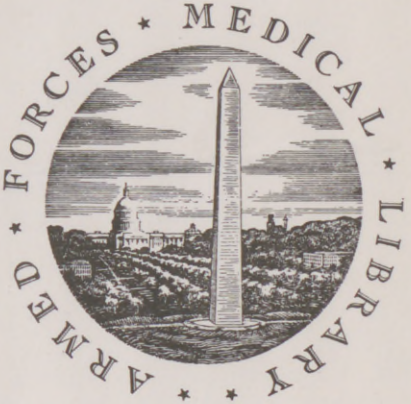
UNITED STATES OF AMERICA



FOUNDED 1836

WASHINGTON, D.C.

B19574

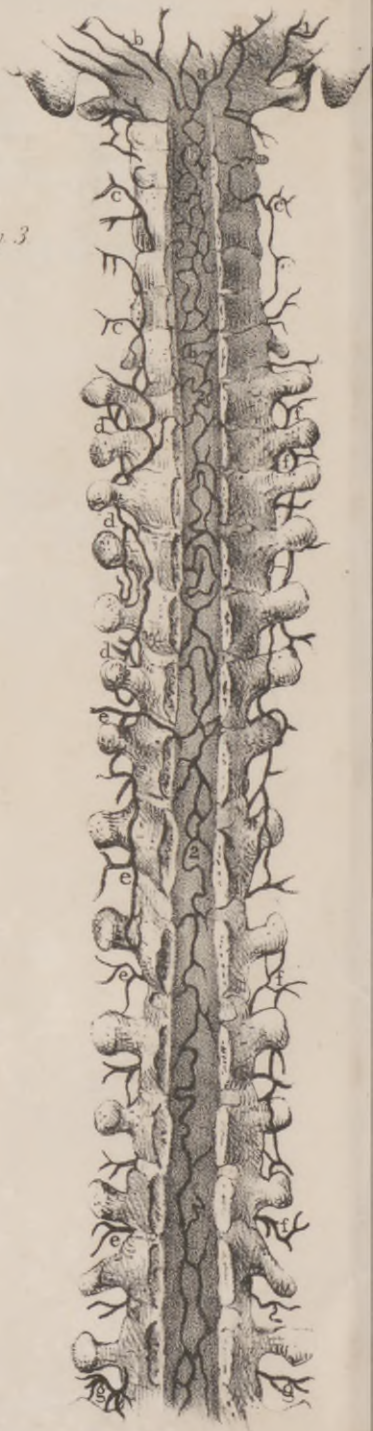
Sims (J. Mar.)

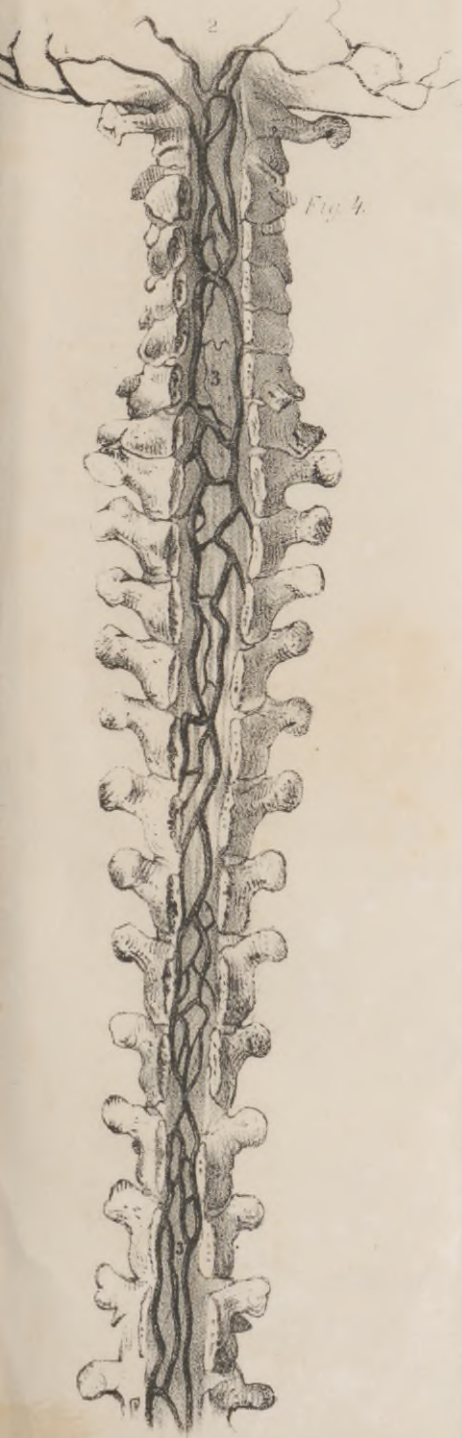
an essay on the pathology and treatment of trismus nascentium ××××

SURGEON GENL'S OFFICE
LIBRARY

Fig 2

Fig 3




2
3
Fig. 4.

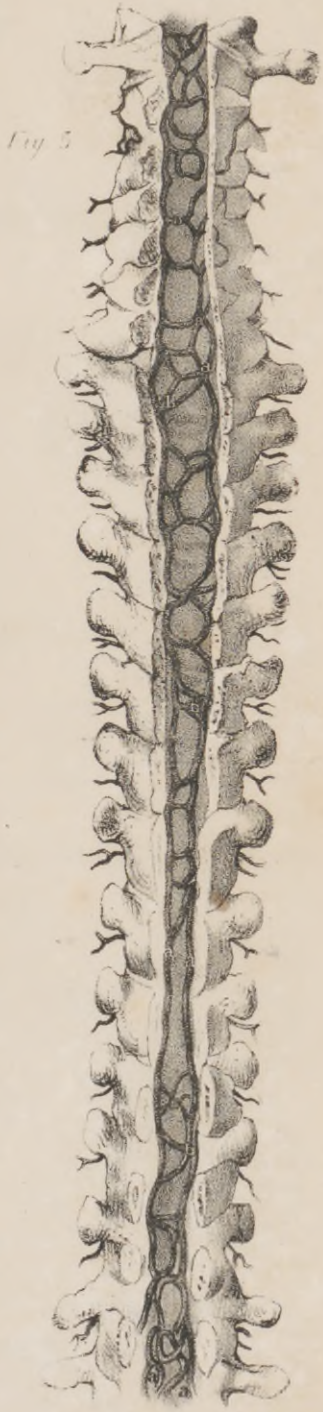


Fig. 5.

AN ESSAY

ON THE

PATHOLOGY AND TREATMENT

OF

TRISMUS NASCENTIUM,

OR

LOCK-JAW OF INFANTS.

BY

J. MARION SIMS, M.D.,
OF MONTGOMERY, ALABAMA.

Surgeon Gen'l's Office
LIBRARY
28955

PHILADELPHIA:
LEA & BLANCHARD.
1846.

Mon. Med.
WC
S614e
1846

PHILADELPHIA:
T. K. AND P. G. COLLINS,
PRINTERS.

PREFACE.

This little essay first appeared in the April number of the *American Journal of the Medical Sciences*. Since its publication there, I have met with several cases wholly confirmatory of my views of the pathology and treatment of this disease, for which I must refer the reader to a future number of said Journal. I am aware that the paper contains many *inelegancies*, but I have taken the picture from real life, copying everything just as it was, without indulging for a moment in the painter's fancy of throwing in a light here or a shade there, for the purpose of softening down asperities, and producing a more harmonious effect.

I am induced to put it in its present form only for the value and importance that I attach to the subject; and if it should prove the means of saving the life, or even of ameliorating the sufferings of a single human being, I shall consider myself amply compensated. That it will be the means of doing some good, I feel every confidence. In some sections of South Alabama, the frequency and fatality of this disease are almost incredible. I have heard of one gentleman who lost five or six negro children in as many months, and of another who lost sixteen! in less than a year. I would here say that the planter has only to provide a nice soft pillow of feathers for each infant, and give the mother or nurse directions to keep the child on its side on the pillow, changing sides occasionally, but never allowing it to remain for any length of time on its back. Follow this simple direction, and, my word for it, in a few years our knowledge of this disease will be almost wholly confined to its past history.

Montgomery, Ala., *May* 1846.

TRISMUS NASCENTIUM.

Trismus Nascentium has always been regarded, and very justly, too, as one of the opprobria medicorum. Its causes, remote and exciting, have ever been points of debate and conjecture—and of its true pathology we have never had any settled opinion. Its treatment has consequently been one of varied empiricism.

Unlike traumatic tetanus, this disease is encountered in every climate and under extremes of temperature. We find it in the Highlands of Scotland, and in the mountains of Switzerland, in the Arctic region of Iceland, and in the tropical West Indies. Large cities, everywhere, that are badly ventilated and crowded with a pauper population, must inevitably be the theatres of its occasional appearance. It is more frequently found where poverty, filth and laziness exist, or where the intellectual capacity is cramped and the moral and social feelings are blunted. Wealth, with its usual attendants, mental culture and personal comfort, is comparatively exempt from its ravages. But expose this last class to the same *physical* causes, and they become equal sufferers with the first. The punctured nerve of a rich or educated man will as soon induce tetanus as that of his poor or unpolished neighbour, but then by his very avocation he is not so much exposed to the danger. So it is with trismus nascentium, the peculiar exciting cause operating on a system predisposed will as quickly produce the characteristic train of symptoms in one child as another.

What an interminable catalogue of opposing and contradictory causes have been urged at different times as the sources of this disease. One has supposed that it was the result of "irritation produced by retained meconium," another attributes it to "cold and a vitiated atmosphere," a third lays it to the fault of "excessive purgation," while a fourth declares it to be owing "only to costiveness." Others have variously attributed it to "injury inflicted by cutting the cord with dull scissors," to "inflammation and ulceration of the umbilicus," "pouring cold water on the head in performing the ordinance of baptism," "the want of swathing or proper bandaging," "the application of scorched linen or cotton to the navel," "the

smoke of burning wood," and, in short, whatever other circumstances the writer might happen to fancy or guess at.

It will be my endeavour to point out the peculiar causes of this disease, to explain their modus operandi, to demonstrate the seat of pathological changes, and to deduce a rational course of treatment. And, as I intend to deal wholly in facts, I will begin by relating a case as the foundation of the remarks that follow.

Mr. Henry F. Stickney's negro woman, Patsey, aged 26, of a light bronze colour, gave birth to twin girls, in July, 1844, which was her fourth pregnancy. On the 15th July, 1845, she was taken in labour with her fifth pregnancy, and delivered about midnight of twin girls again. The birth of the second child was more tedious than that of the first. It was still-born, several minutes elapsing before respiration could be fully established. It was larger than its predecessor by a pound or more. They appeared to be doing very well, till Monday evening, the 21st (6th day after birth), when the second child refused to suck, became restless, and seemed to be unable to open its mouth. On Tuesday it screamed and cried a good deal, appearing to be in great distress, its jaws still closed, with the addition of occasional spells of jerking or spasms. On Wednesday, about 7 o'clock P. M., I saw it for the first time, being 48 hours from the time of attack. Its body was rigid; legs straight and stiff, there being a just balance between the flexors and extensors which held them parallel; the toes everted and heels resting against each other. If the heels were separated and then let loose, they would suddenly fly together like the blades of spring forceps. The arms were pinioned to the sides; the forearms flexed firmly at right angles; the hands clinched tightly; and the jaws were closely locked. The least effort to extend the forearm caused great pain, and excited general clonic spasms. To open the hands was impossible. The expression of countenance was mild and serene, notwithstanding the great rigidity of the body and extremities, till the supervention of clonic spasms, which happened every few minutes, either spontaneously, or as the result of some external exciting agent, such as sound, motion, or the lighting of a fly on its face, when the whole frame seemed to become more rigid, the hands more tightly clinched, with a quivering motion, giving it the appearance of "shaking the fist;" the jaws more closely locked; the head jerked backwards; the lips compressed; the angles of the mouth widely retracted; the eyelids spasmodically closed; the cheeks elevated; thus giving the face a most horrid, old-fashioned, sardonic grin, and all accompanied with a pitiably mournful whining cry. This aggravation of symptoms would last for a few moments, passing off to give place to the former delightfully calm expression of countenance, though not attended by any relaxation of the muscles of the body and extremities. This scene of comparative tranquillity would last but a short time, say from three to fifteen minutes, and then would come on the clonic spasms as already described. Deglutition was somewhat impeded, but not suspended. The condition of the pupils could not be ascertained, in consequence of exciting spasms by any effort at separating the lids; respiration greatly accelerated; bowels costive. It had taken syr. rhei., magnesia, and occasionally tr. opii, but with no effect. Ordered warm bath, cal. oil, and enemata. Found the child worse on the next day (Thursday), all the symptoms increased in intensity; ordered "Dewees' Colic Mixture," as an antispasmodic, which was supposed to have exerted some little influence in moderating the spasms. Thursday

evening.—Still no better (of course). Gave 2 grs. of quinine in two doses in some of the colic mixture. The child rested better that night, or else the mother rested so well that she could not be disturbed by the motions and moanings of the child, which latter is altogether probable, as I found the little fellow on the next morning (Friday) worse than ever, not able to swallow at all; spasms more frequent; general rigidity greater than at any time before. My friend Dr. Vickers visited the little sufferer with me this morning. Many experiments were performed to demonstrate, before the Doctor, the reflex action of the excito-motor system and its exceedingly delicate impressibility to the gentlest touch. To show the great rigidity of the frame, I caught hold of the feet and raised the whole body without flexing the thighs on the pelvis. At last I run my hand under the head for the purpose of elevating the body in the same way, when I immediately detected a *remarkable irregularity* in the feeling of the bones. *It had lain during the whole of its illness exactly in one position all the time, the weight of the head resting wholly on the os occipitis.* Its pulse was now uncountable; respiration more frequent than I had ever seen it before under any circumstances; it was breathing 120 times in a minute, and looked as if it could not possibly live an hour. I raised it up to examine the head more particularly and set it on my knee, or rather leaned it against the knee, for the tonic rigidity of the muscles prevented the flexure of the thighs to a sufficient degree for the sitting posture. After holding it so for some ten or twelve minutes, what was my surprise to find a rapid amelioration of all its bad symptoms! True, the tonic rigidity remained the same, but the clonic spasms became less frequent and less intense; the whole expression was less disturbed; and the respiration fell, in this short space of time, from 120 down to 70 in a minute. I now felt convinced that *position* had a great deal to do in the production of this disease. On examining the head, I discovered that the fontanelles were open and very large, particularly the anterior, that the bones were loosely attached by their commissures, and that the *os occipitis was pushed in on the brain, being overlapped for a quarter of an inch or more along the whole course of the lambdoidal suture, by the edges of the ossa parietalia.* I had the child laid on its side, so as to take the weight of the body from the os occipitis. It died about sundown, on Friday, 25th July, having been sick about 96 hours.

Through the kindness of Mr. Stickney, and with the consent of the mother, a post-mortem examination was made the next morning at 10 o'clock. I am indebted to my friend Dr. Ames for the following notes made at the time.

"No emaciation; countenance tranquil; slight cadaveric discoloration of back.

"*Head.*—Anterior fontanelle large, triangular; coronal suture open in its full extent; sagittal same, open to ossa nasi; parietal bones overlap the frontal slightly; *the occipital for the fourth of an inch along the whole of the lambdoidal commissure;* gentle pressure on the occipital bone projects the brain forwards, producing a considerable fullness of the anterior fontanelle.

"*Brain.*—Superficial vessels full of black blood, *particularly posteriorly.* Interior of the brain natural in appearance.

"*Spine.—Coagulum of blood occupying the spine in its whole length, enveloping perfectly the medulla spinalis; thicker as it approaches the brain. Spinal veins full of black blood.*

"Thoracic and abdominal viscera healthy; nothing unnatural about the appearance of the umbilicus."

Now it seems to me that any one at all acquainted with the physiology of the spinal cord, would certainly direct his researches to it for an elucidation of the peculiar symptoms of this disease, either as the *centric* seat of pathological changes, or as the medium of communication between some supposed *eccentric* agent, and its consequent effects.

Curling, in his admirable "*Treatise on Tetanus*," tells us that "Dr. Goëlis, of Vienna, in the examination of children who have died of this disease in the Foundling Hospital of that city, found an appearance of *increased vascularity in the substance of and in the membranes enveloping the upper part of the spinal marrow.*" And that Dr. Thompson of Philadelphia had also *observed the same thing.*

M. Billard (Stewart's edition, page 490), says that he "found on dissection *nothing more* (!) *than an effusion of a quantity of coagulated blood in the spine.* This blood was effused between the two laminæ of the tunica arachnoidea, and *filled the whole of the medullary canal from the medulla oblongata to the sacral region.*" And after finding this morbid appearance and no other, he gravely asks the question, "Were the symptoms of tetanus to be ascribed to this hemorrhage of the spine?" What more did he want to account for the distressing symptoms and fatal termination of the disease than this "hemorrhage of the spine?" Did ever cause and effect stand more intimately connected? Is not the presence of this effusion a sufficient explanation of all the phenomena of the disease? Are not the tetanic spasms the very result that we would reasonably and almost invariably calculate on finding in "spinal hemorrhage?" I think so. And, as the real character of this affection has evaded the efforts of all pathological inquirers—Goëlis, Thompson and Billard being the only writers that I can find who agree on any single point relating to it—and as my observations are wholly corroborative of theirs, I must here insist that the true seat of the disease is the spinal canal; that its *morbid anatomy consists, first in a congestion, and then in a rupture of the minute veins and capillaries of the medulla spinalis;* that this is the special and pathognomonic feature of the disease, while every other alleged cause and explanation of symptoms are but mere coincidences.

The next question that naturally arises, is, what produces this venous congestion and capillary rupture, this effusion of coagulated blood, this *spinal apoplexy*, if I might be allowed to apply a term significant of the abnormal appearance? *I answer that a simple and ample explanation may be found in the anatomical peculiarities of the fœtal cranium, and spinal circulation, in connection with the imprudent and careless habit in mothers and nurses of allowing infants to remain too long in one position.* The imperfect ossification of the cranial bones is *essential* to the production of the disease, while the *position* of the child is its accidental or exciting cause.

I shall leave out of consideration all those circumstances and agencies

which have always been regarded as exercising a remote or predisposing influence over the development of this disease, and engage at once in the demonstration of the above proposition.

And first of the fœtal head.—At birth the bones of the cranium are very thin, without diploe, attached only by membranous interstices called commissures; which is certainly one of the wisest provisions of nature in thus fitting it to be accommodated to the dimensions of the pelvic cavity.

What are the anatomical peculiarities of the os occipitis? Why, it is composed of four separate pieces at birth. "The first and largest extends from the beginning or angle of the lambdoidal suture to the upper edge of the great occipital foramen. Each side of the foramen and the condyle on it is formed by a distinct piece. The front part is formed by the cuneiform process, which is separate from the other parts and forms the fourth piece." —(Wistar.) The posterior fontanelle occupies the point of junction between the sagittal and lambdoidal sutures: the lambdoidal suture separates the occipital from the parietal bones. At the juncture of the temporal with the last-named bones, we have another fontanelle, called the mastoid or posterior lateral. From the lower end of this fontanelle, just behind the foramen lacerum, a line of division from imperfect ossification may be seen running obliquely to the posterior edge of the foramen magnum, thus separating the "pars occipitalis" from the "pars condyloidea." Now, by this arrangement, we see that the "pars occipitalis" is, as it were, perfectly isolated from all solid or bony union, having only a membranous connection above and a semi-cartilaginous one below. This is a provision of nature to diminish the vertical and biparietal diameters of the head during the process of labour: for in every labour the "occipital portion *always slides beneath the parietal, however slightly the head may be compressed.*"—(Moreau.) For the better elucidation of this description let the reader cast his eye for a moment on the accompanying wood-cut, copied from "*Moreau's Practical Midwifery.*"

Fig. 1.

1, 1. The two parietal bones. 2, 2. Posterior part of the temporal bones. 3. Condyles of the occiput. 4. Inferior maxillary bone. 5. Foramen magnum occipitis. 6, 6. Parietal protuberances. 7, 7. Posterior lateral fontanelles. 8. Lambdoidal suture. A, B. Biparietal diameter.

I would next direct attention to the peculiarities of the spinal venous circulation.

The veins of the spine may be divided into four classes, viz., those proper to the vertebræ; those exterior to the spinal canal; those within the spinal canal, but exterior to the dura mater; and those within the dura mater, resting on and belonging properly to the medulla spinalis. The first are called *vertebral* veins; the second, *dorsi-spinal;* the third, *spinal* when beneath the vertebral arches resting on the dura mater, and the *great spinal veins* or *meningo-rachidian* when found between the anterior face of the cord and the bodies of the vertebra; and the last are called *medulli-spinal*, as they take up the blood which has been expended in the nutriment of the medullary substance of the cord. For the better understanding of this subject I must refer to Plates III and IV, copied from Quain and Wilson's Anatomical Plates.

Plate III. Fig. 2, Represents the "Dorsi-spinal veins. This view is obtained by removing all the muscles of the back, together with the soft parts of the head and neck, the ribs and iliac bones.

"*a, a,* Venous branches ramifying upon the inferior surface of the occiput; communicating below with the cervical dorsi-spinal veins. *b, b,* The mastoid vein at each side. *c, c,* Lateral branches of the cervical dorsi-spinal veins, communicating with the vertebral veins. *d, d,* The small vein which passes through the foramen in the transverse process of the last cervical vertebra. *e, e,* Venous branches from the surrounding muscles, which supply the dorsi-spinal veins."

Fig. 3. "The spinal veins beneath the vertebral arches, which receive the blood from the dorsi-spinal. To obtain this view the posterior part of the occipital bone, and the arches of all the vertebræ and sacrum are removed.

"Nos. 1, 1, The dura mater covering the lobes of the cerebellum. 2, 2, The dura mater of the spinal cord.

"*a, a,* Veins ramifying upon the exterior of the dura mater. *b, b,* Veins in the cervical region, so numerous as almost to conceal the dura mater. *c, c,* Veins passing out from the spinal canal through the intervertebral foramina, and pouring their blood into the vertebral and deep cervical veins. *d, d,* Communicating veins opening into the superior intercostal vein. *e, e,* Communicating veins to the vena azygos minor. *f, f,* Communicating veins to the vena azygos major. *g, g,* Communicating branches to the lumbar veins." p. 82.

Plate IV. Fig. 4. "The *medulli spinal veins.* These veins are displayed by removing the dura mater.

"Nos. 1, 1. The lobes of the cerebellum. 2, 2, The superior vermiform process. 3, 3, The spinal cord."

Fig. 5. "The great spinal veins (veines meningo-rachidiennes. Chaussier, Breschet.) To obtain a view of these veins, the arches of the vertebræ are cut deeper than in the former sections, and the spinal cord removed; they are then seen resting upon the posterior surface of the bodies of the vertebræ.

"Nos. 1, 1, The line of intervertebral substance apparent between some of the bodies of the vertebræ.

"*a, a,* The two great lateral venous trunks. *b, b,* The points at which the spinal veins receive the blood from the bodies of the vertebræ." p. 83.

The *dorsi-spinal* veins, receiving their blood from the muscles of the

back, empty it horizontally forwards between the vertebral arches into the *spinal* veins as they lie on the spinal dura mater. The *meningo-rachidian* lying between the cord and the bodies of the vertebræ become the recipients of all this blood, and carry it forwards into the general current of the circulation by transverse branches emptying respectively into the vertebral, superior intercostal, vena azygos, (major and minor,) and into the lumbar and sacral veins. These chains of venous trunks run longitudinally the whole length of the spinal column, and yet their contents are passed mostly horizontally forwards.

Now let us turn our attention for a moment to the *medulli-spinal*, as they are more particularly the seat of lesion. "These appertain *solely* to the spinal cord and its nerves, upon which they are placed, enclosed within the tube of the dura mater. Though they communicate by branches with the other spinal veins, they cannot be injected concurrently with them." "*The coats of these veins are exceedingly thin and weak.*" "*They are very small, long, and tortuous; they run upon both surfaces of the cord, where they form a diffused plexus or network*, by mutually giving and receiving branches. The general direction of these vessels is from below upwards, but still they do not increase as they approach the base of the skull. On the contrary, their size is smaller than in the lumbar region. This arises from the fact, that the blood brought into these superficial vessels by the small veins which open into them from the substance of the cord is sent outwards directly by the branches which accompany the nerves towards the intervertebral foramina, when *they pour it into the great spinal veins.* Near the base of the skull the medulli-spinal veins unite and form two or three small trunks which maintain, by transverse branches, communications with the vertebral veins, after which they *terminate in the inferior cerebellar veins or in the petrosal sinuses.*"—*Quain & Wilson*, "Vessels of the Human Body," p. 85.

So much for the anatomy of the parts connected with the pathological state. Now let us see if this extravasated blood in the spinal canal can be accounted for upon any known principles or general laws of physics. The rationale is simply this.

The head, by the labour, is elongated in the occipito-frontal diameter to its greatest possible extent, and it is consequently diminished in its vertical diameter to its smallest dimensions, by the parietal bones overlapping the occipital through almost the whole length of the lambdoidal suture. The edge of the occipital is *always* forced up under the edges of the parietal at the posterior fontanelle *in every labour.* There is not an exception to this rule. Now, as the parietal are compressed laterally, to diminish the biparietal diameter, they exercise a degree of traction over the "pars occipitalis" (independently of the forces acting on it from behind), drawing it upwards in a line towards the anterior fontanelle, and thus shortening the vertical diameter. After birth, the bones of the head gradually acquire

their proper relative position: the head loses measurably its elongated shape; its vertical diameter increases; the occipital slides slowly from under the parietal; the frontal becomes more prominent; and the whole cranium assumes the normal oval appearance that of right belongs to extra-uterine life.

Now, suppose the fœtal cranium is not sufficiently well ossified to regain its proper shape by its own inherent elasticity; or, suppose the child is imprudently retained for a length of time in the dorsal decubitus on a hard matress, or a folded blanket with a little bit of hard old quilt, or a bunch of dirty clothes, (as we often find amongst negroes,) wadded up and stuck under the occiput, what will be the consequence? Why, the occipital bone, instead of regaining its proper position, will be pushed further under the edges of the parietal; and the whole weight of the head resting on the occipital protuberance will thus force the *entire* "pars occipitalis" upwards. If this condition is persisted in, the whole cerebral mass will be displaced; the cerebellum will be compressed between the fossæ cerebelli and the tentorium, and it will thus be tilted forwards so as to produce great pressure on the whole tract of the medulla oblongata as it rests on the basilar process of the os occipitis. What is the result of this long-continued mechanical pressure, with its peculiar displacements? The circulation through the sinuses and veins of the brain is retarded; the compression of the cerebellum obstructs the cerebellar veins; the posterior edge of the foramen magnum becomes a constricting point on that portion of the medulli-spinal veins which empty their blood into the inferior cerebellar; the force communicated to the medulla oblongata powerfully obstructs that portion of the medulli-spinal veins which run forwards over the anterior or lateral edges of the foramen magnum to empty themselves into the petrosal sinuses; and thus the spinal venous circulation as connected with the brain is entirely cut off.

What is the consequence of this constriction, this ligaturing, as it were, of the medulli-spinal veins? Why, at first, there is a simple venous congestion within the dura mater of the cord, produced exactly in the same way that we effect it in the veins of the hand and forearm in the ordinary everyday operation of venesection. After a while the *long tortuous network of thin delicate medulli-spinal veins* is overcome by the persistent constriction above; the blood is extravasated within the dura mater of the cord, enveloping the medulla spinalis perfectly; and then we have the aggravated symptoms that always mark this infallibly fatal stage of the disease.

What is the reason that extravasation does not take place as soon as the constriction is made at the edges of the foramen magnum? Because the medulli-spinal veins communicate by transverse branches with the great spinal lying exterior to the dura mater, and thus the blood is carried into the general circulation by their anastomoses with the vertebral, intercostal,

azygos, lumbar and sacral veins. But let the child remain long in this position and this collateral circulation becomes obstructed. By force of gravitation the spinal veins all become congested; there is no vis-a-tergo to drive the blood horizontally forwards, or, I should say, (as the child lies on its back,) perpendicularly upwards; it almost ceases to flow; and the medulli-spinal ligated above and dammed up on all sides, having no outlet for the blood brought down by the anterior and posterior spinal arteries, must necessarily very soon yield and pour out their contents within the tube of the dura mater. To my mind it is clear that the assemblage of symptoms constituting trismus nascentium is the result of pressure on the spinal cord exerted by venous congestion and extravasation; and it is equally clear that this effused blood is produced in the way that I have described.

Here would be a very good place to draw this paper to a close, but as my explanation (not theory) is to be established or disproved by an observation of facts, I must beg to relate a few cases that I have gathered from reliable sources, as touching the points of *bony displacement and dorsal decubitus*. And I will here transcribe a letter from my friend Dr. Thos. C. Boswell, a gentleman of rapidly (and deservedly) increasing reputation in his profession. His style is so easy and graphic that I prefer giving it in his own words, and I am sure he will excuse the liberty I have taken with what I know he considered *private*, as it so admirably elucidates the subject.

Pike County, Alabama, Dec. 13th, 1845.

Dr. Sims—Dear Sir.—Rather a novel occurrence fell to my lot yesterday. Being somewhat unwell, and lounging about the fireside in the family circle, your notions relative to the pathology of trismus nascentium occurring to my mind, I commenced quizzing my wife about her early treatment of our babes, their position, whether on the back, side, &c., which greatly excited her curiosity to know the cause of my interrogations, and just as I was on the eve of an explanation I heard at the gate "Hallo, is the Dr. at home? Mrs. P—— wishes you to go immediately to see her infant; it has been having fits ever since midnight." It was now 3 o'clock, P. M. I instantly conjectured that it must be a case of trismus nascentium, and accordingly when I arrived found it so. The grandmother said "the child had been made drunk the over night on *toddy* for the colic, that it was now much better; that they had only sent for me to gratify her daughter, and that nothing else was the matter with it." I was not disposed to adopt the old lady's notions of "toddy" and "colic," and after observing the little sufferer for a short time, I discovered that it had all the symptoms of trismus in its worst form. I took your precaution and examined its head; *found the occiput considerably pushed in and overlapped by the ossa parietalia*, and all the sutures open, precisely as you had described to me. On inquiry *found that it had been laid on its back ever since its birth*, (it was now thirteen days old,) and rested principally on the *mother's or grandmother's arm, and was now held by the latter with the occiput resting on her arm*, being watched most intensely, for it was the first born, and idolized by them both. They took great pains to inform me that every kindness had been paid the child,

and that nothing had been neglected, which I doubt not. I replied that we sometimes did our children an injury by too many kindnesses.

I recommended a change of position, (but alas! too late!) and of course you know that I had to prescribe something after riding six miles in the rain; so I poured out some olive oil and told them to feed it on that, having determined to do no harm as I felt confident I could do no good. I soon discovered that deglutition was very imperfect, so I requested them to let the little fellow rest awhile. I had an interview with the grandfather, and explained to him the nature of the disease and its inevitable termination in death.

About midnight it died, evidently of trismus, having been sick about twenty-four hours. It was well and had been doing finely up to the time of attack.

It was a case in which I dared not suggest a post-mortem examination, though I have not the least doubt but your pathology will hold good in those cases. This is the first of the kind that has fallen under my observation, and feeling my indebtedness to you, I take this early convenience of communicating to you the particulars of the case; for I am sure that I should have been at a loss to account for the disease, the meconium having been well passed off; the remains of the umbilical cord having fallen off, and the umbilicus in fine condition. I could trace no other cause than that described by you.

With respects, &c.,

THOS. C. BOSWELL, M.D.

Dr. Boswell's case was produced at rather a later period than usual (thirteenth day), but *it was clearly the result of occipital displacement by prolonged dorsal position.* Change of position did not save the child, because there was already organic lesion. But the uncle of the child, Mr. Dennis, informed me to-day, (Dec. 28th,) that he was with it when it died; that the change of position effected an amelioration of its symptoms; that it got so it could swallow pretty well, and that it looked so "pert," the parents began to entertain hopes that the Doctor might be mistaken in his prognosis. They soon discovered the fallacy of their hopes, for while the change of position relieved the stagnated circulation of the brain, it could not remove the *extravasated* blood from the spine.

Here is another case corroborative of my views. It is related by my brother-in-law, Dr. B. R. Jones, of this vicinity, a gentleman of high standing and reputation in his profession. He says:—

"I visited a negro child, about a week old, on the plantation of J. J. Marshall, Esq., in September last. It had been affected with symptoms of trismus for a day or two. When I saw it there were great rigidity of the muscles of the extremities, and a disposition to opisthotonos, and when clonic spasms came on there was great distortion of the muscles of the face, which seemed to be expressive of intense pain.

"I observed that *it was lying on its back with some coarse cloth doubled up under its head.* The overseer said *he always found the child lying on its back.* Examined its head and *found the os occipitis pushed deeply under and overlapped by the parietal bones.* I directed a change of position (according to your theory of the production of the disease), and ordered a cathartic and some antispasmodic. In consequence of a press of professional engagements at the time, I did not see the child

for 48 hours. The mother had kept it lying on the sides all this time as directed. I was surprised to see the relative position of the bones completely changed, for now the two parietal bones were sliding by each other along the sagittal suture, while the occipital was riding over the edges of the parietal. It died this evening, having been sick about four days. Having no instruments with me I made a hurried and very imperfect examination of the head with my pocket-knife. Bones as last described; sinuses and veins on the posterior portion of the brain filled with black blood; regret that I had no facilities for opening the spine, but am satisfied from my observation of this case that your notions of the pathology of the disease and of the causes operating to produce it will hereafter be fully established by accurately observed, and faithfully recorded facts.—Yours, &c.,

"B. R. Jones, M. D."

Dr. Jones' case was plainly produced by *position* and *pressure* on the occiput, and, like Dr. Boswell's case, change of position could do no good because it was done too late. The great readiness with which the bones here were displaced by turning the child on its side would seem to militate against change of position to cure the disease even when done before extravasation is effected. Not so, however. On the contrary, it is the strongest evidence of what may be accomplished in a short space of time simply by change of position. It shows what a powerful agent we have to wield, which may be a dangerous one if incautiously used. Suppose this child's head had been placed on a *very nice soft pillow* of good feathers exercising a diffused and uniform pressure on the parietal protuberances, instead of having "*a piece of coarse cloth doubled up under the head*," supporting but a single point, acting on a single point, and thus dislocating the bones with as great certainty as if it had been lain on a brickbat or a stick of wood. Would the bones of the head have been so awfully displaced? Most assuredly not. Let any man lie down with a hard inelastic substance under his head and try the experiment of sustaining its weight on a single point, and he will very soon get the *fidgets* if he does not continually vary his position a little so as to get a new point of support. But let him take the same substance, whether wood or stone, and make it to fit exactly the shape and size of the head as it rests on it, and he will be able to lie there for hours, because the pressure is diffused and affords a general support.

Here is another case tending to establish the fact of occipital displacement.

Anna, black, aged 17, gave birth to her first child about a year ago. I was called to her when she had been in labour twenty-four hours or more. Presentation, &c., all right, but as the case promised to be tedious, my other professional engagements, and the distance from town prevented me from waiting the result. I had to leave her in the hands of an old negro woman, telling her not to interfere and all would soon be well. The labour was terminated in two or three hours after I left, but the child was still-born, and the respiration was not established for some eight or ten minutes. The mistress, who is a woman of very good common sense, says that "*its*

head was mightily mashed; the bones seemed to be loose. I got it to take a little boiled milk on the first day, but it swallowed very little and very badly, for its jaws seemed to be locked. On the next day it took spasms and got stiff all over; its hands were shut up tight, and its arms *were bent up so.** Every time I would touch it the spasms would get worse all over, screwing up its face till it was the ugliest thing in the world, and when the spasms went off it looked as well in the face as any new-born baby, but then the stiffness never left it, and the spasms kept coming and going till it died." It lived but two days. I have reported this case exactly as it was related to me by the good mistress, because I believe her narration of it is one of the best descriptions of the assemblage of symptoms constituting trismus that can be found anywhere.

In this case the compression of the head by the tedious labour, fell a little short of the point necessary for the extinction of life; and yet it was sufficient to produce such a degree of occipital displacement with its attendant evils, as to occasion the almost instant appearance of the symptoms of trismus, for it was born, as it were, with the disease. As the head was detained for many hours in the pelvic cavity, it did not need the assistance of dorsal decubitus for the production of the mischief.

I will relate but two cases more in evidence of the general, and (as I think) almost essential state of occipital pressure as the exciting agent of the spinal hemorrhage; they are certainly the most interesting cases of all, because they illustrate the efficiency of the treatment which every one would immediately recommend who is disposed to adopt our notions of the pathology and our rationale of the production of this affection.

The treatment, as a matter of course, resolves itself into the most rigidly careful prophylaxis. After the extravasation of blood the little sufferer must almost necessarily perish. Possibly the application of blisters to the spine would do some good in conjunction with proper posture. But to the cases.

On the 11th of July last, Mrs. B. C. O—— lost her only child, an interesting little girl of some twenty months old. It died of acute hydrocephalus. On *Thursday, 22d August*, she was fortunately delivered of a second child, at full term, a delicate-looking girl, weighing, I suppose, about five pounds. There was nothing unusual in the labour; and the child appeared to be doing well for the first week. On the tenth day I was sent for to see it. The mother said that for two days it had been sleeping more than infants usually do; in fact, that it could not be roused at all; and that it made a very peculiar and distressing noise while asleep; that she could not exactly describe it, but it was precisely such a noise as the other babe made in the latter part of its illness; and that she was therefore very much alarmed for fear it was contracting the same fatal disease. This noise was so disagreeable as to wake her frequently during the night; and as it was sleeping in her own bed, she supposed at first that Mr. O—— must have lain his arm on the child's breast, so as to disturb its breathing; and was surprised at not finding it so. The child *was lying on its back* on a pillow, its *head resting on the occiput*. She moved it with the pillow higher up

* An allusion to the flexure of the forearms at right angles.

towards the head of the bed, retaining it, however, in the *same position*, but this singularly unpleasant noise ("which was more like something *a dying*,") was still occasionally produced. This was observed in the day as well as at night. She said that it had refused the breast for two days; that its jaws could not be separated but by slow degrees and with the greatest difficulty; that when she would try to force the nipple into its mouth, the jaws would remain clinched; and that the nipple was nearly compressed between the lips; that it could not effect any degree of *suction*, but only made a kind of *kissing noise*, by drawing the air between the nipple and upper lip; that after one or two efforts of this sort it would appear to be perfectly exhausted; that she had not succeeded in getting it to make the least endeavour to draw the breast to-day, and that it only tried twice on yesterday. She observed that it would occasionally throw its hands mechanically towards the head "exactly like the other baby did;" and to-day she noticed that it would have, once in a while, a sort of *little quivering spasms to run all over it*, with "its face all squinched up" whenever a fly would happen to light on it; and that these little shudders would come on it sometimes when *no fly was to be seen*. Then she would scold the servant for her supposed negligence in either allowing a fly to light on its face or in carelessly touching it with the fan or brush, this being the way that she accounted for the spasms whenever she did not observe them to be produced by a fly.

Its bowels were in good condition; its skin was as fine as silk; its pulse as regular as a pendulum; and it was sleeping calmly, the very picture of ease and innocence.

I hardly think that I should have suspected the true character of the affection, but the mother had the child in her lap when I entered the room, *its occiput resting exactly on the patella of her left knee.* After a minute inquiry into every other particular, I examined the bones of the head and found the lambdoidal edge of the *os occipitis pushed inwards within, and under the edges of the ossa parietalia.* I now felt every confidence that this anatomical peculiarity and the *position* of the child fully explained the secret of the whole disturbance. The mother told me that she had kept it *all the time on its back day and night; and did not remember ever to have placed it upon its side.* I explained to her what I supposed to be the cause of all the symptoms, and directed her to lay the child on its side, so that the weight of the head should fall on the parietal protuberance instead of the occiput. I made no other prescription. She placed the child in bed as I directed and left it, having made up her mind that as it could not be waked up and could not swallow, and as the doctor did not think it worth while to give any *physic*, the case must be perfectly hopeless. But the sequel shows what a sunshine of happiness succeeded the gloomy forebodings of this doting, almost heart-broken mother.

After the change of position it had not one of its former pitiably distressing moanings, and if it ever had another spasm it was not observed. In two or three hours it began to wake up; it took the breast and sucked tolerably well, but not as strong nor as long as it did before it was taken sick. On the next day it was much improved, could open its jaws better and sucked still better, and on the third day it was as well as ever it was before or since. A week afterwards I examined the head and found that instead of the occipital bone projecting inwards on the brain, its position was the reverse, viz., it overlapped very slightly the parietal bones.

Can any one at all conversant with this disease deny that this was a

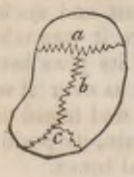
genuine case of trismus nascentium? It possesses many points of interest. Look at the period of attack, the stupor, the doleful moaning, the locked jaws, the spasmodic excitement resulting from the gentlest impression made on the excito-motor system; look at the occipital displacement in connection with its prolonged dorsal decubitus; see the immediate amelioration of all the bad symptoms effected in the short space of two hours, simply by change of position. And remember that in six days this very change perfectly *evolutionized* the relative position of the cranial bones.

Now if this was a case of trismus, what was the reason that the child did not perish? Why was it so easily remedied? If it had been a negro babe, or the child of parents in indigent circumstances, other things being equal, it would have perished. And why? Because, here it was surrounded by all the comforts of life. It had what every infant ought to have, a soft pillow to rest upon. If it had been retained in the same position on a folded blanket or a hard matress, with some old rags wadded up for a support to the head, it would have been lost: because the same amount of pressure for the same length of time with harder materials would have displaced the occiput more, and produced a constriction on the medulli-spinal veins sufficient for the transudation of the blood into the spinal dura mater, and then of course a fatal termination would have been inevitable; but as it was, the pressure was just hard enough to produce an imperfect obstruction, with a simple congestion and stagnation of the spinal venous circulation, which was readily relieved merely by removing the point of constriction.

To illustrate the importance of position in giving shape to the fœtal cranial bones, I must beg leave to continue the history of this case a little further.

After the mother saw the wonderful influence exerted so soon by simply turning the child from the back to the side, she was determined to persevere in the course. She was in the habit of sleeping altogether on her right side, with the child's head resting on her arm, its face towards hers. When it slept during the day it was turned alternately from right to left, but the sameness of position at night effected such a change in the shape of the head as to mould it to the form of the arm; thus the left temporal region seemed to be sunk in just where it rested on the mother's arm, and the left parietal protuberance was enormously enlarged where it hung unsupported over the arm; while the relative development of the opposite side of the head was the reverse, viz., the temporal region was full, the parietal protuberance being rounded off, giving the head somewhat the appearance represented by the annexed diagram. Its head had such a "twisted look" as to attract the attention of every visitor. By directing it to be laid mostly on the opposite side, this deformity has in some measure disappeared, but even now it exists to a sufficiently remarkable degree to be easily perceptible. It disappears slowly because the bones are better ossified now and cannot be so readily moulded into any shape by position and pressure.

Fig. 2.



The following communication is from my friend Dr. Boswell. It is a little singular that two cases should have occurred in his practice in so short a space of time: but they are so plain that it is impossible to draw any other conclusion than that they were both genuine examples of trismus. Let the doctor speak for himself. He says:—

"In addition to my first I send you the outlines of another case of what I suppose to be trismus nascentium. On Sunday evening, the 28th of Dec. last, I was called to see the child of a medical friend. It was six days old. I arrived at 4 o'clock—was informed that the child had been complaining a little during the latter part of the night, having been well up to that time. The father had left home at daylight to be gone all day—not thinking that the child's indisposition was anything of a serious character, he had directed it to have a few drops of paregoric, provided it got no better as the day advanced. They supposed it had the colic, and gave the paregoric at 10 o'clock, A.M., but no relief was afforded; on the contrary it grew worse and more restless, and the good ladies became alarmed, supposing they had given it an over-dose of paregoric. It did not sleep, but got more unquiet, notwithstanding the administration of the anodyne. However, it had no symptoms that could be attributed to the effects of opium.

"On my arrival it presented the following condition: Its jaws were closed; it had not been able to take the breast during the day; it had some tonic rigidity of the muscles, with the peculiar clonic spasms so characteristic of this disease, which observed great regularity in their return: the child clinching its hands, flexing the arms, and involuntarily drawing them up towards the head: at the same time stretching itself backwards, moaning heavily and most distressingly. It had, too, a heavy frown, with distortion of the muscles of the face. From this assemblage of symptoms I immediately recognized the disease as being no other than that insatiable baby-killer, trismus. I examined the head and found, as I expected, a considerable *displacement of the occiput inwards.* It had been held all day by some one of the many female friends present, and was now in the lap of an old lady, *lying on its back with the occiput resting exactly on her left arm.* Feeling perfectly satisfied in my own mind, in regard to the nature and treatment of the disease, I made no other prescription than simply a change of position. I directed it to be placed on a soft pillow on its (left) side; and I am confident that within one hour there was an evident improvement in all its symptoms; the intervals between the clonic spasms were longer, and it showed a disposition to sleep. I now had it turned on the other side, and in a short time it fell sweetly asleep and slept refreshingly, being but seldom disturbed by a paroxysm of clonic spasms. Their intervals grew longer and their duration became shorter till they gradually disappeared. The improvement was apparent to all present. At about 9 o'clock (5 hours after my arrival), it took the breast, which it had refused to do all day; and by 10 o'clock it sucked very well indeed. It rested finely during the night, and next morning it appeared as smart as any child of its age. I saw it some two or three weeks afterwards, and it was doing well."

To any one at all acquainted with the *physiognomy* of the disease, this must appear to be so clearly a case of trismus, that comment would be wholly superfluous.

In dismissing the subject, I must be allowed to express the great degree of gratification I feel, in contemplating the probable good that must necessarily follow from understanding and acting upon the principles set forth in this paper.

I have now related six cases of trismus nascentium, in all of which the peculiar *occipital displacement* existed in a remarkable degree, and in five of them it was unquestionably effected by *position*.

1st. Mr. Stickney's negro child.

2d and 3d. Dr. Boswell's two cases.

4th. Dr. Jones' case.

5th. The little negro whose "head was mightily mashed." It had the disease from the hour of birth.

6th. Mrs. O.'s child.

Eight years ago I lost a little negro seven days old of this disease. I did not then know anything of the opinions I now hold, and, of course, cannot speak in regard to *occipital displacement;* but this I do know, (for I remember it very distinctly,) that the poor little thing *lay all the time on its back*, in one of those abominable little murderous machines commonly known by the name of cradle.

The truth or falsity of these views can be easily tested, and New Orleans is the place to do it. I appeal to some of my medical brethren there for facts and autopsies on this interesting subject. They have the field for observation and the facilities for post-obit dissections. According to the bills of mortality as published in the New Orleans Medical Journal, they have on an average about twelve a month, the year round, and I doubt not but many more cases occur that are not recognized, or are called by some other name, as "fits," "convulsions," "hives," &c. As touching this point let me relate a case or two.

Vicey, aged 35, the mother of seven children, says, that on the 3d of January, 1845, she lost an infant just seven days old in this way. At 9 o'clock she suckled it and put it to bed. It was healthy and sucked well. At about midnight she was waked by the child "making a noise like it was choking to death." She found its jaws clamped—it was not able to swallow. It cried a good deal—was in great distress. Next morning it had spasms, which were excited by motion or handling. It became perfectly stiff all over. The hands were gripped, and the elbows bent up, so that she had to tear its clothes off before it could be bathed. "The more they tried to do for it, the more its sufferings were increased." It lived about twenty hours. The family physician was sent for, but said he did not understand the disease.

Five years ago this same woman lost a child on the seventh day with precisely the same symptoms. The physician who saw this case pronounced it to be a case of "bold hives."

Esther, aged 30, the mother of six children, lost one, four years ago, on the sixth day. Here is her own narration of the symptoms. It had

spasms for two days and nights. "It made a kind of a little wheezing noise like a kitten." It had a sort of jumping or quivering whenever she would touch it, or when a fly would light on its face. It could suck at first; but on the second day its jaws became locked while it was in the act of sucking, and it never was able to draw the breast after that; and then *severe* spasms came on and "lasted off and on till it died."

The doctor did not recognize the disease.

I have accumulated a host of this sort of cases, but I shall *inflict* no more at present. However interesting the subject may be to me, still I know that I have already exhausted the patience of the reader. I have reported these last cases as much to impress a familiarity with the symptoms of the disease, as to show that it frequently occurs when we do not suspect its true character, and, like the others, I have chosen to give them pretty much in the unvarnished truth-telling style of the narrators.

I have not built up a theory and moulded facts to suit it: but I have accumulated facts honestly, and endeavoured to explain their phenomena philosophically. I do not expect to carry the same degree of conviction to the mind of any one that I feel myself. If I am wrong, cotemporaneous observers will prove it. If I am right, future generations will feel it.

Trans. Col. Phys. Phil.
Boling Renit. Fever.
Trans. Col. Phys. Phil.
Conn. Med. Soc.
Ky Lun. Asylum
Sunday School Union.
Med. Soc. Tenn.
Ky Asyl. Blind
Asylum Williamsburg Va
Penn. Hosp. Insane 1847.
Dowler's Esq. Retard.
Bloomingdale Asyl.
Trans Coll. Phys. Phil.
Ohio Med Argentum
Penn Hosp. Insane 1844
Dowler Yellow Fever

Penn. Hosp. Insane 1846

Sims Trismus Insanientium