General's reports, is 1 in 160. For the towns of Scotland it is 1 in 178 (from returns of 1860-64).

Whatever may be the mortality of lying-in in private practice in Edinburgh, it must be above 1 in 160. In the towns of Scotland it must be above 1 in 178.

Second: The Registrar's reports may be corrected so as to bring up their statements of deaths of childbed (metria and childbirth) to the statements wanted—namely, deaths *in* childbed (from all causes). If this can be satisfactorily done, then we will have a statement of the mortality in childbed in home practice.

Now, this has already been done in two ways. Dr. McClintock (*Dublin Quarterly Journal of Medicine*, August 1869) has ingeniously suggested that it should be done on the following plan. He finds the figure indicating the excess of the mortality *in* childbed above the mortality of childbed (metria and childbirth deaths) and adds this to the mortality of childbed. In other words, he finds how many lying-in women die of other causes than metria and childbirth, and adds the figure to that indicating the deaths from these causes. I have no objection to this method of calculating when no better is available. But I have used a more direct and safer plan, that is, to search the public records for all deaths of lying-in women from whatever cause. I, some years ago, had this carefully done for Edinburgh and Glasgow in 1855. I did not limit the search for deaths to four weeks after delivery, but extended it to six weeks; and this is unfortunate, as four weeks is the usual time understood to be adhered to in inquiries like the present. But the error thus introduced must be very trifling and unimportant.

Now, this search shewed that the home practitioners of Edinburgh and Glasgow in 1855 had, among lying-in women, a mortality of 1 in 107.

Third: The third source of knowledge of the mortality in private practice is spontaneously published records. These form, for reasons already given, a source of data that is not very valuable. "There," says M. Danyau (*Fievre Puerperale*, 1858, p. 177), "there are secrets which every one keeps carefully to himself. If all the world were sincere" (he adds), perhaps "we would find that the results are less favourable than is generally supposed." Accordingly, in the discussion in which Danyau took part, neither he nor any one else said what was the mortality in his private practice, although everyone wished to know. Some darkly hinted at the greatness of the mortality, and there can be no doubt that the restraint arose from fear of revealing a high figure of deaths. The great Dublin discussion revealed some speakers bold enough to state the figure wanted. But the originator of the discussion satisfied himself with observing that he lost only 1 in 1200 from puerperal fever in his private practice; a statement equally valueless and misleading, hiding facts, not revealing them. To conclude, there can be no doubt that records of private practice will have a strong tendency to error in the way of representing the mortality as smaller than it really is. The data of unfortunate practice will come to light in unduly small proportion.

In private practice that is not exceptional and in the records of which we have reason to think all deaths are included, I find such mortalities as the following (*Edinburgh Medical Journal*, November 1869, etc.): 1 in 45, 1 in 56, 1 in 105, 1 in 108, 1 in 121, 1 in 159, and so on.

If we had the mortality of the practice of the practitioner who in 1852 flourished in Brackel, or the figures of those gentlemen who have had what is called an epidemic of puerperal fever, we should have high mortalities compared with those just recorded.

Now, let us come to a conclusion in regard to the mortality of lying-in women in private practice. I cannot, after all the care taken, be otherwise than indefinite. I can see no reason to suppose that the figure in private practice is far from 1 in 100. It may be worse. It may be better.

This has to be contrasted with the total mortality in the Dublin Hospital, 1 in 72; or with the mortality of large periods, as that of Collins, 1 in 100.

Considering the extraordinary aggregation of cases of difficulty and danger in such an hospital as that of Dublin, I can find room for no astonishment at its mortality. I can find no sufficient grounds on which to lay any blame at its door. I can find no reason to believe that the mortality among its lying-in would have been less had they been confined in their own homes; while I am certain that the loss in comfort and other valuable objects would have been immense.

The eminent Dr. Stokes has summed up the whole case of hospital *versus* home practice, in a few words, and in favour of hospitals. The mortality in private practice is, he believes (*Dublin Quarterly Journal of Medical Science*, August 1869, p. 313), with all its favourable circumstances, as great as or greater than in lying-in hospitals.

Whatever may be the exact truth on this point, the history of the Dublin Hospital makes it plain that metria is an awful invader of its beneficent precincts. There is every reason to suppose that its attacks

may be prevented or their baneful effects reduced in amount. To attain to this supremely desirable object, the efforts of science and art should be laboriously and incessantly directed.

AN AID TO PARTURITION, AND TO THE TREATMENT OF DISPLACEMENTS OF THE UTERUS BY A NEW MECHANICAL APPLIANCE.*

By PROTHEROE SMITH, M.D.,

Physician to the Hospital for Women, etc.

WHAT makes the contrast between the easy and rapid childbirth of the savage state, and the painful and lingering process in civilised life?

In answering this inquiry, I shall endeavour to elucidate the chief reason of this obvious difference, and thence to show what gives the advantage to the savage. I shall endeavour to prove that a force, which exists in the one, and is deficient in the other, explains to a great extent the dissimilarity of the two instances. I hope then to propose a remedy for the defect, and to give my experience of its efficacy. The same question applied to uterine ailments is capable of a similar explanation, and its solution will, I venture to say, elucidate an important cause of the frequency of diseases of women in civilised life.

Man being erect, it necessarily follows that the structure of the pelvis and abdominal muscles must be such as to retain the viscera in their proper position, and to make the necessary expulsive efforts, which defecation and parturition require, with impunity.

The spinal column thrown into a series of waves, not only lessens shock from concussion, but by its lumbar curve the plane of the pelvis is rendered oblique, constituting that graceful form, which, when absent, is artificially supplied by a pad or bustle, and which is so designed as to support the abdominal viscera on the pubes, aided by the abdominal muscular walls and spine, and to retain them within the pelvis. But when the plane of the pelvis becomes horizontal by the obliteration of the lumbo-spinal curvature, or, as it is called, the Grecian bend, the abdominal viscera tend to prolapse towards or beyond its outlet, and to displace the pelvic contents.

This lumbar curve being absent at the extremes of life, the infant is found to be straight-backed; whilst the common evidence of old age is the obliteration of the double antero-posterior curves, going on to the bowed back and drooping form of those who are well-stricken in years. But the deficiency of the natural spinal curves is more or less known in early adult life; it may be from disease of the bodies of the vertebrae, with which we have at present nothing to do, but its chief cause may be found to be defective muscular power, which, in its cause and effect, forms the chief subject of the present paper.

Unlike the ancients, who suspended their garments from the shoulders, the usages of modern society impose upon females, more or less from the period of birth, the habit of wearing a cinch round the waist. From this are suspended all the clothes, which, by their weight, keep up considerable pressure on the thoracic, lumbar, spinal, and abdominal muscles; and this persistent pressure often leads to degeneration of the tissue of these muscles. Thus the muscles used in diaphragmatic respiration, and for fixing the chest in forced efforts of expulsion, as well as those of the spine and abdomen, are enfeebled by absorption or degeneration of muscular fibre, and so their functions are impaired. This alteration in the muscular tissue is well known to all who have witnessed the result of tight lacing in the deadhouse, in the muscular atrophy which marks such cases, and attenuates the abdominal walls. The consequent obliteration of the lumbar curve, and the levelling of the plane of the pelvis, destroy the natural lines of the female figure, and open the door to all those maladies, which result from the above-named deformity of the spinal column, and of the pelvic outlet.

Two great canals are lodged within the pelvis, viz., the alimentary and the generative. For the expulsion of the contents of the one, in the act of defecation, there are necessarily: 1. The involuntary contractile force of the bowels; and 2. The voluntary force supplied by the spino-abdominal muscles.

In this act the direction of the pelvis is altered, so as to facilitate the passage of the fæces by means of an inclined plane, over which they are readily expelled.

In parturition, the expulsion of the child through the pelvic canal is protracted, in like manner, for lack of muscular power; and the process at times seems almost left to the unaided force of the womb. Hence this organ is overtaxed, and sometimes fails in its efforts till helped by instrumental traction.

* Read before the Midwifery Section at the Annual Meeting of the British Medical Association in Leeds, July 1869.

Of the two uses now claimed for the pelvic band, the first is to supply artificially that force, which may be deteriorated by dress, or suspended by anæsthetics; and, by so doing, to aid the overtaxed uterus by curtailing the period, and so to lessen the risks of ordinary labour; the second, to aid the treatment of uterine maladies.

I will now briefly describe the instrument, showing wherein it differs from, and in what way, I believe, it is superior to any that have hitherto been brought before the profession. The advantages of it, when used as an aid to parturition, are the following. 1. A fixed point is secured for the exercise of mechanical force by means of, as it were, an artificial skeleton, the immobility of which is secured by two pads, one sacral, the other pubic, retained in their respective places by lateral springs, which embrace the pelvis below the crista iliorum. 2. Then, a fixed point having been gained, attached to the sacral pad are two vertical levers, and one horizontal, the former (vertical springs) end each in a costal spring, embracing the thorax, and united by a sternal pad, so arranged as not to incommode the chest in respiration; the latter or horizontal is a powerful spring, buckled to a belt closely adjusted to the abdominal walls, and connected above to the costal springs and below to the pelvic band by elastic rings. It is thus constructed, so as to act in the manner of the abdominal muscles. During the parturient pains, this belt is readily tightened at will to assist, or supply the place of the voluntary muscular contractions, and is as readily relaxed in the intervals of pain. When required, it may be made to maintain a steady uniform pressure, as is often needed *post partum*. This force, reacting upon the sacral pad, affords to the patient that support in the lumbar region which is so much called for during labour, and which is usually supplied by the hands of the nurse.

In the catalogue and report of instruments, published by the Obstetrical Society in 1867, there is, at page 5, an ingenious contrivance of Dr. Woodward of Worcester, which seems to answer the purpose just referred to, and which he accordingly names an "Obstetrical Back-Supporter." When the power of the abdominal muscles has been impaired by the constraint of dress, or rendered deficient under the influence of anæsthetics, the instrument which I now exhibit supplies artificially a force which simulates that of the abdominal muscles, when in a normal state. In this way I have found it of the greatest value in cases of anteversion of the gravid uterus, at the period of parturition. Only a few weeks since, I quickly and easily rectified the abnormal position in a patient I have attended with four children. The ease and rapidity of birth offered a great contrast to her former labours, and the patient appeared herself to be better than on any previous occasion. Her subsequent getting up "was satisfactory in every respect," and she has regained her strength in a manner so superior to that which has happened in her other confinements as to elicit voluntary expressions of satisfaction and surprise from herself and friends.

For the mechanical treatment of uterine ailments, this instrument acts in the following way. The pubic and sacral pads fixed by the lateral connecting springs tend by their mutual reaction to alter the plane of the pelvis, if too horizontal, to one more oblique, and therefore more natural. The costal springs and sternal pad attached to the end of the perpendicular springs, help still further to increase the lumbar pressure, to throw the sacrum backwards, and at the same time to fix the whole apparatus. From the pubic pad, and attached to it by a moveable rackwork, is a curved steel spring, which bent to the shape of the vagina, is passed into it, whilst it is made to carry at its extremity any form of pessary or support that may be required.

The advantage of an uterine support adjusted by these means, is that its *point d'appui*, being the pelvis itself, in ordinary movements of the body, it is not liable to displacement.

Without attempting here to enter into the pathology of misplacements of the womb, further than by referring to the cause already mentioned, viz., that of a too horizontal position of the pelvis, I would state that in order to rectify this, the prone position of the patient for a longer or shorter time has often been adopted by practitioners, and this mode of treatment was strongly advocated by my late friend and former colleague, Dr. Rigby. To counteract such derangements, I have made many experiments, which have at length resulted in the production of this instrument.

A standpoint is thus obtained, whereby force can be gradually applied to the lumbar region, so as to alter the position of the pelvis from the horizontal to a more oblique plane. The same advantage is thus gained by the pelvic band without the confinement and constraint of the prone position, and of many other ingenious appliances, which nevertheless are much more complicated and irksome to be borne.

The principal feature of the pelvic band is, that it forms an artificial skeleton, and so supplies all the chief *points d'appui* by which the complicated muscular system engaged in the acts of expulsion harmonise and effect their purpose; and it is one with the pelvis itself as to offer

a stability and comfort that no appliance depending chiefly on abdominal, and therefore unstable pressure, can possibly afford.

Enough, I trust, has now been said to warrant the hope that members of our profession will not be wanting to test its merits. Should this instrument obtain the approval of the distinguished physician, who now occupies the chair—should it prove to be, as I hope, an aid to midwifery, by lessening the pains and perils of childbirth, as well as by curtailing the often protracted attendance of the accoucheur—and should it likewise tend to facilitate the treatment of uterine dislocations, my object in bringing the subject before the Association will be fully gained.

ON THE EXTENSION OF THE CONTAGIOUS DISEASES ACT TO COMMERCIAL PORTS, AND OTHER MEASURES FOR IMPROVING THE SANITARY CONDITION OF THE MERCANTILE MARINE.*

By WALTER DICKSON, M.D., R.N.,
Medical Inspector of H.M. Customs.

Two years ago, an Act was passed by Parliament to amend existing sanitary laws relating to merchant seamen, to supply omissions in former Acts, and thereby to mitigate, if not entirely obviate, those preventable diseases which had been incontestably proved to have seriously crippled the mercantile marine of this country; for not only was the amount of sickness and mortality at sea much greater than it ought to have been, but the service had, in the public mind, become associated with so much hardship, misery, and degradation, that it ceased to present attractions to the adventurous youth of our poorer classes. Few of the worthier sort were tempted to the sea; and so it came to pass that the ships of our commercial navy were, in many cases, chiefly manned by foreigners. Most shipowners and shipmasters will admit that, among their best and most trustworthy seamen, there is now, and has been for some years, a large proportion of German or Scandinavian origin. For this change in the *personnel* of ships, there are, no doubt, other causes—such as the impetus given to emigration, and the higher wages that can now be obtained by young men, without privation, at home. With a view of reviving and developing the old nautical spirit which has done so much to enrich and aggrandise this country, and of ensuring for the sailor greater consideration and better treatment than had been accorded to him, several measures, both voluntary and compulsory, have been discussed. The Act of 1867 took cognisance of two important defects of common occurrence in the hygiene of ships, and effectual means were adopted to secure for the future a sufficient supply of trustworthy antiscorbutics, and also to provide better quarters for the men in regard to space, ventilation, and privy accommodation. An improved medicine-chest and book of instructions were also issued for such vessels as carried no medical officer; and special care was taken that the sick should not starve, as had sometimes happened, from want of suitable articles of diet. So essential a matter as the medical inspection of seamen, before embarking on long voyages, was recommended and regulated for, but was left to be adopted or not at the discretion of the local marine boards, and has shared the usual fate of permissive legislation in becoming, so far as I am aware, a dead letter.

In my official capacity I have inspected, for the Board of Trade, a great number of vessels of every class, and have examined minutely the sanitary condition of their crews. The details of these inquiries were published *in extenso* in a series of Parliamentary returns, and they showed conclusively the necessity of Government interference, which had been for some time urged in reference to antiscorbutics by the medical officer of the Privy Council, the physicians of the *Dreadnought*, and others interested in the health of seamen. The result was the Act of 1867, or Duke of Richmond's Act, as it is sometimes called after the then President of the Board of Trade.

In my representations, deduced from searching investigations into the health of many individual seamen, I gave a prominent place to venereal disease, as calling for immediate measures of repression. No malady is more prevalent among this class of men; and although it does not figure largely as a cause of mortality, yet, as we are all aware, hardly any disease proves more harassing, or is more tediously destructive of strength and comfort. It is now, as scurvy was, the main agent in keeping vessels undermanned. It is no uncommon thing to find a large proportion of a crew to be more or less disabled from this cause, as soon as they have got into what is technically called "blue water." The less acute cases do not, of course, desist from work, and, consequently, make slow and imperfect recoveries. But those more severely affected, as with slough-

* Read in the Public Medicine Section at the Annual Meeting of the British Medical Association in Leeds, July 1869.