circumstances, it may be necessary to resort to other expedients. The best by far is to depend upon Swiss milk. The tin being opened before starting, and a little of the milk taken out to prevent any running over, it is placed carefully in an ordinary small travelling provision-basket, not in a hand-bag. It is better to have a teaspoon as well, so that the quantity may be easily measured. Children, even if they are not accustomed to this kind of milk, take it readily, and digest it well. Even though the tin be left open, the milk remains perfectly good during the longest journey.

The next difficulty is in providing hot water to mix with the milk, or in heating the mixture to a proper temperature without the trouble and risk of boiling it over a spirit-lamp every time the child needs the bottle. Where many children travel in one compartment, during the night, or in a journey occupying over twelve hours, the risk of accidents happening from a spirit-lamp being upset is by no means slight, and is one that may readily be avoided by one of the following expedients.

An ordinary stone bottle, such as is commonly employed in winter to place at the foot of the bed to keep the feet warm, holding about half a gallon of water, is first wrapped round with several thicknesses of sheet cotton-wadding, the ends being brought round so as to entirely encircle the bottle. Outside this, two or three yards of stout house-flannel are wound, and fastened securely by a needle and thread, the ends being gathered in, as in the case of the wadding. The flannel and wadding are, of course, cut so as to allow the neck of the bottle to protrude. To improve the appearance of the whole, a piece of scarlet flannel is then neatly sewn on, and an ordinary rug-strap, with a handle, adjusted, so as to allow portability. A few hours before starting, the bottle must be filled with nearly boiling water, and the cork, which must be perfectly clean, or the screw-stopper, adjusted. The object of doing this is to heat thoroughly the bottle and its coverings. Shortly before starting, the bottle is first emptied, and then again filled with fresh boiling water. This can be readily carried by the aid of the strap without any inconvenience whatever. If properly prepared, the water, which at the time of starting is at a temperature of about 200° Fahr., will remain considerably over 100°, even though the quantity is constantly being diminished, for a period of twelve to sixteen hours.

If Swiss milk be employed, the better plan is to have a small pitcher or breakfast-cup in which to mix the water and milk before placing the mixture in the feeding-bottle. The first few bottles will need to be prepared a short time before being wanted, so as to allow the mixture to cool down to a proper temperature before it is given to the child. After twelve hours or so, the mere fact of mixing the water with the milk in a cold cup, and the necessary exposure to the atmosphere, reduces the temperature sufficiently to allow the bottle to be given without more than a very brief delay. As there is no opportunity of soaking the tube in cold water, after being used, during the journey, it is well worth while to be provided with one or more reserve bottles—which are very inexpensive—so as to lessen any risk of the milk becoming curdled from any fermentative changes in the tube or its fittings.

Where the child is being brought up on cow's milk, and it is considered better not to change it, Grout's infant food-warmer (manufactured by Allen of Maylebone Lane) is a very useful invention. It consists of a double box to contain boiling water, having in its interior one two or three compartments, as may be desired, to hold as many feeding-bottles, and closing with a padded lid. By this means, the milk can be kept warm for ten or twelve hours, and is ready for the child as soon as it wakes.

Where, for any reason, neither of these methods are resorted to, the ordinary expedient of Clarke's food-warmer, with a night-light constantly burning, or a portable spirit-lamp and small tin saucepan, as used in the nursery, is, of course, available; but no one who has once tried the hot-water bottle and Swiss milk will care to again incur the risk and trouble involved in these two latter methods, when travelling in a railway-carriage at night with children.

Children who have only recently given up the use of the bottle are still dependent to a great extent upon liquid food, though it is not always necessary in hot weather that the food should be warm. For this reason, a bottle of milk and another of plain water should form part of the travelling-basket. Children suffer much from thirst, as a rule, when travelling; and, if milk be given to them undiluted, it tends to increase, and not to satisfy, this craving for liquid. Plain water, in small quantities, at appropriate intervals, allays thirst, and prevents children from being so restless and irritable.

In place of buns, cakes, and sweet biscuits, it is far better to take only plain water-biscuits, thin slices of bread-and-butter, carefully packed in a sandwich-tin, or even simple crusts of bread, which do not

provoke thirst as in the case of sweet things. Egg-sandwiches, made with eggs not boiled too hard, prove an useful addition on long journeys, and are much relished by young children as well as by adults. Ripe fruit, to a moderate amount, is also very grateful, where children are old enough to be indulged with it.

Children who are unused to travelling often have a great dread of the whistling of the engine as it enters a tunnel, or rushes swiftly past some station with gas-lamps flaring along its whole length. To obviate these, a little cotton-wool, lightly packed at the orifice of the ear, gently pressed into the external meatus only sufficiently far to prevent the wool from actually falling out, and the precaution of drawing the blind or the curtains across the carriage-windows, will prove of great service.

A word of caution as to proper ventilation may not be amiss. Children are far more likely to suffer in health from long confinement in an overcrowded and ill-ventilated compartment of a railway-carriage, than they are to catch cold if the window be let down partially, even during the night. Of course, due prudence must be observed not to allow any undue current of air to circulate through the carriage in the early hours of the morning; otherwise, a chill may readily be taken. It is a mistake to wrap up children too much when travelling in summer; the unusual clothing only irritates them, and makes them restless and peevish, preventing their sleeping, and causing unnecessary discomfort.

In cases where children are exceedingly nervous and excitable, readily frightened, and unable to sleep when travelling, a dose of five or ten grains of the bromide of potassium, combined or not with a similar dose of chloral, depending upon the age of the child and the discretion of the practitioner, is often of service in restraining undue excitement and ensuring sleep.

Many more suggestions might be given; but sufficient has been said, I trust, to induce others to contribute their experience, and so enable us to mitigate the discomforts of travelling in the case of infants and young children.

RAPID DEATH FROM HÆMORRHAGE INTO THE PONS VAROLII AND MEDULLA OBLONGATA.

By W. JULIUS MICKLE, M.D., M.R.C.P.Lond.

THE case subjoined is placed on record for the sake of its medico-legal bearings. It has often been stated of late years, and the general assertion is quite true, that death from intracranial hæmorrhage is never sudden, and at the most is only moderately rapid. It is desirable, therefore, to record any case in which death follows intracranial hæmorrhage with extreme speediness. Many are the contingencies which start into mind wherein cases of the kind might prove of medico-legal value; but one need not wait to consider these.

That the rapidity with which death may follow upon intracranial hæmorrhage has been underrated by some pathologists, is obvious from the examination of certain cases already on record; but we hasten to add that these cases seem to be excessively rare. Thus forty minutes is the shortest time in which, in their great experience, Drs. Wilks and Moxon have observed death after encephalic hæmorrhage. Among the cases of exceptionally rapid death I have seen recorded, was one in which death was apparently instantaneous, save for a single gasp. Here a small aneurysmal sac on the left middle cerebral artery had given way, and blood was found in the subarachnoid cavity at the sides and base of the brain. In another instance, rupture of a similarly placed aneurysmal sac was quickly followed by death—apparently within a very few minutes, at most. In a third and rapidly fatal example, the sac was on the posterior cerebral artery, and the blood burst into the right lateral ventricle of the brain. In a fourth case, sudden hæmorrhagic effusion was followed by death "within five minutes at the most". Much blood was effused under the arachnoid, chiefly at the base. There was blood also under the spinal arachnoid, mainly in the dorsal region. No aneurysm was found. Malpighi, of illustrious memory, died suddenly. In the right lateral ventricle of his brain were large clots, and the blood-vessels were distended.

If, in the next place, one refer more specially to rapid death from hæmorrhage into the pons Varolii and medulla oblongata, the easily available examples seem to be rare. In one instance of hæmorrhage into the pons Varolii and fourth ventricle, rupturing the valve of Vieussens, the patient, seized with epileptiform convulsions, died "a few minutes afterwards". The most rapid of the other cases I have noticed on actual record were those in which death followed hæmorrhage into the pons in one hour, an hour and a half, and two hours. Nevertheless, one systematic writer states that, when extensive, such lesions may destroy life in from a fourth of an hour to several hours;

and by another it is stated that large and suddenly produced lesions in the central parts of the pons may cause death in "a few minutes, a few hours, or a day or two".

The usual explanation of more or less rapid death from hæmorrhage into the pons Varolii, or more particularly into the medulla oblongata, is suspension of the respiratory function from injury or inhibition of centres in the medulla oblongata ministering to respiration.

Suspension of respiration in a warm-blooded animal, in a state of activity, leads to a cessation of general muscular movements within five minutes, or even three, and of circulation and of cardiac contraction within ten minutes. The non-aëration of the blood causes its retardation in the pulmonary capillaries, engorgement of the right heart, and accumulation in the venous system. The imperfect arterialisation of such blood as does find its way to the left heart, and is thence propelled into the conduits of the systemic circulation, and its deficient volume, exert a depressing influence on the sensorial and other nervous centres; the contractility of the heart is weakened, and its movements cease, there being embarrassment (from venous distension) of the right chambers of the heart, and cessation of the normal supply of arterial blood to the left chambers, and to the coronary and other arteries. Let now respiration be restored, and the heart may recover its movements; the oxygenisation of the blood in the lungs aiding its onward course thence, and on the one side relieving the overdistended right heart, and on the other restoring to the left heart and arterial system their normal supply and stimulus.

Now, in hæmorrhagic lesion of the particular kind at the present instant under consideration, the circulation of carbonised blood in the medulla oblongata cannot rouse by its direct influence—and to direct superactivity—the respiratory centres in the medulla oblongata, compressed and functionally rendered inert, or even organically destroyed, as these are, by the clot and by the pulpification of nervous tissue. Moreover, under the conditions of this particular injury, the circulation of blood through the medulla oblongata must be more or less checked. Hence there are not so likely to be the efforts of extraordinary respiration, observed in some other cases. Again, the very completeness of the destructive lesion may also, in cases like the one below, prevent the occurrence of the convulsions so apt to accompany lesions of these parts. But, in the case about to be related, artificial respiration was fully carried out; and thereby was completely obviated one mode in which death may occur after hæmorrhage into the pons Varolii and medulla oblongata.

What, therefore, was the cause of so rapid a death in this case? There would be a powerful impression, such as is comprised under the somewhat wide and somewhat vague term "shock"—shock which may follow a great variety of injuries, and which ordinarily is evidenced by failure of the circulation and of the pulse, by coldness, pallor, and shrinking of the body-surface. It is well known that sudden and severe injuries of the cerebro-spinal nervous system may weaken or check the heart's action, as in concussion of the brain, injury to the spinal cord, or in lesions of the peripheral expansions of the nerves, as exemplified in crushing of the limbs, burning of the surface, and rupture or perforation of viscera.

But something more than this occurred—something differing in certain respects therefrom. Here the disruption, mechanical violence to the nervous tissue near, and perhaps affecting, the centre of the vagus nerve in the medulla oblongata, might well excite a powerful inhibitory influence upon the heart. In many ways may be effected a powerful excitation of the inhibitory nerve of the heart, and consequent stoppage of the latter; the arrest of the heart by electrical excitation of the spinal cord, or of the vagi divided at their origin, being, of course, an old observation. Brown-Séquard and others long ago found that irritation of the medulla oblongata and upper spinal cord caused sudden stoppage or diminution of the heart's action; and that the same, or destruction of the medulla oblongata, may cause sudden death without agony or convulsions.

Here also, owing to the suddenness of the lesion, there may have been some of that tumultuous displacement and vibration of the cerebro-spinal fluid, upon which Duret has laid stress in explanation of the phenomena of concussion.

As to the rôle of artificial respiration, it will be seen how, even in the subjoined case, its use was followed by a slight, though only momentary revival, as evidenced by the pulse, and by one or two slight efforts at respiration. Artificial respiration may well be employed in all cases of similar lesion where respiration fails. The lesion in question may be of just such severity as to cause death, and that rapidly, unless its immediate effects be tided over by artificial respiration; after which the natural function may reassert itself, and life be prolonged for hours, days, or weeks, in fatal cases; and, in other examples, life may perhaps be entirely preserved thereby; for even

considerable hæmorrhages in these parts are not necessarily and always fatal, as is proven by cases which, though comparatively rare, are found scattered here and there throughout medical literature.

Moreover, experimental investigations have established the utility of the procedure. As one result gathered from his vivisections, Schiff announced some years ago that when, in fulminant "apoplexy", death impends from paralysis of the medulla oblongata, artificial respiration should be used; and by this means Corso resuscitated a patient all but moribund from traumatic intracranial hæmorrhage. Death took place fifteen days later; and there were found fracture of the skull, with injury to the brain, and hæmorrhage on the right side extending to the medulla oblongata.*

In this relation, it is well to bear in mind how well endowed is the respiratory function; how many are the parts, both afferent and efferent, which contribute to its maintenance; how experiments long ago showed that, in lower animals, no portion of the medulla oblongata is absolutely necessary to respiration, which depends also upon all the incito-motory parts of the cerebro-spinal axis, and on the grey matter connecting these parts with the nerves animating the muscles of respiration; while the experiments of Volkmann and Vierordt showed how excitation of all or many parts of the body contributes to rouse respiratory functions.

CASE.—W. W., 98th Regiment, was admitted, at the age of 27, on June 17th, 1867, having become insane in India at a time when his general condition was deteriorated by climatic influences. In the earlier periods were melancholia, morbid apprehension of danger, delusions of persecution and of injury, hallucinations of sight, restlessness. In later years, impairment of memory and incoherence slowly augmented; delusions continued as to personal injuries inflicted upon him by imaginary persons and spirits; with these were also extravagant notions as to his position and powers. He readily became excited, and abruptly proceeded to violence.

In August 1878, epistaxis occurred.

On February 23rd, 1879, a severe attack of double pulmonary congestion with pleurisy set in; the congestion partially passed into pneumonia, which latter in a short time underwent resolution. The patient, however, was permitted to remain in bed, lest a relapse should be incurred by his carelessness or by exposure.

On March 31st, 1879, at 10.20 A.M., he was sitting up in bed, and quite in his ordinary condition; now and then uttering an ejaculation, as usual; when, suddenly, he vomited heavily, turned livid, and, to the attendant, seemed to be choking as if by a piece of food; fell back in bed, perfectly insensible, with livid face, and veins visibly distended, the pulse still beating, and one or two laboured efforts being made to inspire, each effort causing increased congestion of the veins of the face and neck. The pupils were equal, and were insensitive to light. Called instantly to the spot, which was near at hand, I swept the pharynx and upper part of the larynx with the finger, and thrust a probang down the œsophagus, but found no food lodged anywhere. Artificial respiration was at once instituted on the method of Sylvester, and a momentary improvement showed itself in two feeble gasps and a pulse once more distinctly perceptible; but this improvement ceasing, I immediately performed a rapid tracheotomy, having instruments and tube with me, and then continued artificial respiration for upwards of an hour, but without any avail. Subsequently to the moment I reached him, there were only the two feeble gasps when artificial respiration had been commenced, and a pulse and heart beating feebly for several minutes thereafter. Death must have taken place within seven or eight minutes of the sudden vomiting and carus, up to which moment there were no objective symptoms whatever.

Abstract of Necropsy.—The body was fairly nourished; slight cadaveric lividity; marked rigor mortis. The pons Varolii was slightly ruptured in front, was ploughed up and pulpified internally by blood, and was, for the most part, occupied by blood-clot and by clot mingled with nerve-substance. The upper and posterior part of the medulla oblongata was also invaded, and there was hæmorrhagic infiltration and softening on its posterior surface to within one-third of an inch of the nib of the calamus scriptorius. Some clotted blood was lying by the left side of the medulla oblongata; also in the interval between it, the pons, and the cerebellum; in the subarachnoid space beneath the cerebellum; in the fourth ventricle, extending thence, *videlicet*, into the third ventricle; and, finally, about the circle of Willis, and Sylvian fissures. The effusion had evidently all proceeded from the pons. The cerebellum was of fairly healthy appearance. The cerebral meninges were moderately congested; the arachnoid was slightly opaque, and the pia mater slightly œdematous, over the superior and

* The utility of the procedure is also well shown in a case of another kind than those now under notice—a case in the Warneford Hospital, in which artificial respiration was used by Drs. Homer and Wilson, and Mr. G. W. Crowe.

lateral surfaces of the brain. Both cortex and medulla of brain were somewhat hyperæmic. There was no trace of hæmorrhage in the lateral ventricles, and nothing unusual in the appearance of the opto-striate bodies. The right hemisphere was 20 ounces; the left, 19½; the cerebellum, 5½; pons and medulla oblongata, 1¼; fluid and blood from the cranial cavity, 4½ fluid ounces.

For the rest, it need only be stated that the left *pleura* contained 20 ounces of fluid; the right, 10 ounces; that pleuritic adhesions existed on the right side. The *lungs* were moderately congested, the left weighing 19½ ounces; the right, 25½ ounces. The *heart* contained some fluid blood; the coronary arteries were moderately atheromatous; the aorta slightly so, and one of its sinuses of Valsalva was very slightly dilated aneurysmally; there was some roughening of the aortic valves; the left ventricle was somewhat hypertrophied; and the heart, with a portion of the adjacent aorta, weighed 16 ounces. The *spleen* weighed 9½ ounces; there were perisplenic adhesions, irregularity and thickening of its capsule, and a depressed cicatrix on its surface; for the most part soft and diffident, portions of it were firmer, paler, and strewn with whitish spots. The *left kidney* weighed 4 ounces; was granular; its cortex was wasted, of reddish hue; its capsule stripped fairly. The *right kidney* weighed 3½ ounces; it was in the same condition as the left, except for some paler patches, giving it a marbled appearance.

THE MEANS AT PRESENT PROVIDED BY LAW FOR THE CARE AND CURE OF NON-PAUPER LUNATICS, AND ITS SAFEGUARDS.*

By DAVID BOWER, M.D., etc.,
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THERE is going on at present, as most here are probably aware, an agitation having reference to the lunacy laws. This subject I consider one on which there are, perhaps, none better able to give an opinion than the medical men of this country; and, as you may be referred to by your lay fellow-citizens, and your opinion, when given, must carry great weight, I have ventured to place on paper, and bring under your notice in as condensed a form as possible, that which I find few medical men know anything about—viz., the present state of these laws, and the safeguards and supervision provided by them; and I will afterwards make some very brief observations on the proposed legislation. The statements in the first division of my paper mainly relate to facts, and may be verified by reference to the Lunacy Acts.

Following the division of the subject thus sketched out, we will begin with—

A. *The Present State of Matters.*—Given an insane person above the pauper class, what courses in relation to treatment are there open for us to pursue?

1. The patient may be treated at home or elsewhere under the care of his friends, as many are—well and properly treated: a course which in many cases answers well, especially where the medical man of the family has had the time or opportunity to make the nature and treatment of brain-disease a subject of study and practice, or where he can at intervals avail himself of the advice, in consultation, of a specialist; and which always requires, to ensure success, either the assistance of male or female nurses trained to manage such cases, or friends of the patient exceptionally intelligent, reasonable, equable in temper and spirits, and, above all, who will carry out faithfully all the instructions. This is of importance more especially in suicidal cases, where the medical man, to protect himself, should give all his instructions in writing. We can all call to our recollection accidents happening through carelessness in this respect. Now, what does the law provide in the way of safeguard for the proper care and keeping of patients treated in this way? The Lord Chancellor and the Home Secretary have indeed the power, in any case where application is made to them, to inquire into the treatment of a lunatic thus taken charge of; but they have, so far as I know, no power, and are certainly not bound, to employ inspectors for the purpose of ascertaining these facts. In no asylum, public or private, have I seen straps used all over the patient's person to restrain him, or a patient tied to a bedpost by a chain or rope; but within even the past five years of this nineteenth century I have more than once seen this horrible and humiliating sight in cases treated at home, and have known many suicides of curable cases to occur from want of proper care; and yet the persons responsible are not brought to justice. And the system which allows this is the one which is lauded on all sides by certain misinformed enthusiasts, not only in lay, but in medical papers;

many of the writers being themselves ex-lunatics, who owe their recovery to a system they condemn.

2. Our supposed lunatic may be placed under certificate, as a single patient, in the unlicensed house of a medical man or layman. (No medical man can receive into his house, under payment, any non-certified lunatic, without rendering himself amenable to law.) The Commissioners in Lunacy have the power, but are not bound, to visit these patients; and the magistrates have no power of inspection, nor, in fact, any jurisdiction.

3. The non-pauper lunatic may also be sent (in most counties), under an order and medical certificates, to the pauper asylum; and, on the payment of a certain weekly sum, will receive the same accommodation, rights, and privileges as paupers, in most cases having to conform with them in dress. I have now under my care more than one patient whose friends can ill afford the reduced charge of a guinea per week which they pay me, but who shrink from the equality and fraternity (without the liberty) provided by the county asylums, who would yet be able and willing to pay from ten to fifteen shillings weekly, could wards and grounds apart from the paupers be provided for them, or special hospitals be constructed to receive them at an uniform low rate. This is the class whose wants require attention, and whom the charitably disposed should set about to relieve. The distinction would be much the same as between the sick-wards of the union and those of the borough and county infirmaries.

4. The non-pauper lunatic may, again, be sent to what are called "hospitals for the insane". These, if properly conducted, would afford accommodation for the large class just above the pauper to which I have above referred; but at present their charges are quite as high as, in many cases higher than, those made in private asylums; although the proprietors of these latter have to pay rent for a suitable house and grounds, buy furniture, etc.; and this without the help of endowments and charitable subscriptions, such as hospitals have. Hospitals do not require a licence; are not in any way under the control of the magistrates; have only to be inspected once a year by the commissioners; and have a constitution which nominally compels them to spend all money received on expenses, salaries, etc., and the remainder to be applied to the reduction of the rates charged for their less wealthy patients. This constitution, which on paper is everything that is charitable and proper, does not, however, prevent, in some at least of the largest and otherwise perhaps the most admirably conducted of them, the space—originally intended by pious founders and benefactors for the poorer classes—from being taken up by patients paying £300, £400, or £500, and in some cases even as much as £1,000 a year; the profits from these patients having accumulated, instead of being applied to the reduction of the boards paid by the poorer patients, who are often unable to gain admission.

Beyond the fact—certainly not an unimportant fact—of their having only one inspection instead of eight each year, they are subject to much the same regulations as to the admission, detention, and discharge of patients, as the next class.

5. Our patient may be sent to a "licensed house", otherwise a private asylum; and, as I am interested in these, I will, after the next few sentences, confine myself strictly to statements of facts rather than opinions.

A certain set of agitators obtained, in 1877, a Parliamentary Commission to inquire into alleged abuses, which mainly consisted in allegations of the detention of sane patients; but, although that Commission sat long, and heard much evidence, the chairman being Mr. Dillwyn, the great opponent of private asylums, it was unable to prove that one sane person had been confined in a private asylum, although the lunacy reformers tried hard to do so. I believe the illegal detention of a patient in a private asylum to be absolutely impossible in the present state of the law, which is as follows.

Within one day of the admission of a patient, copies of the order and medical certificates on the authority of which he is detained have to be forwarded to the commissioners (and to the local magistrates, if in the provinces); and if these be defective in the slightest particular, they are returned at once. Before the expiry of seven days, the medical officer of the asylum must send to the same quarters certificates as to the patient's mental and bodily health, and write a full account of the same in the case-book. The commissioners, moreover, require a return stating the amount paid on behalf of each patient. They are obliged to visit and inspect each private asylum at least twice a year, in each case a lawyer and a medical man being present, and *this entirely without notice*; and they may make their visits at any time in the day or night. On such occasions, their duty is to examine the certificates, case-books, journals, etc.; to inspect the whole house, and to see and converse with all the patients, hearing and inquiring into any complaints; and, finally, to make a report in writing before they leave the

* Read before the South Midland Branch.