drug, or to damage to the spinal cord or cauda equina caused by the needle.

Dr. G. M. Robertson has advanced the theory that subdural hæmorrhage is started by a fall of intra-cranial pressure usually caused by spasm of the cerebral vessels. It is conceivable that the fall of the tension determined by the withdrawal of fluid might act in this way.

On the other hand, lumbar puncture has been used for the diagnosis of subdural hæmorrhage and has been said to relieve the symptoms temporarily.

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"*Forced Feeding*," *with Special Reference to a Case continuously fed by the Nasal Tube for over Nine Years.*

By DAVID BLAIR, M.A., M.D., Assistant Medical Officer, County Asylum, Lancaster.

THE subject of the few remarks I have to offer is one with which those who attend the insane soon become familiar. No other class of physicians can speak of it with more authority. It is not a wide field, and at the first blush would not appear to lend itself to much divergence of view. Yet from the opinions one occasionally hears expressed, I think it is expedient that our attitude towards the questions associated with artificial feeding should now and again be reviewed. When to feed artificially, its relative dangers, its moral effect, or even the best method to adopt, are points upon which observers differ.

We naturally base our opinions on the cases with which we have dealt or have actually seen; while the extent and variety

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of our individual experience are probably very different. One observer will testify that in dealing with several hundred patients he has never had to resort to the stomach-pump or nasal tube, but has always fed his patients with a spoon. Eminent men in the profession have testified to the cruelty and danger of the methods. And though these views may be extreme and somewhat exceptional, yet the opinion still seems to be fairly general that tube feeding, whether by the oral or the nasal method, belongs to the category of heroic measures, and should never be resorted to unless our patients are *in extremis*.

Although by no means accepting this limit to its application, I should like to refer to three cases which certainly illustrate its value in this category. The first I had to feed artificially without intermission for more than nine years. For the whole of that period she was determined to die, and left nothing undone to attain her end. She was bed-ridden, and absolutely refused all nourishment save that which was administered by the nasal tube or *per rectum*.

The patient was admitted to the Lancaster Asylum on July 5th, 1901, æt. 65. Previous to her admission she had been insane several times, and probably for several years. Rather weak and anæmic, she suffered from heart disease and dyspnœa. Delusions of persecution and frequent auditory hallucinations made her excited and violent. She believed she was lost beyond salvation, and had therefore lost all control of herself. She said she was afraid of the birds because they talked about her. The belief that she was the incessant topic of conversation by those around aroused her active resentment, and she would suddenly attack her neighbours with any weapon that came to hand; and she was very suicidal. A few months after admission her delusions began to influence the taking of food. She insisted the roof of her mouth was gone, that she was gone, that she was dead, and finally refused food altogether. Before she was actually fed artificially her weight had come down from twelve stones to seven; and from June, 1902, till October 24th, 1911 (when she died), she absolutely and successfully refused nourishment in any form which was not forced into her by the nasal tube or stomach-pump. To feed her even by these means was not easy. In fact she was a skilled resister to the passage of the tube. With a quite exceptional power of contracting the muscles at the back of her pharynx, she

could direct the point of the tube at will into the larynx. By manipulating her tongue, too, in a wonderful way behind the tube she could force the point into her mouth, biting it firmly with her teeth. If a stranger tried to feed her she would constrict her nares so tightly that he was sometimes unable to introduce the tube by the nose; while the nasal mucous membrane became occasionally so œdematous that the oral method had for a time to be resorted to. From time to time, but especially in the first few months during which she was fed artificially, every known expedient was tried to induce her to voluntarily take food. Milk and nourishment in other forms were invariably left within her reach, but without success. Rectal feeding was employed as an adjunct to the nasal, but it soon resulted in diarrhœa. Slinger's suppositories seemed to be fairly absorbed for a short time, but the patient was a very unsuitable case for rectal alimentation. Forcibly constricting the external sphincter round the enema tube she could prevent the passage of fluid through it. When this form of resistance had been overcome she could successfully employ the internal sphincter as a detrusor and force the contents from her bowel.

In addition to the difficulties presented by her determined opposition to being fed and tended, we were, in the first few months, greatly hampered by sickness and diarrhœa.

But although her kidneys were implicated from the beginning, we found the diarrhœa was almost entirely due to the nutrient enemata and it ceased when these were suspended.

The sickness also seemed to vanish when we had gauged the limits of her absorbing capacity. This was found by actual experience to be the equivalent of two eggs and three pints of milk in the twenty-four hours.

During the first year in which she was fed artificially, her diet was repeatedly altered both as to contents, amount and frequency of administration. But every variety of change ultimately yielded to one egg beaten up in a pint and a half of sterilised milk, and this amount was given twice daily. Once every week one ounce of castor oil was added to the mixture. And this routine was continued practically unchanged for the last eight years of her life.

The patient did not limit her resistive propensities to the taking of food. She rendered the care of her excretory functions quite as annoying and much more revolting. She made

a practice of holding back her urine and fæces until exhausted. However long she might be seated on the night-chair she managed to prevent the discharge of her excreta until she was returned to bed. This she would immediately soil and flood, and the intense annoyance of the nurse in charge seemed to afford her sardonic glee. Frequent catheterisation was employed with considerable success, yet this was often a tedious process. By constricting her urethra round the rubber catheter she could entirely prevent the passage of urine through it and could effectually force the instrument out of her bladder.

In the first six years her weight varied very little. In 1902, when she began to be fed, she weighed 7 st., and in 1908 she weighed 6 st. 8 lb. From that time, owing to threatened sickness, we had at times to reduce the quantity of her nourishment, and specially to eliminate the eggs for long periods, so that she gradually lost weight. Last September she weighed only 4 st. 9 lbs.

Her pulse was slow, varying from 40 to 60, but the respirations were rather more frequent than normal. She had always albumen in her urine and occasionally some cystitis. In bed she invariably kept her legs flexed on her thighs and her thighs on her abdomen and violently resisted the routine straightening to which they were subjected. Towards the end it was impossible to do so, and her fixed position was that of the child *in utero*.

The *post-mortem* examination revealed nothing unexpected. The pia-arachnoid was thickened and there was considerable wasting of the convolutions. The ventricles were dilated and contained considerable fluid, while the cerebral vessels were atheromatous. In both pleuræ old adhesions were present. The bronchial tubes were inflamed and the base of the right lung was congested. The heart was flabby, mitral and aortic valves were thickened, while the latter were very calcareous. The liver and spleen were small, while the kidneys were very cirrhotic. The œsophagus and stomach were clean and healthy. There was no bed-sore and no sign of phthisis.

A case like this illustrates how long life may be prolonged even in the most unfavourable cases granted patient attention to every detail of nursing, by the administration of small and carefully gauged quantities of nourishment. Not only can life be prolonged, but even under these very exceptional conditions

the *vis medicatrix naturæ* will sometimes assert itself in a quite unexpected way. Several years ago a senile melancholic under my care, in an advanced stage of arterio-sclerosis associated with chronic Bright's disease, was fed almost without intermission for two years. The heart's action was irregular and the left ventricle considerably enlarged. She spared no effort to prevent food entering or remaining in her system. Between her power of rejecting the feeding mixture and her poor digestion, there were certainly long periods when she did not retain more than about two pints of milk daily. In one of her limbs gangrene began. Her friends so stoutly opposed operative interference and the case seemed so hopeless that one had simply to allow the part to die "progressive." Ultimately an auto-amputation below the knee took place and there was practically no further trouble with this condition. At a later period, while still being fed, she forced her arm between the boards of a wooden bed on which she was lying and fractured the neck of her humerus. She fought hard against all treatment and violently resisted the application of splints and bandages. Even when she seemed to be sufficiently restrained she invariably succeeded in tearing them off. Finally the shoulder was put up in plaster and the arm bound to the body by plaster bandages. When these were taken off the fragments seemed to have united in a perfectly satisfactory manner and the complete use of the arm was restored to her. After her death the joint was examined and the head of the bone was found firmly united to the shaft, the neck having entirely been absorbed.

One other case, fed uninterruptedly for six months, which seemed as hopeless as either of these when she began to be fed artificially, had the advantage of youth. Some years ago she came under our care in an acutely suicidal condition. She attempted to batter the framework of the bed with her head, made sudden darts at the window, refused all food, and violently resisted everything that was done in her interest. The undivided attention of at least two nurses was monopolised by her for many weeks. All nourishment had to be administered artificially, and she was fed many times daily by the nasal tube or *per rectum*. In her desire for death she constricted the sphincters of her bladder and rectum so persistently that even her excreta had to be artificially removed.

In two or three months undoubted symptoms of phthisis began to appear, and she became very ill. The family physician of her relatives came to see her, and expressed the opinion to the parents that she had only an hour or two to live.

However, we continued to treat her in bed in the open air, while as much food as she could assimilate was administered artificially. By slow stages she improved, until all signs of phthisis, and even insanity, seemed to leave her, and she became a quiet, useful member of the asylum community.

By-and-by, when recovered for all intents and purposes, she was taken home and lived a most useful life there for at least three years.

Reflections on the history of cases such as these cannot help suggesting a crucial question. Let us take, for instance, the first case. For nearly ten years the patient had fought actively and passively to take her own life, while the nurses successfully defended it. This woman was the offspring of degenerate stock; there was practically no prospect of her mental recovery, and she was an expensive patient to the country. To keep her alive was no doubt an illustration of that enthusiasm of humanity, that high Christian ideal of seeing in every human being a spirit made in the image of God, and capable of rising into a divine and eternal life. But in view of the serious burden to the ratepayer, are we not bound to ask if we are allowing our benevolent instincts to over-ride our common-sense? Happily for us questions such as these as yet need not hamper our routine of duty. The other side of the picture alone concerns us. From records of such cases we are surely justified in congratulating ourselves on the high standard of excellence to which the modern asylum nurse has attained. There was here none of that stimulating excitement which sustains attention on acute bodily disease. The work was not only monotonous, but it was irritating and revolting. Yet incessant care and the nurses' best endeavour were always imperative and conscientiously bestowed. And although it is a common picture in the asylum world, yet it is none the less pleasing to find among our nurses devotion to duties such as these, and that enthusiasm to excel in work like this can, and does, exist.

When to begin to forcibly feed a patient may give rise to

some doubt. It is practically an axiom that it should never be done if it can possibly be avoided; that we should never resort to the stomach-pump or nasal tube if we can persuade the patient to take his food in a natural manner. There is a measure of truth in this, but it really depends on how much food the patient can be got to take in a natural manner and how much persuasion is required.

One would certainly spare no pains to diagnose the cause of the refusal of food and treat that if possible. One would, of course, never use these methods because the routine asylum dietary was declined when the patient really would take a sufficient amount of nourishment of a kind more suited to his taste. But in cases where patients, from caprice or perversity, continue to decline their food unless some unusual diet is supplied, I have found it best in their own interest to feed them promptly by the nasal tube. It may probably have to be done only once.

When hallucinations of taste or delusions of food being poisoned or of a command from the Almighty not to eat are present, although the patients may be persuaded to take some food, yet I have invariably found that the feeding is entirely unsatisfactory, and that regular feeding by the nasal tube is the best treatment. Similarly, there are patients with hallucinations which may have nothing to do with their food, but which so entirely dominate their attention as to render the stimulus of hunger and the calls of nature unfelt, or at least ignored. If these, although fed with fair regularity by the nurse, are yet losing weight, I think regular and persistent tube-feeding is indicated.

To wash out the stomach before beginning forcible feeding is quite a good routine practice.

In cases where the refusal of food is due to a disordered condition of the alimentary tract with constipation, one or two enemata accompanied by washing out the stomach will often be found effectual. But even then I think that tube-feeding for a short time stimulates the digestive functions and hastens the restoration of the normal. When any kind of medicinal treatment urgently needed is effectually resisted, its administration by the tube is the rational course. In cases of habitual constipation where the patients decline an aperient, I have found the mere exhibition of the tube or at most one or

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two applications of it have permanently cured this form of perversity.

In the case of a strong, well-nourished patient, who declined food, two or three days of starvation would probably add to his physical well-being and be the best treatment. But, with these exceptions, no good, and much harm, may result from delay.

As to the method, I much prefer the nasal to any other. Occasionally one is confronted by a patient who has such an abnormal power of directing the point of the tube into the larynx that it is advisable to feed by a very wide œsophageal tube introduced through the mouth. I have one such case at present whom I have never succeeded for this reason in feeding through the nose, but who can be fed quite easily by the tube passed through the mouth. Damage is usually done to her gums, however, by the great resistance she offers to her jaws being forced apart by the gag. Sometimes the mucous membrane of the nares gets congested and it is well to introduce the tube by the mouth for a time. Owing to the nasal septum being deflected to one side, as a rule it is much easier to pass a tube through one nasal passage than the other. The danger of this method has sometimes been exaggerated. But it is well to attend to one or two simple points. A tube should be employed, not a catheter. The apparatus to which I have become accustomed is a glass filler and a tube about three feet long. The tube tapers very gradually towards the point, but has an average diameter of about a quarter of an inch. Four or five inches from the filler the rubber tube is interrupted by about four inches of glass tubing. After passing the tube the ear should always be applied to the filler before any fluid is introduced. Before the feeding mixture, a little water should be poured down as an additional precaution. Anyone accustomed to nasal feeding soon acquires a *tactus eruditus*, which rarely fails to indicate during the passage of the tube if the right course has not been followed. And if the ear is applied to the filler it is almost inconceivable that anyone could fail to detect whether or not the point of the tube was in the larynx. Where the tube does tend to be deflected into the larynx, it is well so soon as the point has reached the pharynx to flex the head until the chin is on the chest, and then to continue the passage of the tube into the œsophagus. By this means I have fed

people who could not swallow, especially those in the late stage of general paralysis, patients suffering from all forms of heart disease, and even some in the unconscious state. After sixteen years' almost continuous experience of it without accident of any moment, I believe that, far from being very dangerous, it is safe, and much more so than any of the incomplete measures some advocate.

Where one is dealing with those whose feelings and judgment are no reliable guides to the amount of nourishment they should take, tube-feeding is the best means of ascertaining the condition of their alimentary tract and of gauging their digestive capacity. And when one reflects that on the nourishment administered exclusively in this artificial way fractures may heal, signs of phthisis may disappear, and life may be most remarkably prolonged, surely we must agree that nasal feeding is not overdone in asylums, but that the tendency is quite in the other direction.

Discussion,

At the Quarterly Meeting, held at Long Grove Asylum on February 22nd, 1912.

The President said that they were obliged to Dr. Blair for giving the meeting the results of his experience. He congratulated him on having been able to keep the patient alive on this treatment for nine years. It said a good deal for the care and persistence exercised by him, and for the high standard of the nursing in his institution. He was sure that many would wish to discuss the paper.

Dr. P. T. Hughes said he had listened with great interest to the paper, but he took exception to one matter in it, namely, the suggestion that, in the case in which the feeding was carried on for nine years, it was possibly something which should not have been done, or that there was a possibility we were far too sentimental in keeping such a case alive. He believed any such idea as that was quite wrong. To withhold treatment from such a case, even though the treatment was only feeding, would not be defensible. It would be simply a variant of the old idea of a lethal chamber, and such an idea should not be entertained for a moment, otherwise the whole underlying principle of treatment of the insane would be debased. Though the case which was fed for nine years was so unsatisfactory, the second case which the author described was an absolute success, and he would like to hear how one could judge at the beginning what cases were likely to be successful. Everyone with asylum experience had to feed cases who resisted, and he contended that in the present state of our knowledge no one could tell whether a given case would recover or not. One could only go on with the feeding and hope for the best. Another matter which he was sorry to hear mentioned was that the symptoms and behaviour of the patient caused "great annoyance" to the nursing staff. It struck him as very sad that symptoms shown by any patient should cause annoyance to nurses; it was wrong for a nurse to entertain such feelings towards any patient.

Dr. J. F. Briscoe desired to congratulate Dr. Blair on his most successful case. It was not his business or intention to make any comments on the question of sentiment, whether with regard to insanity or cancer. The text of the paper was forcible feeding. At Lancaster Hospital nasal feeding was employed, and there were other asylums and hospitals which placed their confidence in the œsophageal tube. He had himself very little confidence in the use of the nasal tube. The

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whole subject of forcible feeding had been brought before the Association previously, and after discussing nasal feeding as against œsophageal the adherents of the latter method were in the majority. He did not say that in the hands of those accustomed to nasal feeding, and who were skilful, the results were not good, but, with all respect to Dr. Blair, he preferred to use the œsophageal tube.

Dr. PERCY SMITH thought, in view of a recent politico-legal event, that the Association should definitely state that artificial feeding, whether by the œsophageal tube or the nasal tube, was practically adopted in all asylums throughout the country, and that many patients were fed daily in this way. He would say, based upon his experience, that at Bethlem Hospital every day four or five patients were fed three times each day by that method. Multiplying that by the number of days in the year, it gave a good many of those operations at one institution alone. He was much in favour of the nasal tube as against the œsophageal, and he believed it would be found that the nasal tube was the favourite means of feeding forcibly; but there were cases which could not be fed in that way, and which had to be fed by the œsophageal tube. It could be stated positively that there were large numbers of patients who, if they were not fed, would die, and it was the medical man's plain duty to prevent the patient dying if that was by any means possible. He would be very sorry if there were any suggestion in Dr. Blair's paper that at any time euthanasia should be promoted; plainly patients should not be allowed to die if that could by any means be prevented. Many patients were tided through a period of refusal of food, and in that way put on the road to recovery. In every case naturally one tried persuasion first, and that was mentioned in the politico-legal case which he had in mind. If that failed, other methods must be adopted. There could be no doubt that œsophageal or nasal feeding, with very rare exceptions, was carried out without the slightest injury to the patient. Of course, in the case of œsophageal feeding there might be injury to the gums or teeth, but he had not seen injury of any kind happen to a patient from nasal feeding, except perhaps a little soreness of the nose, which was quite a minor matter. It was equally certain that with many patients once feeding in that way was sufficient, for they disliked it so much that they afterwards took their food in the ordinary way. It was not sufficient that the patient should be taking small quantities of nourishment by spoon or feeder, for the object was not merely to maintain a moderate amount of nutrition in acute cases, but to feed until the patient was actually gaining weight, and thus place him in a position to have his mental health thoroughly re-established.

Dr. SEYMOUR TUKE said he thought it was a good thing to have this subject brought up for discussion at intervals, and he well remembered the meeting referred to by Dr. Briscoe when the subject was thrashed out. In connection with it there were many things to consider. He had had to carry out a good deal of tube-feeding, and he confessed that in many ways he preferred the œsophageal tube, in spite of what he had been taught. One great advantage of feeding by means of the œsophageal tube was the rapidity with which it could be carried out if the patient was not particularly troublesome. Of course if strong objection was manifested and great fuss was being made by the patient, one must resort to the nasal tube. It was more possible to keep the patient quiet while using the nasal tube than during the employment of the œsophageal tube. He always restrained a patient if he had to feed him or her, because it was the safest plan. The Commissioners in Lunacy wished to have a record of mechanical restraint, and for a considerable time his brother and he kept records of the time occupied in feeding a case, and it worked out at under three minutes from the time the patient was sat in the chair to the conclusion of the operation. No nasal operation could be carried out so quickly as that, because the fluid could not pass through fast enough. He remembered having to feed one case of stuporose insanity for several years in that way, and the case did remarkably well for quite a long time, though eventually it did not recover. Recently he had had a case of at least very great improvement, if not recovery, after feeding artificially for over a year. It seemed to him that the author was somewhat unjustly attacked by the first speaker, for he did not understand Dr. Blair to give an opinion on the propriety of leaving such people alone, but he understood he gave two alternatives, stating that of the two he was distinctly in favour of the humanitarian method of feeding, putting on one side any idea in the opposite direction.

The PRESIDENT said his own impression from hearing the paper was similar

to that of Dr. Seymour Tuke; he did not understand Dr. Blair to set forth such extremely heterodox doctrines as those which had been attributed to him. That a nurse would occasionally feel some annoyance at having to work with a patient such as the one described was no more than to say that she was human. With regard to the comparative merits of nasal and œsophageal feeding, it was possible to talk almost for ever on such a subject, because both methods were very good in their own way, and he thought Dr. Seymour Tuke had summarised the matter in a nutshell. Where the patient resisted violently he considered that nasal feeding was the better, but where the patient could be fed without much trouble the œsophageal method was less disagreeable to the patient, and was much more rapid in use.

Dr. BLAIR, in reply, thanked the meeting for its courteous attention. With regard to the point raised by the first speaker, Dr. Tuke correctly said that he, Dr. Blair, simply put the question. It was the question which was suggested by all who came to see the case. He would not like it to go forth that nurses in asylums expressed disgust at having to carry out such procedures. His object had rather been to demonstrate the devoted care which the nurses gave to such cases.

An Inquiry into the Occurrence of an Inherited Tendency to Insanity in the Insane of a Rural Population.

By JAMES FREDERICK CORSON, M.D., D.P.H.Camb., Assistant Medical Officer, Bucks County Asylum.

The important part played by heredity in the causation of insanity has long been recognised. Much has been written on the subject and investigations have frequently been made to show its influence. Owing to the complexity, variability and general indefinite character of insanity these inquiries have been mainly statistical. It is recognised that no form of insanity is of such definite and simple nature as to be readily available for study in its hereditary aspect by Mendelian methods. As has been repeatedly stated by various writers on the subject, it is not insanity, recognisable as such, that is inherited, but an abnormal nervous system liable to the development of the various conditions included in the term "insanity."

In his book on *Mendel's Principles of Heredity* (1), Professor Bateson refers to this aspect of the subject as follows:—"Forms of insanity, which appear when the individual is subjected to various strains and excitements, may not appear at all if these causes be absent. The element transmitted is evidently the liability, not necessarily the developed condition. The descent of such peculiarities is therefore beyond the range of our analysis."

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