

ON THE  
USE OF BROMINE IN THE TREATMENT  
OF HOSPITAL GANGRENE.

BY JOHN WM. BLYTH, M.D.,  
LATE ACTING ASSISTANT-SURGEON U.S. ARMY.

DURING the late civil war in America, hospital gangrene, especially during the summer months, prevailed to an alarming extent. The deaths from this cause alone were, in some sections of the U.S. army, truly appalling, until the use of bromine as a treatment was introduced by Surgeon Middleton Goldsmith, U.S. volunteers, in charge of the Jefferson Hospital, Jeffersonville, Indiana. After this time no deaths attributable solely to this cause occurred, when properly treated by it. During the months of June, July, and August, 1864, when in charge of wards in the above-named hospital, upwards of 100 cases came under my care, all of which terminated favourably, as well as hundreds of others, treated in a similar manner by the other surgeons, in other wards. In the hospitals situated on the opposite or Kentucky side of the Ohio river, the mortality amongst the wounded from hospital gangrene was enormous until Dr. Goldsmith's treatment was adopted, and, under his directions, carried out; upon which it ceased. I found the same success attend its use when in charge of the gangrene wards of the 15th Corps Field Hospital, army of the Tennessee. Towards the close of the war it was coming very generally into practice, success having followed its application in almost every instance. The mode of applying the bromine is substantially as follows:—

1. The wound must be *thoroughly* cleansed of all gangrenous slough by means of a wooden spatula or blunt scalpel, until the firm, healthy tissues beneath are reached; and the parts dried as perfectly as possible with tow. To do this effectually, the patient is first placed under the influence of some anæsthetic, a mixture of equal parts of chloroform and ether being generally preferred. The ether is used to counteract, by its stimulating properties, the depressing effects of the chloroform; whilst the rapidity of action of the latter is maintained. Without first *thoroughly* clearing away the diffuent slough, bromine, powerful as it is, is unable to penetrate to the healthy tissues. To want of this very necessary precaution I believe all the failures attributed to it are to be ascribed.

2. Having thus prepared the wound, pure bromine is applied by means of swabs of lint attached to the end of small sticks, say eight or ten inches in length; great care being taken to touch every portion of gangrenous surface. The bromine, being extremely volatile, penetrates every sinus &c., which could not be reached by any of the other liquid or solid escharotics in use. The bed or operating table upon which this application is performed must be placed in such a position that the fumes, which are extremely irritating and annoying, will be carried off by a draught of air in a contrary direction from that in which the operator and his assistants are.

3. After the application, the wound should be stuffed with lint damped in a *solution* of bromine made with water and bromide of potassium, and then wrapped up in oiled silk. After the lapse of a few hours linseed poultices are applied, to facilitate the removal of the eschar, which soon peels off as the skin from a boiled potato, leaving healthy rose-coloured granulations below. The wound is then treated in the ordinary way, special care, however, being taken to keep the parts clean, and, by means of dressings saturated in some weak disinfecting solution, to prevent the absorption of fresh virus.

4. During the progress of the disease the patient must be supported by the free use of whisky, by quinine, &c.; but beyond the use of stimulants and tonics, and endeavouring to keep the secretions and excretions in as healthy a state as possible, very little internal treatment is required, as the constitutional symptoms are merely secondary, and cease immediately on the successful combating of the local trouble. In a few hours, after a thorough application, they usually vanish, as it were, by magic; and, instead of the patient being the disheartened, despairing being he was previously, he will be a hopeful man, sanguine of recovery.

When on duty in the 15th Corps Field Hospital, I was obliged on one or two occasions to resort to the use of nitric

acid when bromine was not to be obtained; but found it wanting in the very penetrating and escharotic effects of the latter—two properties which render bromine so specially adapted. Although applied in a similar manner, the results were not nearly so satisfactory, very frequent applications being required, and the patient remaining under treatment for a much longer period.

*A Mirror*  
OF THE PRACTICE OF  
MEDICINE AND SURGERY  
IN THE  
HOSPITALS OF LONDON.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum, tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

GUYS'S HOSPITAL.

AUTOPSY OF A CASE IN WHICH THE SKULL WAS  
PENETRATED BY A CLEAVER.

(By Dr. MOXON.)

IN the department of morbid anatomy last week we saw Dr. Moxon conduct the examination which is here described. The case was interesting in several particulars, not the least being that the injury bore a striking resemblance to one not unfrequently requiring attention in warfare—namely, sabre wound of the skull.

The patient, Charles D—, aged sixty, was admitted into Guy's Hospital, under the care of Mr. Cock. He had been struck with a cleaver in the forehead in an Irish "row" on the 8th of August. Insensibility came on gradually on the 11th, without any great restlessness. After this his right limbs were noticed to be paralysed, or at least not to be moved, whilst he moved the left limbs. Coma was complete on and after the 12th; and he died on the 14th at 7 A.M.

The post-mortem examination was made seven hours after death. The tissue of the scalp and pericranium around the wound was healthy. The injury to the bone was a vertical cleft in the frontal above the left orbit. The cleaver had struck obliquely backwards and to the left nearly through the thickness of the bone, making on the outside a straight cut, from the upper and lower ends of which fissures ran, an upper one curving outwards for half an inch, and a lower and larger passing behind the outer angle of the orbit into the middle fossa of the base of the skull, crossing but not tearing the middle meningeal artery in the deepest part of the cleft. The inner table had given way before the edge of the weapon, and from it two scab-like pieces, one above the other, had been driven in so forcibly as to lacerate the dura mater. These fragments were about the size of threepenny-pieces, and had sharp angles on their outer or left edges, but their right or inner edge was straight, and coincided with the line of the cleft, so that these fragments were driven from the outer edge only of the cleft, or that towards which the weapon, in its oblique course, was advancing. They projected into the cranium about one-eighth of an inch. The hole they had made in the dura mater was ragged, and coincided in size and position to the upper and larger of them. The brain at the same spot had a red mark, but no evident wound. There was no sign of injury to the parts on the diagonally opposite point of the cranium—i.e., no *contre-coup*. There was a considerable quantity of turbid liquid in the *arachnoid* cavity on the injured side, but not on the right side; the pressure of this liquid had emptied the *subarachnoid* space on the injured side, so that when the liquid had run off, the convolutions of the brain stood out sharply in relief from the absence of the usual *subarachnoid* liquid, while on the opposite side the liquid in the *subarachnoid* space raised as usual the *arachnoid* so as to hide the sharpness of the convolutions. This gave a curious appearance of difference to the two sides of the brain; and there was this further difference, that on the injured side a considerable number of patches of pus were beneath the *arachnoid*, and two or three small ones on its surface; while on the other side there was, as to the upper half of the brain, no pus to be seen, but only a patch or two of pale lymph near the