

the rest of the cornea being opaque and the conjunctiva congested. Mr. Waren Tay had not, on the date of my examination, decided to enucleate, desiring to give the patient every chance of retaining some kind of vision if, by any possibility, such could be obtained by operation a year or more hence. I reported the whole facts to the Ocean Accident and Guarantee Corporation and the directors at once decided to admit and pay the claim, made under the general accident policy held by the patient, without keeping him in suspense until the sight of the eye was absolutely proved to be lost for ever.

This particular accident as occurring to one eye is not uncommon, but in all my experience I have never examined or heard of a case in which a man has lost the sight of both eyes from two separate similar accidents such as are here recorded.

Cockspur-street, S.W.

#### DEATH FROM CARBON DIOXIDE POISONING IN A BREWERY.

BY W. SCOTT THOMSON, M.R.C.S. ENG.,  
ASSISTANT SURGEON, RHYMNEY WORKS.

ON March 2nd an inquest was held at Rhymney, Mon., concerning the death of a well-built, sober, industrious man, 25 years of age, employed in the Rhymney Brewery. It appeared that his duty on the day when he met his death (Monday, Feb. 26th) was to clean out a vat, or "piece" in brewing parlance, as he had been accustomed to do once or twice a week for the past six months. The vat in question was eight feet in depth and six feet in diameter, having a manhole 18 inches square, an almost obsolete pattern, the modern one being large and shallow. The vat was used for storing beer prior to "racking." The beer was drawn off on the previous Saturday morning, leaving a sediment or "slum-mage" of a few inches in depth at the bottom. The vat was then flushed with water and the cover put on the manhole some time in the afternoon—it is said by the deceased man himself—and it remained closed till 6.15 A.M. on the Monday. The object of covering up the vat was to facilitate the subsequent cleaning, as otherwise the sides became dry. After removing the cover and allowing the hose to run into the vat for 10 minutes the man was seen to enter the vat with a lighted candle in his hand. About 20 minutes or 25 minutes later a cellarman, wishing to borrow the mop, called out to him and, receiving no answer, went up to look for him when he saw him lying on the bottom of the vat face downwards with the ladder, which had fallen on its side, resting up against his body. The candle was subsequently found on the bottom. This is an important fact, as it indicates that the man was overcome before or shortly after he had reached the bottom—the custom being to stick the candlestick into the side of the vat, a spike being attached to it for that purpose. Having called for help and procured another ladder from an adjacent office the cellarman descended the ladder, followed by another man. They hitched a rope round the deceased's arm and with the aid of some other men got him out of the vat in about three minutes when I was immediately called and arrived on the spot within a quarter of an hour. The condition of the body was as follows. The heart had ceased to pulsate, there were no visible respiratory movements, and there was some frothy fluid about the mouth and the nostrils. The skin was pale, the lips and eyelids were slightly cyanosed, the eyes were half open, the pupils being widely dilated, and the expression of the face was calm and placid. The anterior surface was cold, whilst the back was fairly warm and there were no marks of injury. After having the man suspended head downwards, when a small quantity of fluid, not of a frothy character, escaped from the mouth, I performed artificial respiration by the Silvester method for 40 minutes but without success. During the manipulation froth exuded from time to time from the nostrils.

An examination of the vat showed, besides the candlestick on the bottom already mentioned, a certain quantity of water which, owing to a warp, was in some places three or four inches in depth and in others entirely absent, and it was in a pool that the deceased's body was found with the

face downwards. In my evidence I stated that all the signs pointed to death from suffocation, but whether the man had been rendered insensible only by the carbon dioxide and then drowned or had been poisoned by the carbon dioxide only I could not positively say. The latter, however, was quite compatible with the signs. The coroner (Mr. J. B. Walford) in a very able summing-up dismissed the idea of death being due to syncope or a fall from the ladder, there being no evidence whatever that the man had suffered from heart disease, and there were no marks of injury on the body or signs on the bottom of the vat of the ladder having slipped. He therefore considered it to be a case of poisoning by carbonic acid gas. This, however, does not seem so simple, as two men went down within half an hour at the most and stated that they felt no inconvenience from the fumes; but probably the fall of the man and his pulling the ladder down disturbed the dense layer of carbon dioxide, which, being heavy, is always most concentrated in the lowest part of a mixed atmosphere. It was also stated by the widow of the deceased that he had frequently complained to her of the effects of the fumes, so much so that he said it was not safe to go into the vat without a man being outside to watch. The two witnesses who pulled the body out had on many occasions cleaned the vat and they stated that it did not affect them. It seems hardly likely that the deceased had any idiosyncrasy, as the effect of carbon dioxide is chemical rather than physiological. Would a post-mortem examination and a spectroscopic examination have been of any scientific value? Hardly; and, moreover, as the coroner said, a medical man has a fixed legal fee of a guinea, while an analyst can charge what he pleases. The most important point about this inquest, so far as the public is concerned, is the prevention of such accidents in the future. It is the rule in most breweries—and in this brewery at Rhymney it is the rule with regard to the larger vats—to have a man placed outside as a watch and to lower a lighted candle before entering the vat. But is that rule always put into practice? And surely the fact that a candle will burn in an atmosphere containing 10 per cent. or 12 per cent. of carbon dioxide, whereas death will occur in one containing only 4 per cent. or 5 per cent., makes the candle test no sufficient guarantee of the fitness of an atmosphere for respiration. The jury brought in a verdict of "Death by misadventure," and added a rider that more stringent precautions ought to be taken to test the purity of the air and that a watch should always be placed outside the vat.

Rhymney, Mon.

#### SUPRAPUBIC CYSTOTOMY PAINLESSLY PERFORMED AFTER THE HYPODERMIC INJECTION OF EUCAINE.

BY T. VINCENT JACKSON.

ON Feb. 20th, 1900, I had to perform suprapubic cystotomy in the case of a man, aged 50 years. The reasons for this operation need not be stated. As the general condition of the patient seemed unfavourable to the employment of a systemic anæsthetic I determined to test the efficacy of local anæsthesia. The man's face was covered by a towel and in two or three points over the line of the incision which would have to be made above the pubes 40 minims in all of a 7½ per cent. solution of hydrochloride of eucaine (equal to two and two-third grains of the drug) were hypodermically injected into the tissues. A short period was allowed to elapse and then the operation was commenced and was finished by the insertion of three deep and two superficial catgut sutures, which when tied brought the soft parts together above a drainage-tube placed within the bladder, and the dressings were then applied. During the operation the forefinger of an assistant was passed into the rectum to raise up the floor of the bladder. When all was completed I removed the towel from the man's face and asked him if he had felt anything, to which he replied, "I felt a finger in the fundament."

I publish this case as evidence of the great value which the employment hypodermically of a solution of eucaine may be in the performance of a major operation which can be rapidly executed.

Wolverhampton.