tongue in a manner different to persons with natural palates, in his endeavours to overcome the congenital deficiency of structure; and now that the palate is supplied him he cannot at once adapt his tongue to the new position of structures: for instance, in endeavouring to articulate the letter T, he places his tongue in the position to pronounce E. Never having had a roof to his mouth, the tip of the tongue had nothing to rest against above in his efforts to articulate the T; and consequently it was always placed in the position for pronouncing the E, as being the letter nearest in sound to the T. Difficulties of this kind in articulation vary in proportion to the extent of the fissure; but the marked improvement in this case already, certainly encourages the surgeon to hope that, with care and great attention, the worst deformity giving rise to great defect in speech may be ultimately benefited by operation, even if the patient be not ultimately entirely able to overcome the defects in speech which he has acquired in his younger years.

A brother of this patient has a cleft of the soft palate, but is at present too young to be operated upon; and it is by no means uncommon to find more than one member of a family the subject of these congenital deficiencies of the mouth.

Original Communications.

ON ANÆSTHETICS.

By W. MICHELL CLARKE, Esq., Lecturer on Forensic Medicine at the Bristol Medical School; and late House-Surgeon to the Bristol General Hospital.

[Read before the Bath and Bristol Branch, February 19th, 1857.]

HAVING had an excellent opportunity of testing the effects of amylene in two severe operations, I have thought the subject sufficiently interesting to bring before this meeting. It occurred to me that it would be very advantageous at the same time to examine into certain other matters connected with anæsthetics.

I therefore, in the first place, set myself to inquire why it was that chloroform so soon took the place of ether, notwithstanding that the latter agent was so lauded, and held to be so faultless, when it first came up. I soon came to the conclusion that it was owing to the greater power of chloroform. Ether was somewhat uncertain in its effects, and it was often difficult to produce anæsthesia with it; whilst chloroform was easy to administer, and very effectual to the end proposed. No great importance seems to have been attached to the question of comparative danger; neither does it seem that any one, after chloroform had ended fatally in many instances, troubled much to compare the two. It is generally admitted that ether was in no case the cause of death, notwithstanding that it was so indiscriminately, and in many cases so carelessly, administered. On the other hand, it is certain that chloroform has been in fifty cases the cause of death; and that in some of these the result has happened in spite of every precaution, in defiance of every care. Hence it is that we are still seeking a new anæsthetic, and that at the present time we are watching the trial of amylene with so great an anxiety.

The great disadvantage of chloroform is, no doubt, its danger, and the anxiety that must always attend its administration. I must, however, after a long and full experience of it, express my confidence in it, and say that it is a means to which we are fully justified in having recourse. But other disadvantages attending its employment have been alleged against it; and it appears to me that they are being made too much of at the present time. These are principally excitement during the operation, and sickness and exhaustion after it. With regard to these, I have considered it better to record my experience before relating the two cases in which amylene was given. The comparative merits of the two, in these respects, will then better appear. I will also narrate shortly, before reading the cases of amylene, two cases in which, chloroform having been administered, perfect consciousness was retained throughout the operation. I have seen no similar cases published, and have always looked upon them with great interest.

In a certain number of cases, when chloroform is being inhaled, there is excitement, chiefly showing itself by struggling. Out of sixty-eight cases, in which I have taken notes with regard to this point, it occurred twelve times, from which

it may be seen that it is by no means an ordinary effect of chloroform. Moreover, in most of the cases in which there is struggling at first, the patient may be pushed on to a state of quietude. There are, however, a few in which the struggling being attended with other symptoms similar to those of epilepsy, it would be unsafe to quiet the patient by giving more chloroform, and in which the surgeon must be prepared to operate whilst the patient is held still by assistants. This production of struggling certainly lessens the value of chloroform in a few cases; but they are not very common.

Sickness, violent, obstinate, and prolonged, even over several days, is undoubtedly one of the most troublesome after-consequences of chloroform. This disadvantage is, I believe, admitted on all hands. All-important, however, as is this consequence, it is certainly not so frequent as is commonly supposed. With reference to this point, I have examined carefully the notes of thirty-four cases, of which I have recorded the details at considerable length. In twenty-nine of these, there was no sickness after the inhalation; and they were cases well calculated to test this matter. They included various kinds of operations; and the time during which the patients were kept under the influence of chloroform varied from a few minutes to upwards of an hour.

The following is a list of them. They all occurred in the practice of the Bristol General Hospital, where the inhalation of chloroform has been thoroughly used, and where also ether, and lastly amylene, met with an early trial.

Amputations	5
Herniotomy	3
Lithotomy	2
Chopart's operation	1
Dilatation and incision of the urethra in order to remove calculi from the female bladder.....	2
Making openings for the evacuation of pus	3
Extension of a fractured thigh	1
Straightening a rigid knee	1
Removal of necrosed bone	1
Passing a catheter in a case of ruptured urethra..	1
Diagnosis of fracture.....	2
Taxis for hernia.....	2
Dressing a lacerated leg	1
Removal of a tumour	1
Operation for contracted elbow-joint	1
Reducing a fractured thigh	1
Reducing a dislocated elbow	1
	29

In five cases there was sickness, more or less troublesome after the operation.

In one of these, a young woman, amputation of the leg was performed on October 24th, 1850. She was very sick, and continued so until October 29th.

In the second case, a cyst was removed from near the eye. This patient was a child, six years old. She was sick once on the same evening, and once on the following morning. She had, moreover, been kept carefully from food on the day of the operation.

In the third case, the operation was an amputation of the arm, the patient being a middle-aged woman. She felt sick during the same evening; but the feeling had passed off by the next morning. She did not vomit at any time.

In the fourth case, the leg of a man was amputated for a very severe injury. He vomited once on the second evening after the inhalation; and as, two days after the operation, an erythematous blush had extended from the wound to above the knee, it is quite as probable that the sickness was due to the irritation set up by the operation as to the chloroform.

In the fifth case, an encysted tumour was removed from the right eyelid of a young girl. She was very sick through the following night, and continued very low for several days. She fainted several times. This patient was very hysterical. The sickness was probably caused by her having taken bread and butter for breakfast on the morning of the operation. This she vomited in an undigested state during the operation.

These cases will suffice to shew the proportion in which sickness will probably take place after chloroform—thirty-four in all, five of them had sickness; and in one of these, it did not come on until the second evening after the inhalation, and in another, it was caused by taking solid food on the morning of the operation.

In much that has been written lately, it seems to be assumed that an immunity from sickness is the exception rather than

the rule; and it is on this account that I have entered rather fully into this part of my subject. It has certainly been my experience that freedom from sickness is the rule—sickness, the exception.

In examining whether chloroform be liable to induce great exhaustion or not, we are at once met by a difficulty which it is not very easy to get over. We cannot well tell how much is to be attributed to the inhalation, how much to the operation itself. It will be remembered that many operations which were scarcely ever performed before the introduction of chloroform—operations involving considerable time and great shock to the system—are now performed frequently. It would be the tendency of such operations to cause great and protracted exhaustion; and I question much whether the exhaustion, which has been attributed to chloroform, would not often have been greater if the patient had been obliged to be conscious during all the time of a long and tedious operation. I have not seen any evil result from this cause, which could fairly be said to be the effect of chloroform.

It is interesting at this particular time to know that there are cases, albeit very rare, in which, with chloroform, the insensibility to pain being complete, the patient's consciousness remains throughout the operation. I have met with two such cases, of which the following are short notes.

A girl, aged 23, had a tumour removed from beneath the lower eyelid. She was under the full influence of chloroform for about ten minutes. I have recorded that, although quite insensible to pain, she retained the power of carrying on rational conversation throughout. When not roused to talk, she talked irrationally to herself. She firmly asserted that she never felt anything of the operation.

In a second case, in which the inhalation was continued for a much longer period, the operation being to dissect through a strictured urethra, the same remarkable condition was observed. The man asked me more than once how they were getting on; and yet declared that he felt no pain. This very peculiar condition seems to be common to several anæsthetics; but is rare with chloroform.

Amylene, both in its general properties and also in its physiological effects, appears to be more like ether than chloroform. It differs, however, from both. Than ether it appears to be more effectual, much less liable to produce excitement before begetting insensibility, less disposed to cause subsequent unpleasant effects. On the other hand, it is like ether, in having a very disagreeable odour, in being of low specific gravity and very volatile, in being difficult to administer to a full effect, and in having to be used in very large quantity.

From chloroform, it differs more. But principally in the same respects that ether differs from chloroform. In short, in its effects, it appears to occupy a middle position between the two. To be more effectual than ether. To be less dangerous than chloroform. It is said not to be attended with struggling; not to be followed by sickness; and in the larger number of cases in which it has been given, this has been proved. Dr. Snow has used it in sixty-two cases, and in only two was there any subsequent sickness. That perfect quietude will not be the invariable rule, is proved by a case that I am about to read. On account of the novelty of this subject, and, at the same time, because of its importance, I must trespass upon your patience whilst I give a short account of the two cases in which I have used the amylene. I do this the rather, because they were cases well adapted to test its effects.

Through the kindness of Mr. Godfrey, I had the opportunity of administering amylene in the following case, which occurred at the General Hospital.

The patient was a delicate, very anæmic looking girl, upon whom Chopart's operation was performed. After inhaling six and a half drachms of amylene in eight minutes, she was insensible, and the operation was commenced. She was kept insensible for twenty minutes. The state into which she was thrown was like that of deep sleep; she was unconscious, but the condition was not in any way like coma. All the time, although feeling no pain from the operation, she resisted the finger when an attempt was made to touch the eye. There was a little irregular movement of the arms, which, however, was easily restrained. The lower extremities were perfectly quiet all through the operation. The pupils showed no fixed condition, but always acted under the influence of light. The pulse and respiration were very quick before the inhalation commenced; but both became slower as she gradually came under its influence. The respirations kept at 28; but the pulse fluctuated considerably. Altogether, the quantity that was inhaled was sixteen and a half drachms.

As soon as the operation was over, and the inhaler removed, she very rapidly recovered, and felt no ill effects afterwards. Three or four days subsequently, however, she said that she could still taste the amylene, that it was very nasty, and that it had made her sick on the night before. It could also be smelt in her breath for two or three days. She said directly after the operation, that she had felt nothing of it, and she still asserts the same as strongly. Her opinion of its agreeableness is, however, not quite so favourable.

The second case in which I administered amylene was in the removal of a very large cartilaginous tumour from the gluteal region. In this case, the operation was performed by Mr. Coe; and, through his kindness, it gave me an excellent opportunity of trying the new anæsthetic. The operation was a very serious and difficult one; the tumour had grown up from the ilium, carrying the gluteus maximus muscle upon its surface. It dipped deep into the space between the tuber ischii and the trochanter major of the femur, pressing upon and involving the great sciatic nerve, besides other important structures belonging to this complicated region. The operation commenced at six minutes before 2, and ended at sixteen minutes before 3 P.M. During this time, seven ounces and five drachms of amylene were inhaled. Three drachms were at first put into Snow's inhaler; but, as this did not answer very well, I substituted for it the ordinary one. She came under the influence of the amylene in four minutes. Throughout the operation, she did not complain of any pain, except by muscular expression, such as is common enough in administering chloroform. She was, however, remarkably conscious all through. As in the first case, she would not at any time allow the finger to be placed in contact with the conjunctiva. I believe that, at any time, I could have roused her to a rational answer; but this I did not attempt more than once or twice, on account of the importance of the operation. Several times, however, she knew me, and asked "how I was getting on". Another time, she told me very quietly that she was slipping off the table. These phenomena certainly strike me as being very wonderful,—that a person should be undergoing the most severe surgical operation, and yet take it as quietly as if unconcerned in the matter. It will be remembered, however, that I adduced two cases to show that the same state sometimes exists with chloroform. The peculiarity of amylene is, that a certain amount of consciousness has been retained in a large number of cases. When the operation was terminated, she said that she had felt some of the cutting at the beginning, but nothing to care about. She gives the same account still, and I believe it to be a correct one. Except the two cases in which chloroform was given, and consciousness retained, I have as yet seen nothing to encourage the hope that we shall be able to retain consciousness after sensation is abolished. They seem to subside under the influence of anæsthetics, *pari passu*; and I am afraid that, as a rule, where any amount of the one remains, some amount of the other will remain also.

In this second case, there was a good deal of struggling at intervals during the operation, which required some power to restrain it. From this we may learn that it will not in every case give the advantage of greater quietude than chloroform.

As in the first case, the pulse fluctuated remarkably during the operation, varying from 60 to 120. When the inhalation was discontinued, she almost immediately recovered. This, however, I look upon as a very doubtful advantage. After the more serious operations, it restores the patient all at once to a sense of suffering; whereas, with chloroform, there are often several hours of valuable comfort, and not uncommonly refreshing sleep. There were no troublesome after consequences, and no sickness. It will have been noticed that a very large quantity of amylene was used, more than a drachm in a minute. It seemed impossible to get too much into the system; and with this I have been greatly impressed: it is this fact that appears to me to promise an immunity from danger. Its low specific gravity and rapid evaporation hinder it from being retained long in the blood. Hence, no doubt, the extreme evanescence of its effects—the probable freedom from risk. This very condition, however, places it in something like the same position as ether with regard to the difficulty of administration. It certainly is much more difficult to keep the patient insensible with amylene than with chloroform. It requires to be given almost uninterruptingly, and requires the same amount of attention to keep up its effects as chloroform does to keep the patient safe. The direction of the attention, however, is one less calculated to give anxiety. I believe that the best inhaler for it will be found to be one of large size, with a free expiratory and in-

spiratory valve, and capable, by yielding edges, of fitting the face closely.

At present, the expense is a serious drawback, and the smell is generally considered to be highly objectionable; but neither of these should prevent it from obtaining from the profession a fair and candid trial.

I think it very probable that we shall be placed in the same position with regard to anæsthetics as to many other medicines. We shall have, most probably, hereafter, to select the most appropriate in each particular case. Thus, as in prescribing mercury, we select the form best adapted to the case before us, so in the production of anæsthesia, it will be our wisdom to select the anæsthetic which will best suit the requirements of the case before us. Where the operation only involves the skin, we shall do well to employ Dr. Arnott's method, which is most assuredly deserving of more consideration, and of more extended use, than it has hitherto met with. When, on the other hand, the operation is more severe, and likely to be longer continued, we may choose amylene: and we shall be the more led to do this, if from any reason we suppose that our patient will not bear well the use of chloroform. But when we want to produce the most thorough unconsciousness, when we require to keep up the condition for a long time, and especially when, from any circumstance of the operation, we cannot apply the inhaler with sufficient assiduity for maintaining the effect of amylene, then we shall, I believe, still have recourse to chloroform, which, although it appears to be the most dangerous of the anæsthetics at present in use, yet has the great advantage of being by far the most effective.

CASE DEMONSTRATIVE OF THE POWER OF BELLADONNA IN ARRESTING THE SECRETION OF MILK.

By JOHN BURROWS, Esq., Liverpool.

HAVING had a large midwifery practice, I have witnessed much suffering and annoyance from inflammation and suppuration of the mamma, which arose in many instances from a copious secretion of milk, that distended the breasts, pressed upon the nerves, and increased the action of the circulatory apparatus, and thus produced inflammation, with some of its painful and debilitating consequences. In numerous cases, I am persuaded, these painful effects would have been prevented if I had known of a remedy which would either have suspended the maternal function, or entirely arrested it. Such a remedy, I believe, we have in belladonna. The following case confirms this view of its therapeutic power.

CASE. Mrs. R., aged 26 years, commenced the weaning of her second child on March 10th, 1857. On March 11th, I saw her. She complained of great pain of the left breast, which was inflamed, much distended, and very hard. She directed my attention particularly to a wide, callous, and painful prominence, that resembled a thick convex belt, which stretched from the mamma to the clavicle. I prescribed the diluted extract of belladonna, and directed it to be applied as in the former case. I saw her again on the following day. She said her breast continued distended and painful. I then had a momentary doubt of the efficacy of my remedy. No sooner had the thought crossed my mind than she said, "I washed off your salve, and put on sticking plaster, at the recommendation of a female friend of considerable experience." I spoke to her of the impropriety of calling in a medical man, if she would not follow his advice. She felt the remark, and replied, "I will take off the plaster, and apply your preparation." I urged her to do so without delay. Having lost some valuable time, I deemed it necessary to combine with the application of the extract the administration of the purgative mixture, with the wine of colchicum. Had there been no delay, I intended to test the antilactific power of the remedy alone, without the combined influence of any other. Time having been lost, I was afraid of trusting to it, lest suppuration should ensue.

On March 13th, I visited her. She met me with a smile, and exclaimed, "My breast is better; the pain is gone, and the fulness reduced." She continued the application till the following morning, when the breast was cool, pale, and flaccid, and the elevated hardened integument, that stretched from the breast to the clavicle, diminished in size, softer to the touch, and free from pain. The secretion of milk is arrested, there being no spontaneous dribbling from the nipple; nor can any milk be squeezed out of the breast.

Clinical Lecture

ON THE

EMPLOYMENT OF THE OPHTHALMOSCOPE IN THE INVESTIGATION OF DEEP-SEATED DISEASES OF THE EYE.

By HOLMES COOTE, Esq., F.R.C.S., Assistant-Surgeon to St. Bartholomew's Hospital; late Surgeon to the British Hospital at Renkioi, Dardanelles.

THE difficulties so often experienced by the surgeon in determining the exact seat or nature of the different diseases affecting the structures of the eye posterior to the iris, render any discovery acceptable by which diagnosis may be facilitated; and hence the ophthalmoscope, which illuminates the interior of the globe and brings before the observer morbid changes in the choroid coat, or in the retina, heretofore unknown, is attracting at the present moment particular attention.

The merit of invention of this instrument, accorded by the French to a Greek physician, named Anagnostakis, and claimed by the Germans as their own, is in truth due to an Englishman, Mr. William Cumming, formerly house-surgeon to the London Hospital, who wrote in the twenty-ninth volume of the *Transactions* of the Royal Medical and Chirurgical Society, a paper, the object of which was to shew that the healthy human eye is equally or nearly equally luminous as the eye of the cat, dog, etc., when observed under favourable circumstances; and that the abnormal appearance or want of luminosity may be applied to the detection of changes in the retina and the posterior part of the eye.

The circumstances necessary for seeing the luminosity may be arranged as follows.

1. That the eye must be at some distance from the source of light—the distance being greater in proportion to the intensity.

2. That the rays of light diffused around the patient (and sometimes around the eye itself) should be excluded.

3. That the observer should occupy a position as near as possible to the direct line between the source of light and the eye examined.

Mr. Cumming supports his statements by the narration of several cases of amaurosis, which he witnessed at the Royal Ophthalmic Hospital, Moorfields. Had it been this gentleman's good fortune to have called German his mother-tongue, with what enthusiasm would this discovery have been welcomed in England! As it was, the paper was read, published, and forgotten, until lately, about ten years after it was written, when the impress of value to the observations has been accorded by the foreign schools.

In 1847, Mr. Cumming's experiments were repeated by Brücke at Vienna. The former threw light upon the face of a person ten to twelve feet from the candle, intercepting the side rays, and endeavouring to bring his own eye as near to the flame as possible. The latter also used a candle, but held between it and his face, as high as the summit of the flame, a screen, over which he looked into the illuminated organ.

In 1854, two other Englishmen were engaged in this subject, namely, Mr. Wharton Jones and Mr. Babbage. Indeed, the latter had constructed an instrument, consisting of a bit of plane glass mirror, with the silvering scraped off at two or three spots in the middle, fixed within a tube at such an angle that the rays of light falling on it through an opening in the side of the tube were reflected into the eye to be observed, and to which one end of the tube was directed.

It is unnecessary to repeat how Helmholtz, E. Jäger, Coccius, Ruete, Graefe, and Anagnostakis, with others, have worked with laudable perseverance, until the instrument now in use has been constructed. It carries out very well the principles laid down by Mr. Cumming, and needs only a little practice to become manageable in the hands of any one.

Before proceeding to describe some of the cases in which important information is gained by the use of the ophthalmoscope, I may remark that the usual depreciatory cry of obstructive mediocrity has been already raised against this as against every other novel instrument, either in medicine or surgery. We are told that the employment of the light injures the eye; that it shews nothing; that what it does shew, cannot be rectified. I have often remarked to you that a precisely similar cry was uttered of the stethoscope, the early general employment of which is quite within my professional recollections. The same enlightened remarks will be made on the next discovery of a