

ART. V.—*On Chloroform and its Medical Uses.* By CHARLES KIDD, M.D.; Member Royal College of Surgeons, England; Associate Member Surgical Society of Ireland, &c., &c.; London.

“Durch deine That und dein Kunstwerk
Mach’ es Wenigen recht; Vielen gefallen ist schlimm.”

SCHILLER.

AMONGST the latest applications of the principle of anesthesia under chloroform in medical practice, a few still remain and seem worthy of note in what may be styled the purely medical as distinct from the surgical uses of that agent. It might be desirable to see also what has been the amount of immunity from danger, if any, possessed by what are called “mixed vapours,” ether, ether spray, &c., now generally supposed in some degree to supersede chloroform. It is very curious to observe still what a large amount of want of knowledge exists both in the profession and out of it, as to the real amount of safety that attends this agent, the real value of anesthetics in Midwifery, general practice, the safety of balloon inhalers, &c.

From various interviews with the late lamented Mr. Toynbee, I could perceive that in the treatment of sundry forms of deafness these associated especially with *tinnitus aurium*, he believed the inhalation of chloroform, probably by relaxing the Eustachian tube, favoured the cure. We might term this one of the medical, as contra-distinguished from the operative or surgical uses of chloroform. In one case of a lady, where I was induced to try chloroform at his suggestion, no little improvement was observable in the deafness; but the lady had heard such exaggerated reports of the danger of chloroform, she could not be induced to continue its use.

A very noteworthy case of decided hydrophobia has been published in detail this year, which occurred in Northamptonshire. The spasms of the throat, on attempting to swallow water or other fluids, were almost at once relieved by inhalation of chloroform. The patient's life was ultimately saved by the anesthetic. The suggestions which this case, and very many others of bad tetanus (so allied to hydrophobia) offer, are scarcely regarded at their full value in our lighter medical literature. Almost no case of tetanus, like almost no case of ovariectomy, ought now to be lost. Such is the triumph of a few years since a time we easily remember (at least in

London) when nearly all the cases of both were deemed hopeless, almost as much so as hydrophobia.

We have lived, perhaps, too long in a popular dread of chloroform. This need not be so. Novel writers and journalists have terrified the public ; and even in the Crimean war an official order was issued that it should not be used on account of the danger and trouble of sending complex inhalers and "mixtures." This is mentioned to explain why chloroform has been not more extensively tried in diseases like hydrophobia. Chloroform even is of infinite value in permitting the wound of the bite being cauterized, but it too often happens the dread of chloroform is as great as that of the bite itself. Another new application of chloroform, that scarcely deserves the name of surgical operation, proves very serviceable in hospitals. It must have come under the notice of visitors to these institutions how often and painfully the compression method in curing aneurism fails from the simple want of power of the patient to bear the pain of the clamp (too often a tourniquet) over the artery leading to the disease ; with a continuous and steady experience now of something very like fifteen years observing this mode of treatment (especially in London hospitals), I cannot help believing it has very often, or almost uniformly, failed, on account chiefly and curiously of this intolerance of pressure or pain, the knife, too often as a very *pis aller*, had recourse to, when the patient was erysipelatous, or irritable and feverish, the quiet rules or *petits soins* of Bellingham or Tufnell set aside (never learnt, in fact, by house surgeon or dresser, to whose hands half the treatment was confided) ; the chief surgeon "comet-like, with his tail of pupils," as poor Dr. Addison used to say, sweeping by every second day, casting a doubtful glance at this "clumsy, tedious Dublin plan," and all too easily acquiescing in the request of the patient to have it laid aside. We mention this merely that it may be useful in any further or final examination of the "Dublin method," the plan, as Syme says, of those who "aspire to mediocrity" in surgery.

It is now proposed to apply the weight or clamp to the femoral in the thigh, to wit, for popliteal aneurism, the pain and erythema prevented by placing the patient well under chloroform. The plan has proved very successful in some cases ; nay, the wise and good old Hunterian operation of ligature haply seems likely to be at some epoch superseded by this bloodless method ; or peradventure by slipping an acupressure needle behind the artery. Age or

fashion thus succeeds age in surgery. "*Ætas succedit ætati, nihil enim semper floret,*" as Cicero says. A witty friend, condoling humorously a little while ago, indeed, with our first operating surgeon, who doubted this Dublin plan, and the cure of cancer by injection, said there would shortly be no cancers to be extirpated, or arteries tied for aneurism ; so the great operative surgeons would grow jealous of anesthetics.

There are various other hints for the pure physician as regards chloroform and pain, and a few as to medical cases even where it is not wise, as far as I am of opinion, to recommend operation for the sake of the operation being without pain. I have known cases of what proved to be ordinary dropsy (ascites) in a rather marked form, operated on in the earlier age of ovariectomy diagnosis, by mistake, abdomen opened, followed by a terrific gush of serum ; the wound, of course, closed up again at once ; but this has cured the dropsy permanently, the woman recovering without a bad symptom, and remaining remarkably well—quite a new person, in fact, years after. This unlooked for mode of treating ascites is not one that physicians will adopt ; yet the cases are highly suggestive as to the curious tolerance of the peritoneum of being wounded, especially if the system be well under chloroform at the time, all foreign bodies, sponges, ligatures, &c., avoided.

We have, in so many words, a system of retributive balance of cases, if one had only time to look out for them, chiefly the consequence of chloroform administration, bad strangulated hernia, bad aneurisms (that in former days led also irresistibly to the knife) ; complex old dislocations that required ropes and pullies ; bad tetanus, the despair of the practitioner, and many similar affections, all yielding now to milder methods and a steady administration of chloroform, or hypodermic injection of morphia, as first tried by Rhynd, also of Dublin, and adopted by Wood. But on the other hand the simplicity and unexpected perfection of this painless process has, perhaps, led to hazardous enterprises of chloroform, in ascites, delirium tremens, extirpation of spleen, unwise cancer-cutting, ligature of aorta ; for I have seen all these under chloroform.

Three cases of what might well be deemed perilous medical cases, have been under notice during the past year in England, namely, extirpation of the spleen for what proved incurable disease, the cases all fatal. It is not often that one has an opportunity of seeing such devastation by disease. One of the patients bore the chloroform wonderfully well ; one of the cases is given in *Guy's Reports* by

my sedulous and able friend, Bryant; the second is mentioned by Wells; the third was very similar to the two others. As medical cases they have a very direct bearing on the medical uses of chloroform. I fear they are instances of *nimia diligentia*, where patients wish for, or submit to almost any operation, as they know they may have chloroform, but where it is scarcely judicious for the physician to encourage such wishes; yet what can be done if there be dropsy and the patient wishes the spleen extirpated?

I have seen a little of what may be termed heroic surgery in London and Paris, but all put together has not produced the same sense of terror of a patient dying, as the unavoidable result of extirpated spleen. As reporter or writer of "Mirror" for *The Lancet* and other medical archives, I have watched or noted largely over a hundred ovariectomies—I have seen a ligature placed on the common aorta, the patient living forty-eight hours—one has seen both thighs removed, and the patient to recover—cesophagotomy, with a dentist's gold plate, found sticking—Cesarean sections—hernias, &c., by the dozen: in all these the benefit of chloroform is beyond estimate to the sufferer; but, like the cure of ascites by opening the abdomen, we can scarcely recommend extirpation of the spleen for leukemia. It is, perhaps, an unsteady kind of sequence to adduce, that because the function of the spleen is not indispensable to life (like that of the lungs, or pancreas, or kidneys), that therefore it may be extirpated without danger or accident to life. Such a patient will take chloroform admirably; but the surgeon will do well to be prepared for adhesions of the spleen, and injury of the large vein attached to this viscus; nay, the chloroform seemed to me almost to keep the patient alive, *malgré* the knife.

Amongst many questions for the physician such as these, and the undoubted importance of chloroform in whooping cough, gall stones, asthma, infantile and adult convulsions, a doubt is sometimes expressed as to chloroform in paralytic cases for surgical operation; but there is not any circumstance to contra-indicate its administration under such conditions, or even in decided brain disease or mania. Chloroform has been followed by only the ordinary or usual anesthesia, where exhibited in cases of marked paralysis (the remains of a previous attack of apoplexy leaving a clot in the brain); and it is very often given in lunatic cases without danger.

It may be useful to note, *en passant*, that there does not appear to careful observers any manifest superiority in what are termed "mixed vapours" over simple chloroform. Then as to local

refrigerents—in a case of Cesarean section, where the local application of ether was tried as an anesthetic, the wound failed to unite, the patient died with the wound unclosed; and I have heard of frequent instances of sloughing of such parts and necrosis of bone from excess of congelation by ether: in ovariectomy it has proved cruel and useless.

On the other hand there are obvious cases, such as of anthrax, for instance, or other diseases of the skin, as likewise instances of post partum hemorrhage in obstetric practice, where the ether spray has acted very well, as the most convenient form of topical cold or congelation, for arresting hemorrhage in the latter, or deadening the sensibility in the former class of patients. The local application of ice would act in a similar manner, but has fallen unwisely into disuse. The ether spray in ovariectomy cannot be advised by any one who knows that the only or chief pain (and it is sometimes very agonizing) is in tearing asunder the adhesions where it is impossible to apply the ether. In operations about the vagina and rectum also it always disappoints, too.

Various instances of death from “mixed vapours” have been published. Thus at a discussion of the Paris Surgical Society, M. Legoust recited the particulars of such a case at Lyons, and M. Giraldes one elsewhere—both ending fatally. Since then there have been others; and if I mistake not, the two most remarkable deaths in the past year, in America and England, were also from mixtures of ether and chloroform. Deaths from anesthetics are now not far short of three hundred cases, but it is no one’s interest to collect them; and when I proposed to do so for the committee in Berner’s-street, it was considered to be unnecessary.

As to the alleged importance of chloroform inhalation in pneumonia, as stated by Varrentrap, Helbing, and others, it may be reasonable (with our present knowledge of how that disease gets well of itself) to doubt many of the supposed cures. Not so, however, as to its very decided curative influence in asthma, whooping cough, laryngismus, hiccup, gall-stones, &c., as referred to previously. Chloroform, too, is invaluable in the severe cough of phthisis patients.

The effect of chloroform in lessening the severe spasms and pain in strychnine poisoning has proved as satisfactory and marked as its influence in tetanus and hydrophobia, gall-stones, or asthma. It is probable, too, that chloroform or ether (as hypodermic injection of similar agents has done) will prove of service in malarial fevers; especially ether, by its chemical action on the blood.

It may be objected that where a poison has entered the blood, as in hydrophobia or strychnine cases, the influence of chloroform locally to the nerves of the throat or larynx may not be effectual enough ; but here we will do well to place one fact of such a cure in contrast with any number of theories.

I believe the action of chloroform is not unlike that of a subtle agent of this kind which has entered the blood—anesthesia is not interrupted oxidation of tissues, as held by Sansom (for nitrous oxide produces anesthesia by excess of oxygen)—in all probability the phosphorized fat (protagon) of the blood corpuscles and nerve tissues is acted on by chloroform, as it is very markedly by carbonic oxide and ether. The action on the grey corpuscles of the brain ganglia (thalamus opticus corpora striata, &c.), whatever that be, is probably interrupted, and so is sensation.

A theory has been offered that chloroform acts as an anesthetic by action on the vaso-motor nerves, lessening the chemical oxidation in the brain. This is probably only a coincidence. Like my friend Lionel Beale, I cannot believe in these oxidation ideas of Bence Jones.

The physician is much interested in what is the exact mode of action of chloroform, when and how it is dangerous, &c., and yet we too often find the patient frightened, and likes not to use it. In America, Germany, and France, the experiments of the physico-chemical or oxidation school of Sansom and Harley are held to be nearly useless. Animals so asphyxiated are not at all under the same condition as patients in hospital. We do not smother the latter in closed vessels. Sabarth and Giralde agree with me in adopting rather the idea of Brown-Séquard that it is rather by active reflex influence due to the sudden irritation of the branches of the par vagum in the lung that chloroform proves fatal, at least in the cases where the heart's action stops before the respiration. It is only in a certain *incomplete* stage of the anesthetic process, not where motive power is abolished : in other words, in trivial operations, mostly and before the patient is well "put under" the chloroform (not in ovariectomy or large amputations, or in deep anesthesia) that accidents have occurred. Almost like a nettle (unpopular as the idea may be) chloroform stings when lightly touched ! causing laryngeal spasm.

Sabarth gives thirty-six deaths from ether, and the highest American authorities have now decided it is quite as dangerous as chloroform. Mixed vapours and complex instruments for inhalation,

Giraldes says, are not only dangerous, but a "cause of danger" in themselves. In practice it is better to administer ether and chloroform separately rather than mixed. Alcohol, indeed, is wasted in such mixtures, as it has to be squeezed out of the sponge or inhaler. I always use a simple inhaler in form of cone.

Chloroform narcosis differs very widely from ordinary sleep. A cannon may be fired close to the ear, and it does not disturb the patient under chloroform ; but as Wordsworth says, and we all know :—

"From the anarchy of dreaming sleep,
With touch as gentle as the morning light,
We wake us daily to the power of sense,
And reason's steadfast rule."

It is a mistake in delirium tremens and medical cases to give chloroform, therefore, simply as a narcotic, especially in the delirium of typhus.

I very much doubt, in fact, the wisdom of classing chloroform, with the physico-chemical school, alongside common narcotics, like opium ; and if this idea of the action of such sleep or narcosis be true, that it arises from a specific influence on capillary vessels and vaso-motor nerves, then is belladonna the farthest removed from the medicines styled narcotics or sedatives. This vaso-motor action is probably a simple coincidence of no importance or moment. Sleep is not the same as chloroform anesthesia, as held by the chemical school ; an infant or a lunatic patient while asleep is sometimes placed under chloroform ; but he wakes out of sleep in the middle of the administration. In delirium tremens and delirium of fever chloroform has been tried, especially in the latter, to procure rest, but in both affections with equally dangerous consequences. Indeed, Corrigan has published two cases ; in one the death was instantaneous ; in the other in less than an hour, from unexpected collapse, sudden blueness of the lips, cold surface, &c. ; while in a third the patient scarcely recovered.

Chloroform has been exhibited in the late and previous epidemics of cholera :—Mixed with equal parts of oil, and rubbed externally, it gives much relief in the cramps of cholera, or rather the neuralgic pains so common in fingers and toes in cholera. Were not the "spasm" theory of cholera of Dr. George Johnson rather doubtful, we might suppose it acted in relieving such spasm also.

It is well to keep in mind that all our late accidents from anesthetics have been (as mixed vapours now are a sort of fashion)

from mixed vapours. Two accidents, one fatal, have come under notice recently, where Clover's apparatus has been the one in use, thus bearing out the view of Giraldes as to complex instruments. All the facts of hospital anesthetics, as well pointed out, too, by this able writer, Sabarth, and Lallemand, Perrin and Duroy, are opposed to the conclusions from experiments on animals of Harley; the deficient oxidation theory of Lister and Sansom, as well as the opinion of these writers, that the chief danger is from fatty heart and over-doses. Pure chloroform, in other words, is safer and safer every year, according as it is exhibited with attention, fearlessness, and delicacy. And, finally, follow must we the words of Schiller, observing the natural facts and avoiding popular errors—that ether spray answers in ovariectomy, or that “mixed vapours” and balloons are free from danger; better far to simplify anesthetics and administer ether and chloroform *separately*. The latest researches in France corroborating this view, that the excitement or dangerous stage of the administration is essentially due to the action on the lungs and larynx, not to a poisonous deoxidation in the blood. Complex inhalers, *omne ignotum, &c.*, to prevent deep poisonous effects—rather showy and brilliant like operations on the spleen—experiments on animals of Harley—only like those of Orfila, indicating mischief from very simple medicine, but where he omitted to mention he had ligatured the œsophagus and its nerves! The “law of tolerance” in chloroform, too, is a curious but true thing, only observable in hospitals. This is my experience of watching some twenty thousand operations under chloroform. It is quite irreconcilable, however, with the caution of patent inhalers or “mixtures” to keep off cardiac syncope. It is still held by cautious, slow physicians in London, who patronize such things, that even in midwifery practice, as our grandmothers had fine children without chloroform, so ought all poor women gloomily in childbirth of the present, go through the most harassing or dangerous labour without this deoxidizing poison! The heart's action, it is curious (in opposition to all such views and vivisections), is less active only during the excitement stage, owing to the inhibitive function of the vagus. Depressing emotion, prolonged anxiety, at the idea of losing consciousness, doubt and fear as to the coming pain, idiosyncrasy, &c., aggravating this condition, all absent in midwifery cases, where cheerfulness and simplicity are studied, and the puzzle of inhaling machines removed. In all cases, indeed, where ruptured uterus is to be feared, chloroform proves a direct blessing and advantage to the

patient in childbirth. This is the experience of my excellent friend, Braxton Hicks, and many other obstetricians of the advanced school. Natural facts have still, however, to contend much against popular error or prejudice. *Opinionem enim commenta delet dies naturæ judicia confirmat*; but we have no fear for the result.

ART. VI.—*Observations tending to show the Identity of the Fungi of Favus and Tinea Circinata.* By JOHN M. PURSER, A.B., M.B., T.C.D.; Demonstrator of Anatomy in the Carmichael School of Medicine.

IN an interesting paper^a by Dr. M'Call Anderson, recently published, in which he attempts to prove the non-identity of the fungi which produce the diseases known as favus, tinea tonsurans, and pityriasis versicolor, the following statement occurs:—"Of the numerous instances on record of the transmission of favus and tinea tonsurans *from the lower animals* by contagion or inoculation, favus has always given rise to favus, and tinea tonsurans to tinea tonsurans" (p. 234). This conclusion is supported by several cases both from Dr. Anderson's own practice and from that of Bazin, Gerlach, Bärensprung and Köbner, and, so far as I know, at the time of the publication of the paper in question no instance of a contrary nature was extant. The following cases, therefore, in which favus appears to have produced tinea circinata (which Dr. Anderson and most other dermatologists believe to be identical, as far as the fungus is concerned, with tinea tonsurans and sycosis), both by accidental contagion and intentional inoculation, may be of some interest as bearing on the question, still unsettled, of the identity or non-identity of the fungi which occur in the different epiphytic diseases of man.

In October last I was called on to attend a family, four members, of which, all adult females, were suffering from ordinary tinea circinata. The spots affected the hands, arms, and shoulders; were of various sizes; presented a centre of sound skin and a spreading furfuraceous edge; itched a good deal; and, in short, presented a typical example of ordinary ringworm, so much so that, contrary to my usual custom, I neglected to make any microscopic examination of the epidermic scales. The disease was recent, and yielded readily

^a British and Foreign Medico-Chirurgical Review, July, 1866.