ON THE USE
OF THE
ACTUAL CAUTERY
AS A
REMEDY FOR THE CURE OF DISEASES.

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THE application of fire to the human body, was looked upon by the ancients as a powerful remedy in a numerous class of diseases ; while in the present day it is so totally disused in England, that the proposal to employ it would excite not merely astonishment but alarm. The labours of Pouteau, Percy, Larrey, who have written so fully on this subject, have been in vain : even were their works to reach this country, they would be received with distrust, and read by a few surgeons only. But none would take upon himself to become the advocate of Cautery, either in theory or practice, however he may regret its having fallen into dis-

use in modern surgery. The chief reasons for its having been abandoned in England, appear to be, in the first place, the abuse made of fire in the treatment of local gout; and in the second, the anathema fulminated against it by the celebrated Sharp.

In the treatment of local gout, the parts affected were relieved, and to all appearance cured, by the action of fire; but in a short time afterwards, the stomach, the lungs, or some other organic part of vital importance, became the seat of a disease resembling the gout, which usually proved fatal.

With respect to the influence which Mr. Sharp had in abolishing Cautery, he was a man so justly looked up to as an oracle by his pupils and contemporaries, that every thing he wrote or said was alike received by them as having the stamp of infallibility; and all inquiry into the justice of his condemnations was deemed unnecessary. He had no doubt witnessed an imprudent employment or abuse of the Actual Cautery, and instead of publishing the nature of the cases, in which he considered it attended with danger, he proscribed the practice altogether. The following are his words: "When scarification and the other remedies fail, it has been operative in all ages, from the time of Hippocrates down to the beginning of this century, to cauterize the eschar; the memorable apho-

rism* he left behind him relative to the officinary of fire, brought the Cautery into use upon almost every occasion. In mortifications, they believed that the putrefying principle or venom was extracted with the juices that were dried up by the hot iron. They thought likewise that the separation of the sloughs was exceedingly assisted by this process; and what was more important, they imagined that the life of the part was quickened, by drawing the spirits to it, and freeing it of all humidities.

“ I have here used the language of all writers upon this subject, and we have hardly in surgery a more extraordinary instance of human fallibility than this; for after an uninterrupted practice of above two thousand years, this celebrated remedy, whose virtues were supposed to be eminent both from reason and experience, is at length fallen into disrepute, and never employed for stopping a gangrene.

“ It has also met with the same fate in regard to many other distempers for which it was formerly deemed a kind of specific; but it has lost its ground gradually. When it was abolished from

* Quæ medicamentis non sanantur, ferro sanantur; quæ ferro non sanantur, igne sanantur; quæ igne non sanantur, illa existimare oportet insanabilia.

among the remedies for gangrene, it was still reserved for cancerous tumors and excrescences, from a persuasion that it would kill any lurking venom near the cancer. And now that it is no longer used for this disorder, it continues to be practised upon carious bones, in order to promote exfoliation ; but I think upon no better ground than in the other case. So that in all probability, it will by and bye be universally discarded even for the exfoliation of bones. In England it is already done ; but for the final removal of these prejudices we must allow time."

He says elsewhere : " However, if it be only uncertain whether the Actual Cautery is beneficial or no, the cruelty that attends the use of it should entirely banish it out of practice."

While Sharp was condemning Actual Cautery in London, Dionis was doing the same in Paris. In shewing his auditors the various forms of cauterizing irons used by the ancients, he said, " I know no person who dares employ them now, and I only shew them to inspire you with more horror of their use."

It is remarkable, that in the Philosophical Transactions, destined to be a lasting monument to posterity of the progress of mankind in scientific knowledge, there should not be one single observation on the Actual Cautery.

Mr. Cooper, in his Surgical Dictionary, has followed the example of Sharp. He so positively condemns the use of fire as not even to have mentioned it in the article on the bite of a mad dog.

The inference intended to be conveyed is, that the use of fire in surgery was the consequence of a false theory, founded on a barbarous prejudice; that its application was not only useless but cruel, and attended with danger. But when we consider that this prejudice lasted two thousand years; that it exists still in the greatest part of the world; that the famous Hippocrates has extolled fire as one of the most efficacious remedies; that after him, Celsus, Albucasis, Marcus Aurelius Severinus, Ambroise Parry, &c. have spoken of it as a truly useful means in surgery; we must feel a wish to take a retrospective view of its merits, and endeavour to ascertain to what causes may be attributed the veneration in which it was held by the ancients, and for what reasons the use of fire had grown obsolete for so long a series of years on the continent, and why it continues to this day to be so in Great Britain.

We cannot doubt but that the admiration in which the practice was held was founded on its success. We can have little doubt either, that the progress made in surgery has caused it to be rejected in cases where it was improperly used,

and for which simpler means have been employed, and simpler operations substituted. The limits of this memoir will not admit even of a cursory view of the various ways of employing Cautery, of the different diseases that have been treated by fire, or of the circumstances where its application would be proper; or where it would be reprehensible: my aim is only to prove that Sharp and Dionis went such lengths in their proscription of fire, that in aiming at the destruction of a prejudice, they have established one of an opposite nature—“*in vitium ducit culpæ fuga.*” Any one who has overcome this prejudice, and is desirous of further particulars, may satisfy his curiosity by looking into Mr. Percy’s *Pyrotechnia Chirurgicale*, which appears to me to be a classical work eminently useful and even indispensable, and which is still among the desiderata in English surgery. A translation of it would be the signal in this country to light up anew on the altar of the god of medicine, that sacred fire which has been so long extinguished.

I shall now merely offer to your notice a few cases where, when every other remedy had failed, I have tried the effects of Cautery with the fullest success.

In 1798, a young Savoyard, tall, well made, and healthy in other respects, had been for many years afflicted with local scrofula. A hard, red

string of glands suppurating in seven or eight places, extended along the lower jaw and upper part of the throat from ear to ear, or from one mastoid process and parotid gland to that on the other side. The disease had been taken in its infancy, and many remedies tried to no effect. I advised artificial sea-baths, washing with cold water, nitrate of silver, mercurial ointments, &c. gave interiorly bark, iron, muriate of lime, and prescribed exercise and a strengthening diet : the disease did not augment, but yet was stationary. When one fistula closed, another opened near it. The patient was equally persevering with myself in giving to each remedy a fair trial. Fatigued at last by their inutility, I proposed trying the effect of Actual Caution, to which he immediately assented.

I then burnt with a cauterizing iron, heated to the greatest degree, the fistulas and ulcerated glands. The difference in their appearance, after the sloughs had fallen, was astonishing. A complete cicatrization of a part of the ulcers followed shortly after ; others resisted this first application, and resumed their bad appearance : a second application of fire determined their cure. The enlargement of the glands totally disappeared about six months after the cicatrization of the ulcers.

About the same time I attended a countryman of Vallorbe, a village situated on the Jura in the

Canton de Vaux. He was from twenty-five to twenty-eight years old. For eighteen months past his left thigh had been dissected by a number of fistulæ, in consequence of abscesses by congestion that had been opened and treated in the most ordinary manner. These sinuous ulcers were situated between the muscles and the skin : some of them extended to a great length between two muscles. I shall pass over the history of their treatment, with sulphureous baths, incisions, stimulant injections, &c. Suffice it to say, that fire succeeded when every other remedy had failed. In consequence of the frequent application of the olive-shaped Cautery, not only the fistulæ were cicatrized, but the thigh and leg so far recovered their strength as to be nearly on a par with the other limb.

Pouteau has frequently observed, that at the very instant the moxa was applied, the weakened parts of the body seemed to become invigorated.

One of the motives for rejecting Cautery is an idea of its being painful to excess.' Were this supposition well founded, ought we even then to renounce it when no other remedy afforded relief? But if not totally unfounded, it is at least much exaggerated, as the following narrative will evince.

Some years ago, a lad named Tulou, when without his coat, was bitten in the hand and arm by a

mad dog : he had eight or ten wounds. I assured his parents that burning was the only means of saving his life. The boy positively refused to submit, declaring that he had rather run the risk of dying, than undergo so cruel an operation. Having full authority from the father and mother, I sent for four men who tied the rebellious boy to a chair in spite of his cries, and held his hand and arm extended. He still continued to scream aloud, and made the utmost efforts to elude the operation ; but he had no sooner felt the burning iron on one of the wounds, than he stopped, and said quickly, " Is that all? untie me, and set me free, I will not move ;" and bore, in fact, with perfect serenity, the repeated application of Actual Cautery, desiring me when I had finished, to examine carefully if no scratch remained. It is scarcely necessary to say, that this young man had not the least symptom of hydrophobia afterwards. Indeed, I never had any unfortunate case from the bite of a mad dog, though I have attended a considerable number of persons bitten, and constantly employed burning irons heated to such a degree, as to produce by their application, immediate slough over the whole of that part where the tooth of the animal had reached.

Mr. Baillif, aged fifty years, employed in the salt-petre mines, had, I know not how long before I attended him, the whole of the membrane lining

the cheeks in a state of chronic enlargement. The teeth of the upper and lower jaw were buried in the gums. The roof of the mouth was nearly on a level with the upper edge of the teeth. This enlargement extended itself to the pharynx exclusively. Mastication and deglutition were alike difficult and painful. This swelling was neither of a soft nor bleeding kind; it partook of the nature of a scirrhous tumor, rather than that produced by a fungus or scorbutic disposition. The patient had gone through a course of remedies at Lyons, and been attended several months at Geneva by Dr. Peschier, who brought him to me in 1813. My proposal of employing Actual Cautery, was accepted without hesitation, and the operation performed at three different times, at the distance of a fortnight, in the following manner*.

I drew the red hot iron rapidly over the gums, so as to produce instantaneously a deep rut, wherever they had passed. Each operation required the application of the iron at least twenty different times. For which purpose half a dozen olive-irons, about the size of a tonquin bean, were ready at the same instant, that they might never be used but with the greatest degree of heat. The patient continued so tranquil under the operation, that a stander-by must have concluded it was scarcely

* The carious teeth and roots were drawn two or three weeks before the operation, without effecting the least change in the disease.

painful. The usual falling off of the sloughs, and the abundant suppuration which followed, terminated in a complete cure of the disease.

Mr. P., an English gentleman, formerly a surgeon, had for the last fifteen years an ulcer on the lower lip, which I shall not hazard to call cancerous, but which had a very alarming appearance, with hard and elevated edges. He had been attended during several years in London by surgeons of the highest merit. The ulcer had sometimes appeared to be getting better, but had never entirely healed. When I first saw Mr. P. it extended about half an inch in height, and a full inch across the red part of the lip, the tissue did not appear to be altered beyond the ulcer, and the lip preserved its natural suppleness. In spite of the long standing of this disease, and the profound grief it occasioned to the patient, his constitution appeared in other respects perfectly sound, from which I concluded it to be a local and not a constitutional disease.

After consulting with my brother, we agreed to try Actual Cautery, to which Mr. P. willingly assented, in spite of the prejudice of his countrymen against it. The ulcer was then deeply cauterized, and gave infinitely less pain to the patient than he expected. He readily assented, twelve days after,

to have the operation renewed, on a part of the wound that was still rather hard and elevated. A deep slough succeeded the hard swelling, and the patient was cured, in the space of three weeks, of a disease that had resisted fifteen years' treatment of the best administered and well known remedies. The lip which till then was in a constant state of swelling, has now recovered its form and natural appearance. I judged it proper to establish an issue, that the constitution might not be impaired by the stoppage of a flowing, which, from having lasted so many years, had become natural to it.

Mr. M. D. returned to Geneva at the age of 45, having spent the best part of his life in Russia in every kind of dissipation. He was tormented with rheumatism that manifested itself with violence in the lumbar region. The pains obliged the patient to keep his bed. The spinal bone began to bend, and formed an elevation at the lumbar region near the sacrum. His legs grew weaker from day to day, and at last became totally useless. Every kind of internal remedy was employed. I attended him for two years in conjunction with Doctors Vieusieux and Peschier. Nothing relieved him but *assa-fœtida* with *osmunda regalis*. During this time I had successively employed blisters, issues with potash, and moxas, to no effect. I at length applied burning irons to the lumbar region, so as to make about

half a dozen sloughs, a few inches long, and half an inch wide. From that time the patient recovered, by degrees, the movement of his inferior extremities; then was enabled to walk with crutches, next with a cane, and lastly without any help at all.

On a sudden, a swelling appeared in the left fossa iliaca. A manifest fluctuation took place immediately after. The deposit remained in this state during several weeks, without giving much pain, or changing the colour of the skin. It went down at last, and gradually disappeared, to shew itself again in the interior of the thigh, near the small trochanter, where it grew to the size of a fœtus at full term. I endeavoured to stop its descent by placing a compressing apparatus below the tumor, fearing the matter might be conveyed to the knee. I determined the patient not to have it opened, and experience gave weight to my opinion. The tumor diminished insensibly, and had totally disappeared in about two months, leaving in its stead a small hard lump deeply situated in the thick of the thigh under the little trochanter, stationary, and in no wise preventing the natural movement of the leg. The elevation of the vertebræ affected by the tumor, was the only trace it left, and from that time till his death, occasioned by a typhous fever in 1811, no symptom ever after appeared of the disease.

Examination of the Body.

Head.—Effusion of thick lymph of a greenish cast, that lifted up the arachnoïdes. Ossification, some lines in breadth, of the anterior extremity of the falx. The aorta dilated about a third, from the place of its origin to the part where it bends, deeply tinged with red in its interior.

Abdomen.—The viscera to all appearance healthy. The thigh near the little trochanter presents a tumor resembling a meliceris digitated, interposing itself between the muscles, and between some of their fibres also, enveloped by solid cellular tissue, strongly injected. The matter was conveyed as through a canal, under Poupart's arch, following the interior edge of the sartorius muscle; then spread itself like a cake over all the iliac fossa, till digitating anew between the psoas, it terminated in the diseased vertebræ, and filled those cavities that the caries had formed.

Not doubting but that four of the lumbar vertebræ were more or less diseased in their body, or their articular apophyses, I carried away that part of the rachitis in order to examine it in detail. The body of the fifth vertebra had retained its full size, but was filled with holes that were supplied by new os-

seous juices. The inferior cartilage was unimpaired; the superior one had altogether disappeared. The body of the fourth vertebra had lost two-thirds of its upper parts, was joined by its articular apophyses to the third vertebra, which was disfigured, and had lost its thickness. A portion of the osseous juice formed a point or thorn over the second, and extending to the fourth, became a solid fulcrum. An isolated portion of osseous matter floated at large in an excavation between the second and fourth vertebræ. It was worm-eaten, and in form a perfect sequestra. The inferior part of the second vertebra was corroded; it leant on the third and on the edge of the fourth, forming together a solid seam or suture. The body and cartilages of the first were in excellent condition. The lumbar vertebra formed an obtuse angle with the body of the third.

It appears evident that, during this long disease of the spine, the caries of the vertebræ had been stopped in its progress; that the parts which the disease had separated, and rendered moveable, had acquired sufficient solidity and strength, in consequence of the flowing of the osseous juices; and that the medulla spinalis, ceasing to be compressed, had recovered its primitive energy.

About three years ago, on my road to the Glaciers of Chamouny, I was stopped at Salanches, to see a middle-aged woman, who had a fungus hæmatodes, that entirely covered the back part of her shoulder. A pyriform tumor like a goose-egg, of a livid colour, adhered to the scapula, near the arm-pit, by a stalk. It was of a spongy nature, diminishing by compression. Independent of this pendulous tumor, the fungus spread like an irregular map over the scapula and upper part of the arm. Many places were ulcerated, and the ulcers opening about once a fortnight, caused hæmorrhage, that was difficult to stop, and which had reduced the patient to extreme weakness.

The extraction of the fungus would have necessitated the amputation of the arm and shoulder. I conceived that the pain might be alleviated by the excision of the pyriform tumor, and the application of the actual cautery over the whole of the fungus. The patient consented to come to Geneva, and was put into the hands of Mr. Morin, a former pupil of mine; a consultation was held, which determined the trial of fire. After the excision of the tumor, the application of cautery was made so as to consume the fungus, by passing the burning irons rapidly over its surface, wherever it was perceptible to the eye. A wound to a considerable extent succeeded, which, on the falling of the sloughs, presented a granulated surface of a

healthy appearance, though it never could be brought to complete cicatrisation. An evident tendency exists to renewal of fungus, which no sooner appears than it is destroyed as at first.

This patient is not completely cured, but she has been saved from inevitable death. The hæmorrhage has ceased. The pains have disappeared. She can make use of her arm. Her existence in short is completely changed from a state of misery to one of comfort.

It is well known that teeth have been preserved by burning carious portions, and the pains put a stop to.

The ozena of the maxillary sinus, with polypous vegetation, can hardly be effectually cured without fire.

I have twice cauterized with success, carious ischiatic tuberosity; and in each case fire has determined the total separation of the tuberosity.

The most important precaution to observe in employing actual cautery is, to use the iron only when it is nearly white with heat, and to apply it instantaneously, so as to destroy the parts

it touches, while it scarcely heats those around them.

The contrary is the case where moxa is applied, a more general and less local action is required, and the slow burning of the cotton perfectly fulfils this intention.