

Report of the Hunterian oration, delivered before the members of the Hunterian Society, at the thirty-third anniversary, February 4th, 1852 / by W.J. Little.

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REPORT

OF THE

HUNTERIAN ORATION,

DELIVERED BEFORE

THE MEMBERS OF THE HUNTERIAN SOCIETY,

AT

THE THIRTY-THIRD ANNIVERSARY,

FEBRUARY 4TH, 1852.

By W. J. LITTLE, M.D.

PHYSICIAN TO THE LONDON HOSPITAL,

ETC. ETC.



PRESENTED
by the
AUTHOR.

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REPORT,

ETC. ETC.

MR. PRESIDENT AND GENTLEMEN,

IN responding to the call of duty, to maintain this annual custom of the Hunterian Society, I experience at the outset considerable diffidence as to the manner in which I shall endeavour to justify the confidence you have placed in me; and when we consider the great number of able men who have preceded me in my present vocation,—who have made similar occasions the opportunity for developing the hidden treasures of their thoughts, their aspirations, and their experience,—such hesitation may be excusable.

Of the manner in which my distinguished predecessors have shed lustre upon the proceedings of our Society, and have especially dignified the Anniversary Meetings, allow me to cite (and I do so with peculiar pleasure,) one single instance, as a perfect type of what, in my apprehension, a Hunterian Oration ought to be. I allude to the Oration which I heard pronounced here twenty years ago, by my teacher and friend Dr. Billing, in which he gave to the world the valvular explanation of the sounds of the heart; an explanation long combated by his contemporaries, but which they have gradually adopted; an explanation of the acoustic phenomena accompanying the heart's action, which has so strikingly facilitated the diagnosis of the diseases of that organ.

Such is the masterly example which at the present moment I would wish to follow, although with the fullest consciousness that it must be at a humble distance; for it is conceded to few of us to discover the meaning of an important fact which shall mark a period in the history of a particular disease.

This annual gathering of the members and friends of the Hunterian Society affords, amongst other advantages, an opportunity of reviewing some matters of general interest to our profession which have occurred during the past year. Amongst these we may survey the progress or decadence of empiricism, within and without our ranks. The stand is at length made against Homœopathy. It is a subject of congratulation, nevertheless, that the profession has so long left this quackery unnoticed. In the land of its origin its hollowness and falseness were soon apparent, and the monster absurdity was strangled almost in its birth. Here no master-mind like Stieglitz has until lately deemed it worthy of exposure and refutation. Homœopathy has, in fact, been abandoned to its course; left by physicians to mere contempt. In this tolerant community, however, the scorn of the profession has been mistaken for fear; but as long as the freedom of thought and action conceded to Homœopathy was confined to itself—as long as Homœopaths were content to be Homœopaths—as long as its mysteries were confined to a separate sect, who made no claim to belong to the regular ranks, but who rather boasted of their divergence from us,—it was not desirable that our profession should openly notice it; but when Homœopathy seeks to invest itself with the mantle of orthodoxy; when it aspires to invade the halls of our universities, and to instil its virus into the minds of our alumni, it is full time for the profession to oppose with energy the double imposture. This opposition has now become a necessity—nay, indeed, it has become an imperative duty; for the tendency of the delusion, with its exaggerated belief in the efficacy of drugs, and its assertion of the potency of infinitesimal doses of medicinal agents, is to engender universal scepticism as to the value of medicinal substances.

As in theology itself, so in medicine, extremes will meet: the larger and the more unreasonable the demands made upon the credulity, the imagination, and the superstition of the disciple, the greater his proneness to fall into utter disbelief.

With the profession fully alive to the tendency of the new claims of the followers of Hahnemann and others; with the

certainly that hereafter both sides of the question will be kept before the public; the ultimate result cannot be doubtful:—
 “*Magna est veritas, ac prævalebit!*”

That portion of society which has yielded to the seductions of this quackery will be undeceived, whilst another generation is springing up to imbibe perhaps some new folly, which, in its turn, will share the inevitable fate of Homœopathy—to be consigned to the contempt and derision of society, as soon as its novelty has subsided, and the halo of mystery which surrounds it has been dissipated by the steady radiance of Truth: moreover, the mere multitude of Elixirs vitæ, Homœopathy, Hydropathy, Mesmerism, and other *isms* without end, must in time bewilder the beguiled, and eventually lead to the regular physician for refuge. The number of the Homœopathic pretenders is said to have increased, yet the interest to credulous or dishonest men to continue to labour in the diffusion of these absurdities must diminish as their number is augmented; and even such men will find that legitimate medicine is equally or even more profitable in a pecuniary sense; when, of course, they will make a virtue of necessity, and return to the beaten path of science and of common sense. The spread of so many quackeries in the present day, even among educated men, has occasioned surprise; yet when the inducements to empirical practice are so numerous, and possess such solid attractions, there is little cause for any astonishment. All educated men are not proof against evil temptations, nor inaccessible to sordid motives.

Besides, every system of quackery may contain some element of good, however much that element may be obscured or abused: Homœopathy, for example, pretends to cure with globules, whilst the really effective agents which it can wield are pilfered from the armoury of the regular practitioner; and indeed, from this point of view, each so-called system is but an additional compliment to regular medicine, an unintentional homage to that true system of the healing art established by the unwearied researches of devoted inquirers on the basis of knowledge and sound philosophy. Thus each pretended system is but a gigantic hypocrisy unconsciously rendering, as it

were, the usual tribute of vice to virtue. Each consists but of a leaf taken from the venerable book of medicine—the accumulated and recorded experience of ages—and prostituted to the purpose of acquiring a distinction unattainable by honourable rivalry and competition in the arena of legitimate practice; or as an excuse for the non-possession of the education, the acquirements, or the diploma of the regular practitioner,—a leaf expanded into a huge system of credulity and imposture. These terms would be harsh if applied to the members of any sect rightly claiming to be cultivators of science; but surely those of the Homœopaths who really believe in the efficacy of infinitesimal doses,—of doses so small, a dilionth or decilionth, for example, whose very expression in figures notation can hardly bring upon its tablets, may at least be justly termed credulous; whilst the remainder, if they have not so debased their intellect as to credit the doctrine, are plainly obnoxious to the charge of imposture, for their adoption of a practice repugnant to their own common sense, merely as a profitable livelihood.

The most charitable supposition would be, that such intelligent men as have embraced Homœopathy had previously become sceptics as to the value of drugs, under any mode of administration; following in this the theory of those physicians who assert that the average duration of disease and the average mortality of mankind (all other things being equal), is the same, whatever may be the medicines administered. This scepticism of the value of drugs may, by some, be regarded as an excuse for practising with them in a harmless form, relying upon expectancy, diet, and hygiene.

Now this covert reliance upon time, diet, and hygiene, constitutes the hypocrisy of Homœopathy. It is true that expectancy, or the belief that nature alone is competent to cure every curable disease, and intuitively to teach what aliments to withhold and what to administer, has long existed as a doctrine in medicine; and when legitimately entertained and modified, it holds a place in the creed of every rational practitioner.

Another important leaf in our book teaches the use of water, both internally and externally, in the cure of disease. The belief in this agency has been universally disseminated;

a proof of which we have in the regard of every known people and tribe for those natural health-giving streams, so abundantly supplied by a beneficent Creator, and recognised and venerated by pilgrims and sages in every age and clime. Water has been employed in almost every variety of form in legitimate practice, and it is not matter of surprise, that crafty men, from the recognised value of water, have thereon constructed a pretended system, laying claim to powers well nigh miraculous.

So, again, with Mesmerism: do we not know the wonderful sanitary effects produced in numerous functional disorders by impressions made upon the mental and nervous systems, more especially upon those of susceptible individuals, and the alarmingly noxious influence at other times exercised upon the same class of persons by similar means? It is not necessary to remind you of the Wuthtanz in Germany, the Dancing Mania of Scotland, of the practising exorcists of the middle ages, and of the connexion between these phenomena, and the physiological influence exercised by the eloquence, the example, or the will of powerful spirits (noble or ignoble), either upon groups of individuals, or upon whole nations, exciting them to acts which pain, dazzle, or astonish a succeeding generation.

We do not forget nor fail to explain the cure of even structural diseases by the royal touch, nor the arrest of intermittent fever by so obscure an agent as the snuff of a candle. If we are familiar with these mental, physiological, and even curative influences of faith in the remedy, can we not comprehend the success of Mesmerism and of Electro-biology; and need we feel surprise, that an inflated leaf from our own book should pretend to the dignity of a separate science—a separate *methodus medendi*? Again, who amongst the ranks of regular medicine is not aware of the value of exercise of the body in the preservation of health and the cure of many functional and congestive disorders, the sure forerunners of disorganisation, if neglected? Who is not aware of the danger arising from the possession of luxurious couches, splendid easy riding equipages, retinues of servants, calculated to render superfluous

the use of the owner's limbs, and to leave him in full possession of Dyspepsia from negative repletion and voluptuous idleness? Which of us is ignorant how much happier in mind and stronger in body is the humble labourer, who, as Shakspeare's care-sick monarch exclaims,

“ From the rise to set sweats in the eye of Phœbus,
But all night sleeps in Elysium !”

and how much the latter might be envied by his inactive though richer neighbour? Or, knowing these things, shall we be accused of ignorance of the value of temperate and well-regulated gymnastics in the relief of disease? Are we to be seduced into repeating the experience of that would-be medical sage who, according to Plato, first destroyed himself by exercises of undue violence, and afterwards destroyed many others by his pernicious example?

Yet in the present day a system of gymnastics, called ‘Kinesopathy,’ is gravely propounded for the cure of disease! Behold the abuse of another leaf from our book,—our book, I say, because “rich with the spoils of time,” it is the repository of all the recorded wisdom of our noble art; and each and every pretended new system will be found, if scrutinised, to rest upon the abuse of some page, abstracted without acknowledgment from its almost exhaustless treasures.

This is the secret of the partial or temporary success of every quackery, Morrisonianism, Brandy-and-Saltism, Hollowayism, White Mustardism, St. John Longism,—quackeries in every way worthy to be classed with Homœopathy and Hydropathy.

Gentlemen, we can perhaps hardly dismiss this topic in more appropriate words than those of a profound and eloquent contemporary: “O my brother, be not thou a quack! die rather, if thou wilt take counsel: ’tis but dying once, and thou art quit of it for ever. Cursed is that trade; and bears curses, thou knowest not how long ages after thou art departed, and the wages thou hadst are all consumed; nay, as the ancient wise have written,—through eternity itself, and is verily marked in the doom-book of a God!”

But although our book contains these costly pages, each of them of such value when the proper moment of application arrives, can we each of us individually claim the merit of properly using each of these means when the occasion does present itself? Whilst our noble art is, from its innumerable resources,—the bountiful gifts of Providence,—of priceless value to mankind, we its humble votaries, the feeble instruments of diffusing these blessings, are fallible; we cannot each, individually, embrace the whole expanse of medical knowledge; we are unable to be expert in the prescription and administration of every means within our reach. On the contrary, we find in practice that the most successful physicians are often those who have learned how best to employ certain agents, whose confidence in their weapons thus becomes perfect, and who work wonders by the skill and experience they have thereby acquired.

This habit of employing chiefly certain means, and the success consequent thereon, often engender neglect of other means, perhaps of the highest value; hence Homœopathy, Hydrôpathy, Morrisonianism, &c. remind and admonish us not to be too exclusive in our choice of agents; but as far as practicable to combine experience or regular empiricism with rational medicine,—a combination the neglect of which has led already to scepticism in our own ranks; thus Pneumonia has been adduced as an instance of a disease being unaffected in its progress by medicinal agents. It has been asserted that in whatever mode this disease be treated, the physical changes in the lungs will advance or decline, disappear or kill, without appreciable hindrance from medicine, and that the average mortality from this cause will be the same.

This opinion has been countenanced by a too exclusive attention to physical examination of the patient during life, and of the lungs after death,—the observation having been conducted rather as a matter of natural history than of true clinical study.

It is erroneously asserted that, if one hundred cases of inflammation of the lungs be treated by blood-letting, or by mercury, tartar-emetic, nitre, &c., the sufferings of the patient

will be similarly protracted in every case, and death result in an equal number of instances, whichever of these plans of treatment be adopted.

We admit that, if one hundred cases of inflammation of the lungs, taken indiscriminately, be irrationally treated upon one and the same plan, merely because the disease be inflammation of the lungs, irrespective of age, sex, habits, temperament, previous disease and complications,—the duration of the disease, and the mortality produced by it, will be the same, whichever plan of treatment be selected. But if the physician avail himself both of physical examination, to determine the nature of the disease, and also of his knowledge of morbid anatomy, to remind him in what direction the disease tends; if he at the same time profit by the experience of his own and of former times; if he dismiss preconceived notions of the disease necessarily demanding a certain treatment, and investigate each case upon its own merits;—he will assuredly treat each case according to its obvious and peculiar indications: he will wait upon nature in one case; will bleed or use tartar-emetic in a second; depend upon mercury in a third; trust to nitre, salines, and alkalis in a fourth; he will even support a fifth through the disease (an habitual tippler, for example,) by the aid of brandy; or he will combine several of these remedies at different stages of the same case, and will unquestionably find that the average duration of the disease, and the mortality from it, will be far below the estimate of those who treat all cases alike. In fact, in this as in every other disease, setting aside the infallible necessity of death at some period or other, recoveries are in proportion to the care with which the cases are investigated, watched, and treated,—in which the observation of the nurse is combined with the intelligence, the experience, and the varied resources of the physician.

It has often been justly observed, that medicine would indeed be a simple art, if it were only necessary to arrange or enumerate the symptoms, to find the name of the disease, and to search out, in a sort of Encyclopædia, for a particular remedy for a particular form of disease. No; our art is not so easy. Nay, its very difficulties, its very uncertainty, have ex-

posed us to the not over-flattering criticism of the wits and witlings of every country and every period, from Terence to Molière, Le Sage, and Dean Swift. Even brave old Michael Cervantes himself has a fling at us. Is it not in *Don Quixote* that the intendant of the hospital, consulting the chief physician, says, "What, sir, shall we do this week?" "What," demands the doctor, "did we do last week?" "We physicked the north ward and bled the south." "Then bleed the north ward and physic the south."

It may be supposed that the very earnestness of the pursuit, in which the members of our profession are engaged, and the consequent zeal with which doctors have maintained their opinions, independently of the influence fairly attributable to egotism, have indelibly impressed our differences of opinion upon the public mind, and furnished poets and satirists with the opportunity of ridicule at our expense. In truth, we have been selected as the butt of derisive mirth, because the exercise of our art has necessarily been conducted openly, in the presence of the people, ever shrewd enough to detect the weak side of individual conduct, if not of medical practice. Thanks, however, to the agency of education, and to the wonderful discoveries by which mind and matter are so rapidly and extensively moved in the present day, the turn of other learned professions, to be similarly tested and weighed in the balance of public opinion, has at length arrived. The screens behind which other professions performed, to a great extent, their share in the multiplex drama of life, have fallen down one after another, and the public have become aware, that not doctors alone disagree, but also theologians, judges, barristers, naturalists, engineers—men mighty, both in conception and achievement, notwithstanding that all these professions have to deal with matters supposed to rest upon unchangeable *Leges scriptæ*, or upon the fixed forms of the animal, vegetable, and mineral kingdoms, and the immutable laws of mathematics and mechanics. That all these differ as widely as doctors differ, the world is, in fact, beginning to comprehend; that the very variety of intellects, the incalculable number of different proportions in which the formative elements of mental existence are combined, no two persons being identical in

mind, any more than in body, induce the tendency to examine every branch of knowledge under different aspects; this analysis, as it were, of every department of human inquiry, finally leading to agreement, because leading to truth.

The past year is also memorable as that in which the greatest effort has been made to found and maintain charities for the relief of decayed and unfortunate members of our profession. It will ever appear remarkable, that whilst our profession has been mainly instrumental in the establishment of charitable institutions for the relief of nearly all "the ills that flesh is heir to," we have hitherto incurred the opprobrium of having effected little for the succour of our own suffering brethren, their wives and families. The Society for the Relief of Widows and Orphans in London and its vicinity is a noble and successful illustration of what effectual provision may be secured for unforeseen destitution. Who can presume to say that himself or his widow or his children may not one day require the relief thus extended to others? Still, this society, like the British Medical Fund, is mainly based upon the principles of a provident association, and not upon those of a purely benevolent institution.

The Provincial, Medical, and Surgical Benevolent Fund, a purely benevolent establishment, has strong and peculiar claims upon the support of every medical practitioner. But the earnest attention of the profession has been fully awakened to the necessity of further combined exertion, with the aid of the general public, by Mr. Probert's excellent scheme of a Medical Benevolent College, which has been commenced under the best auspices, and for whose perfect success the best augury has already been pronounced.

The enthusiasm with which this admirable scheme has been received, the unanimous approbation both of our profession and of the public, certainly indicate that the previous want of such a charity has not originated from the absence of generous emotion among our members; from no indifference to the examples offered us by other professions and commercial bodies; nor even from the fact that, owing to a large portion of the labours of medical men being unrequited in a pecuniary sense, and the comparatively large expenses of our

literary, intellectual, and social position, we remain essentially a poor profession, incapable of insuring ourselves and our dependants from the casualties of this life. No! It is rather a fact which exhibits the weak side of our body politic.

We are an unorganised profession—not that we have not medical corporations in excess; each, however, having established some claims to our respect, by the higher scale of qualifications they have demanded of candidates for honours: in this respect acknowledging the necessity of keeping pace with the general demand of the present day for improved education. But unfortunately these corporations are not governed by the thousands who belong to them; and I believe that one great cause of the absence of benevolent institutions, worthy of a great and noble profession, springs from the want of sympathy and the want of habitually active concurrence in matters of moment to the profession between the represented and the unrepresented,—the want of the habit of appealing in matters of common interest to the thousands of intelligent, industrious, and influential surgeons and physicians distributed over the whole kingdom. If we glance even at the numerous ancient and originally trading corporations of this metropolis, we find that, under different schemes of organisation, the representative system has prevailed—the wants, feelings, and wishes of all classes have influenced, and ultimately determined, the conduct of the governing bodies; and amongst other admirable results of that principle (which is, in fact, the vital principle of responsibility), we find the endowment of educational establishments on a princely scale, and the establishment of benevolent funds for the accidental misfortune or decadence of their members.

It can scarcely be doubted that, with such an extended intercourse between all classes of the profession as would be created by a full representation in our corporations, there would result an increased influence of these bodies in the promotion of science, in the advancement of the intellectual and social claims and position of the profession, and (co-equal in importance) the active recognition of the duties of our body towards its less fortunate members.

Many subjects of minor importance may be passed over. No great medical discovery has been promulgated during the past year, although a silent progressive improvement is perceptible in every department. I believe, indeed, that in no profession a more healthy striving after truth is apparent than in that of medicine at the present moment.

Gentlemen, I am unwilling to occupy your time entirely with a review of matters affecting merely the economy of our profession; I shall, therefore, solicit your attention for the remainder of the hour to a matter of more scientific interest.

It is acknowledged to be serviceable to the progress of our art, occasionally to trace the rise and fluctuating reputation of a mode of treatment not generally recognised, but which has been applied in some of the emergencies of practice. And, therefore, whilst placing upon record some facts illustrative of injection into the veins of the human subject, I will avail myself of this opportunity to bring to the notice of the Society some details from the history of this operation and of a subject closely allied thereto, namely Transfusion of Blood. I shall not attempt a complete sketch of the history of venous injection, or infusion into the veins, as it was more commonly termed, still less of that of transfusion of blood; but these two processes have mutually exercised a great influence, and their history is, as it were, so much intermixed, that in reviewing the origin of one of these therapeutic processes, I am almost necessarily led into some details concerning the other. I will refer those of my hearers who desire further information on the subject to the works of Scheel, Dieffenbach, Birch, Denis,—to whom, amongst others, I am indebted for many statements I shall lay before you.

The earliest advocates of the method of introducing blood or other substances into the veins, have endeavoured to invest the matter with additional importance by tracing its discovery to the remotest times. The origin of venous injection is, in fact, involved in the obscurity common to so many other inventions: conjectures are not wanting in the absence of facts.

In the middle ages, the friends of infusion and transfusion were delighted to refer their discovery to the renowned magi-

cian Medea, whilst their opponents stigmatised venous injection and transfusion along with worse deeds of this fabulous personage. Jason having implored Medea to prolong the life of his aged parent Æson, she is said to have restored him to youth by drawing away the old blood from his veins, and refilling them with the juices of certain herbs. The words of Ovid are—

“ Quæ simul ac vidit, stricto Medea recludit
 Ense senis jugulum; veteremque exire cruorem
 Passa, replet succis, quos postquam combibit Æson
 Aut ore exceptos aut vulnere; barba comæque
 Canitie posita nigrum rapuere colorem.”

Ovid is also supposed to allude to transfusion of blood, when he relates the delusion by which the daughters of Pelias were led to the commission of parricide :

“ Quid nunc dubitatis inertes?
 Stringite ait gladios: *veteremque haurite cruorem,*
Ut repleam vacuas juvenili sanguine venas.”

Whilst, on the one hand, the silence of other ancient authors, and the exceeding improbability that at so early a period of the world's history as that of the Argonautic expedition, this bold operation could have been performed, lead us to regard Ovid's account simply as a creation of his poetic fancy, affording an early instance of a powerful imagination anticipating by ages the discovery of an important truth; it is, on the other hand, probable that, at a subsequent period, Ovid's assertion may have suggested the actual performance of the operation.

The prevailing theories of the sixteenth and seventeenth centuries respecting the nature and treatment of disease, and one article of faith derived from the Mosaic writings, namely, that the seat of life is in the blood, as well as the internal use of blood or medicines prepared from blood—a practice revived in the present day in the proposition to use dried ox-blood in anæmia,—combined to suggest transfusion and injection of materials into the blood, as incomparable methods of acting promptly and immediately upon the source of life, the heart.

Probably some of the superstitious arts of sympathy then practised may have conduced to the same result. I may here mention one of these singular practices, worthy to be ranked with the pretensions of that modern art, by which the electric telegraph is superseded by the agency of snails. I allude to the ancient art of enabling two persons residing at any distance apart instantaneously to communicate with each other. Both persons made a slight wound in any convenient part, and permitted a few drops of each other's blood to be reciprocally instilled into the wounds, which were then allowed to heal. It was believed that if either pricked his own scar, the other instantaneously felt the same, and by a previous arrangement as to the number of pricks, understood the meaning of the other.

The first distinct proposition to effect transfusion of blood was made in an anonymous publication in Germany, at the beginning of the seventeenth century. The mode of operation proposed by the anonymous discoverer, supposed to be Pergelius, a physician at Rostock, was fully described in 1615 by Libavius, a physician at Halle. The honour of the discovery belongs, therefore, to Germany.

The more important part of the history of infusion and transfusion commences with the epoch of the great discovery of the immortal Harvey. His doctrine of the circulation of the blood satisfactorily demonstrated the possibility of total renewal of the circulating fluid of an animal, and that a remedial agent injected into the veins would gradually affect the whole of the blood, and be thus distributed to every part of the body. Harvey's discovery also taught the most direct mode of performing these operations, whilst transfusion itself was regarded as a confirmation of Harvey's doctrine.

We may picture to ourselves the influence exercised by the coarse humoral pathology of those days, and the extraordinary experiments to which it led. It was asserted that old and worn out animals could be fitted for the chase; that the sterile woman would be made fruitful; that the old women who had long ceased to bear children would be again rendered capable of conception; and even that princes would be ren-

dered wise by the operation. The most enthusiastic expectations both of infusion and transfusion were formed by the leading physicians in most countries. But unfortunately so large a number, not only of useless, but of unreasonable and mischievous experiments were carried out both upon men and animals, that instead of attributing the unfavourable results of infusion and transfusion to the erroneous modes in which they had been employed, physicians ultimately lost all hope of obtaining through them results beneficial to the art of healing, and suffered them almost to lapse into oblivion. Nevertheless, eager disputation respecting the merit of the discovery ensued, for which almost every nation advocated its claim.

The actual performance of the operation of infusion first occurred in Germany, in 1642, twelve years after Harvey's discovery. In every country the injection into the veins of medicinal and of other substances preceded the operation of transfusion.

The canine race afforded the subjects of the first operation. Infusion was first employed as an amusement by a German sportsman. The fluids injected consisted of wine and brandy. The animals slept off their innocent debauch, and experienced no evil consequences from the operation. This is perhaps a solitary example of an important physiological discovery resulting from an otherwise disreputable trifling with animal feeling.

Strict justice, which awards to the regular consequential working out of a discovery the palm of invention, attributes to our own countrymen the honour of having, in 1656, first successfully introduced venous injections and transfusion of blood to the notice of the scientific world.

As early as 1638, Potter had fruitlessly proposed transfusion.

Wren, the celebrated architect, spontaneously discovered and practised infusion into the veins of a dog at Oxford, in 1656. The well-known natural philosopher Boyle witnessed Wren's experiments, and described the effects of the injection of a solution of opium dissolved in sherry, which was followed by brief stupor and perfect recovery of the animal.

Boyle subsequently tried *Crocus Antimonii* (oxysulphuret) upon a criminal. He dissuaded from the use of strong substances, and recommended cordials, antidotes, and alteratives, and mentioned even diuretics, as proper materials for injection.

Clarke tried injection of milk, beer, whey, broth, and attempted transfusion.

Lower, commencing his experiments with infusion, found that beer and wine could be introduced without danger; and, in 1666, he was the first who successfully effected transfusion in an animal. In this satisfactory instance of transfusion, Lower directly connected the cervical artery of one dog with the jugular vein of another, and gradually introduced the whole of the blood of the one animal into the vein of the other, allowing at the same time the blood of the receiving animal to escape in a proportionate quantity, until he had successively parted with and gained a quantity of blood equal to his own weight. The receiving dog afterwards leaped down from the table, caressed his master, and in order to clean himself from blood, rolled in the grass, as he would have done after leaving the water. The dog remained perfectly well.

Some years after our countrymen had zealously and perseveringly laboured to determine the merits of the new discovery, the French embraced it with all the ardour of their genius, and had the courage to effect transfusion in man, from which operation the rest of the European nations had hitherto shrunk. Their bold experiments promptly diffused an universal knowledge of transfusion; but the unreasonable manner in which it was advocated, and the low cabals of its opponents, contributed speedily to extinguish all consideration for the operation.

Bourdelot, the first French *claimant* for the honour of the discovery, alleges singular reasons for the proposal of transfusion. He states that the idea occurred to him after a conversation with Gallalei, respecting the injection of sundry purgative and alterative medicines; and adds, that if it be possible to cure paralysis by plunging the part into the reeking entrails of a slaughtered animal, transfusion of blood must needs be more effective. This extraordinary reasoning did not abash

him. It is not remarkable that he should have believed, with the priests of the temples of antiquity, that a paralysed limb might be cured by immersion in the warm trunk of an animal,—an opinion and practice not yet exploded.

The first French physician whose labours in this new field attained great notoriety was Denis; he first effected transfusion in the human subject in 1667, having successfully introduced small quantities of the blood of calves and lambs into the veins of five persons, who experienced no injurious consequences from the operation. The enemies of Denis asserted that in one case fatal results had ensued. The minds of the profession and the public were much excited by the exaggerated pretensions of the friends of the method, and the startling denunciations of opponents. Legal proceedings were even taken against Denis; but he succeeded in clearing himself from the imputations of his persecutors, and was afterwards appointed physician to the king.

The court of justice now decreed that the operation should only be performed with the sanction of a member of the Parisian or other competent faculty; and at a subsequent period, it was erroneously stated that the court of law had even interdicted the operation.

Denis transfused the blood of animals in a case of diseased brain with soporose symptoms; in a healthy person; in an insane; in a woman affected with paralysis (hemiplegia); and in a nobleman who had laboured for three weeks under bilious diarrhœa and vomiting. The last case, apparently the least favourable for the experiment, was nevertheless the most interesting, as an illustration of the capabilities of transfusion of even the blood of animals. Denis, believing in the existence of organic disease, refused to operate until the physicians already in attendance had declared the case to be hopeless. By the injection of six ounces of calf's blood, the patient was rallied from a state of speechless prostration and unconsciousness; he took nourishment, slept, and for twenty-four hours appeared to be going on favourably, after which, however, the diarrhœa and prostration returned. Denis unwillingly yielded to the solicitations of the patient's family, and repeated the operation, which afforded only twelve hours further respite from death.

An impartial survey of the literary effusions of the period leads to the conclusion that Denis experienced much injustice at the hands of his medical brethren, and that notwithstanding his exertions to promulgate the new operation, its repute fell so suddenly and so completely in Paris, as powerfully to influence its fate in other countries.

After the fate of transfusion had been sealed in France, the public and the profession went, as usual, from one extreme to the other, and rejected even the good which might have been obtained from a limited and careful employment of transfusion in the art of healing.

In France, the less assuming operation of infusion into the veins received little attention; and the experiments that were performed, consisting of the injection of concentrated acids and alkalies, melted tallow, and undiluted alcohol, represent experiments calculated rather to determine in what manner the introduction of these substances would destroy life, than to illustrate their use as a means of preserving it.

The anxiety entertained in our own country lest the life of a human being should be endangered by an experiment, and perhaps also the fear of judicial proceedings, easily instituted in a country where the value of human life is with justice highly estimated, delayed the performance of transfusion in England.

At length, in 1667, a crack-brained Cambridge undergraduate, thus described by Dr. Lower, "*hominem amabili quadam vesania affectum*," volunteered himself for the experiment. Dr. King operated in the presence of numerous distinguished personages, and introduced into the veins from eight to twelve ounces of calf's blood. No evil effects were experienced. Three weeks afterwards, the operation was repeated with the same result. Coga, the subject of the operation, subsequently addressed the Royal Society in testimony of his recovery. As might have been expected, his mind was not affected, beneficially or otherwise, by the proceeding.

The news of the discredit into which the operation of transfusion had fallen in France did not extinguish in our country all interest concerning it; but rather diverted the attention of

physicians to infusion of medicinal substances into the veins of animals. Death was found to result from injection of olive-oil, muriate of ammonia, salts of tartar, saltpetre, alum, camphorated spirit of wine, and tincture of hellebore; whilst the animals recovered or experienced no injurious effects from the injection of vinegar, sugar, common salt, urine, opium in small doses, or diluted alcohol. Injection of senna-infusion was succeeded by vomiting and purging.

At the same period the Germans occupied themselves with venous injections. Major, in 1668, first applied this operation in the human subject. He inserted into the veins "*liquorem quendam nervino-balsamicum*:" the patient is said to have recovered, but no further particulars of the case are upon record.

Elsholz successfully injected three soldiers: the first with *aqua plantaginis* ʒj, for the cure of a long-standing ulcer; the second with infusion of *carduus benedictus* ʒss for a fever; and the third with infusion of *cochlearia* for scurvy. The recovery of these three persons without unfavourable symptoms after the injections cannot be contested. We may without injustice to Elsholz believe that the small quantity of materials used had little or no direct share in the recoveries, but that moral and other (physical) agencies more powerfully contributed to cure.

Elsholz, in his conclusions on the value of the method, recommended injection of stimulants in fainting from heart-disease, and of refrigerants in fever; thought it might be usefully employed in apoplexy; in hysteria; in anginas impeding deglutition; in consumption, on account of the facility with which the remedy could be introduced almost immediately into the lungs; and, as a climax, suggests the reciprocal transfusion of a few ounces of the blood of married couples, or of brothers who have quarrelled, in order to insure future harmony between them.

Garman suggested that asphyxiated new-born infants might be restored to life by injection of a few drops of wine by the umbilical vein. He tried the experiment in an asphyxiated puppy, and successively introduced some wine, laudanum, and a purge. The animal was restored. Garman recom-

mended transfusion after profuse hemorrhage, and sagaciously dissuaded from injection in consumption and marasmus.

Dr. Schmidt, better known by the cognomen of Fabricius, a physician at Dantzic, received permission from the authorities of that city to make experiments at the public hospital. He selected a robust soldier suffering from advanced secondary syphilis. He injected eight grains of scammony in ʒiij of tincture of guaicum. The patient experienced vomiting, but recovered. The second case was one of epilepsy, which was similarly treated, with equal benefit. In three cases, namely, rheumatic gout, apoplexy, and plica polonica, he employed with success, in the same manner, alterative agents.

The history of this period abounds in curious illustrations of the fact, that at every stage our profession has been infested with scientific quackeries. Such appears to have been the nature of the practice of one Hoffmann,—whether the inventor of the celebrated anodyne that bears his name, I am unable to say. Hoffmann undertook to cure diseases by transfusion according to a comparatively safe method, consisting merely of the introduction of a few drops only of the blood of a healthy person, which he asserted acted as a new ferment “quasi per insitionem,” by which the entire mass of diseased blood was converted into healthy blood.

Kauffmann effected some successful as well as some unsuccessful transfusions of sheep's blood into the human subject. He speaks, however, of the unsuccessful living for years afterwards, affected with what he termed “sheep's melancholy.”

Purrmann, who had assisted Kauffmann, remained so fully convinced of the value of venous injections, that in 1670, whilst suffering from obstinate cutaneous disease, he caused himself to be injected with a few spoonfuls of aqua cochlearia and spiritus theriacalis, after preliminary blood-letting. During the operation he was seized with syncope, which he attributed to the too rapid injection of the fluid; and he also sustained some suppuration of the vein.

Upon another occasion, whilst engaged at the siege of a fortress in Pomerania, after suffering sixteen weeks from ague and dysentery, he caused the operation to be again performed

upon himself with a few spoonfuls of aqua cardui benedicti, and recovered in a few days, without either syncope or suppuration. In 1670-80, at the Halberstadt hospital, Purrmann successfully injected three patients affected with intractable epilepsy. He repeated the operation three times on each patient; the materials employed being small quantities of vegetable infusion, alcohol, and ammonia.

In 1691, Müller first injected quicksilver in animals, and observed the formation of points of suppuration in the lungs around the metallic globules,—an experiment repeated by Dr. Haighton of this metropolis in 1799, and revived a few years since by Cruveilhier.

Infusion and transfusion were much used in Italy for physiological purposes. The renowned Baglivi expressed surprise that the method had not made greater progress in the cure of disease. He observed that injection of cold water induced rigors, and made numerous experiments with introduction of air into the veins. The danger attending the presence of air in the heart became thenceforward fully known throughout Europe; and its forcible injection by the jugular vein was practised as a humane method of slaughtering animals, because of the instantaneousness with which death resulted.

Some courageous physicians at Marseilles, in 1721, whilst pursuing their investigations concerning the dependence of plague upon a morbid state of the biliary fluid, communicated that disease from man to dogs by venous injection of the contents of the gall-bladder.

Jean Marie Regnaudot, in a dissertation, published at Leyden in 1778, entitled *De Chirurgia Infusoria renovanda*, described a case of Oriental leprosy, the cure of which he attributed to venous injection of senna, guaicum, and mucilage.

Fuller, in 1785, recommended venous injection as a last means of restoration in cases of suspended animation from drowning,—an idea carried out at Halle by Meckel, the father of the illustrious physiologist of that name. Meckel succeeded in effecting vomiting, as a means of reaction, by injection of two grains of tartar-emetic into the veins, and thus rescued

a woman from the asphyxia consequent on an attempted suicide by drowning; other appropriate remedies for suspended animation having been simultaneously adopted.

A remarkable instance of recovery of a youth, aged fifteen, from the effects of the bite of a viper, by the injection of a drachm of hartshorn into the veins after the symptoms were desperate, is recorded by Valisnieri.

In 1776, Kohler illustrated, in a remarkable manner, the value of venous injections of emetic substances. He was called to a man in whose œsophagus a large piece of gristly flesh had become impacted, the dislodgment of which by ordinary surgical means had failed. The man was speechless, with fluttering pulse and cold sweat. Dissolution seemed imminent. Kohler having witnessed some experiments with venous injections, instituted for physiological purposes by the celebrated Lieberkühn, injected six grains of tartar-emetic into a vein. Half an hour after the operation the piece of gristly flesh was ejected with great violence. The man recovered, and was alive twelve years afterwards.

Balck, a military surgeon at Potsdam, who had heard of Kohler's case, was, in 1784, hastily summoned to a young soldier, who had swallowed a large piece of flesh, containing, as the result shewed, a projecting bone. The mass had become impacted midway in the œsophagus. Balck repeated the attempt which had been made with the probang to dislodge the mass; but the sufferings of the patient were aggravated by the operation. The man was unable to swallow any thing, even a drop of fluid, and resembled an apoplectic patient; his face was turgid with dark blood, his eyes projected from the sockets, dyspnœa was distressing, anxiety and restlessness were indescribable, and, in Balck's judgment, speedy death was inevitable. In this extremity Balck injected a solution of tartar-emetic into the right median vein: a quarter of an hour afterwards nausea, followed by violent vomiting, set in, during which the sufferer indicated by signs that the obstructing mass had been ejected. The vomiting notwithstanding continued, and occasioned much exhaustion; and was only finally arrested by the exhibition of laudanum and ether.

On the following day the man was well, with the exception of the feeling of weakness.

Two years after this occurrence, Balck was called into consultation in a similar case: a woman, upwards of fifty years of age, who had endeavoured in vain to dislodge an impacted mass by attempting to swallow several hard crusts. The pro-bang, and other usual remedies, had been tried without success. Some hours having been passed in a state of severe suffering, Balck resorted to injection into the veins, as in the last case, and with equally good effects.

A fourth case of this kind occurred in 1796, to Knopf, at Freistadt: it differs only in the rapidity with which vomiting was excited. The lump of flesh ejected was as large as a hen's egg.

The well-known Berlin surgeon, Græfe, was equally successful in a precisely similar case at Berlin in 1816.

Considering the comparative infrequency of death from this obstruction of the gullet, whilst gluttons abound every where, it is fairly open to inquiry whether some of these semi-strangulated persons might not have recovered without the venous injections. It should, however, be remembered that the alarming symptoms present before the venous injections, have been detailed by evidently competent persons. Græfe, for example, was personally known to living surgeons in this country as a great ornament to his profession. In accounting for the large number of five similar cases, it should also be remembered that they are spread over a period of forty years, and that the diet of a nation may increase the liability to this particular accident.

Hemman, also a German, published some very rational views respecting venous injections. He regarded as suitable all medicines which are readily miscible with the blood, and which effect no visible change in the mixture and relations of this fluid. He successfully illustrated his views by injecting an ounce of aqueous solution of musk into the veins of an epileptic girl: this was followed by restoration of catamenia and recovery.

Hemman's second case was more remarkable. A man,

æt. 39, previously of robust constitution, lay, on the twelfth day of typhus fever, soporose, and with involuntary flow of urine and fœces. He had ceased to swallow, the pulse was scarcely perceptible, and the trembling of the flexor tendons, added to the above symptoms, shewed that he had not long to live. Hemman prepared an infusion of bark, one ounce to a quart of water, to which, after thrice filtering, he added two drachms of hartshorn. He injected into the veins three ounces of this fluid: half an hour afterwards the corpse-like face shewed some signs of colour; large drops of sweat stood upon the forehead; the pulse rose; the skin, previously dry and shrunken, became moist; a profuse perspiration covered the surface; and in three hours later the patient aroused from the sopor as if from a deep sleep; he was then able to swallow a few spoonfuls of wine, and appeared generally improved. The same night delirium again supervened, the patient became restless, the skin was again dry, and the pulse fell. As the symptoms continued unfavourable, on the following day Hemman prepared a solution of ʒj of "the essential salt of quinia" in four ounces of distilled water, repeatedly filtered it, and added 15 grains of carbonate of ammonia. He reopened the vein at the elbow, and after allowing the escape of four ounces of blood, injected three ounces of the prepared solution. One hour after this second injection the pulse rose, and the patient appeared better; copious perspiration ensued, and, during the succeeding night, an offensive diarrhœa. A trifling suppuration occurred at the bend of the elbow; but from the moment of the second injection the patient gradually and completely recovered.

Darwin, in his *Zoonomia*, proposed transfusion in threatened starvation from stricture of the œsophagus; but the patient, Atticus-like, wisely preferred to die unrelieved.

Lynn, a celebrated surgeon at the close of the last century, witnessed much relief from the injection of ʒj tobacco-infusion into the veins of a horse labouring under lock-jaw, but the animal died before the operation could be repeated.

Viborg, of Copenhagen, a veterinary surgeon, obtained a series of interesting results from venous injections employed

therapeutically in animals. The problem to be solved was the production of vomiting and perspiration, acts excited with difficulty during the diseases of pachydermata and ruminantia. He ascertained that by injections of solutions of hellebore into the veins of horses and cows, vomiting and perspiration were readily induced; from which a powerfully salutary influence in the cure of many of their diseases was derived.

Some experiments of Ortel of Leipsic, published in 1804, may be briefly passed over. Among other cases, he recovered a person from sopor of fourteen days' duration; a case for which the usual remedies had been used, including counter-irritation and actual cautery, and for which trepanning had been contemplated. The recovery was effected by the injection of six grains of camphor triturated with mucilage.

Dieffenbach, who ably reviewed Ortel's cases, expresses surprise that so much camphor should have been tolerated without fatal disturbance of the respiration. It is, in my opinion, a matter of equal surprise, that although some animals have survived the injection of these substances, the individual in question should have borne with impunity the introduction of mucilage into the blood, a substance of all others likely to occasion mechanical stoppage of the circulating fluid and coagulation of blood. It is not improbable that coagulation of blood in the veins, thus induced, may have prevented the camphor and mucilage reaching to the vena cava, the heart and lungs, and thus have averted fatal consequences.

The elder Hufeland and Horn, both well-known physicians of Berlin, instituted an instructive series of experiments with venous injections at the Charité Hospital in that city. They thus treated insane, hysterical, melancholic, and epileptic subjects; and selected those in whom medicines could in no other mode be introduced, or whose condition suggested that improvement might result from a prompt and powerful revolution of the entire organism. Tartar-emetic, camphor, nuxvomica, ammonia, opium, carbonate of potash, and henbane, were the chief substances employed. Some patients were injected several times without a single fatal result; a large number of the patients were decidedly improved. The injec-

tions were practised with every precaution, and witnessed by numerous competent observers; it is, therefore, the more to be regretted that ample details of these cases were never published.

Percy and Laurent, authors of the article on venous infusion in the *Dictionnaire des Sciences Medicales* (1813), state that they tried venous injections in the cases of eight Russian and French soldiers affected with tetanus, at a period when nearly all cases treated in the ordinary way proved fatal. Of the eight cases injected, five recovered. The authors thus very justly express themselves respecting the value of venous injections in tetanus: "Which, among all the remedies which have been successively vaunted in this formidable and fatal disease, offers so much encouragement as the plan we have described?"

Well might they experience gratification and hope, after obtaining in tetanus five recoveries out of eight cases! They injected wine, stramonium, extract of bark, digitalis, and valerian.

It is a subject of regret that no perfect and detailed statement of these cases, whether successful or unsuccessful, was published by them.

Krahe of Berlin, in 1820, recovered a girl from epileptic apoplexy by injection of tartar emetic. Magendie's well-known laudable, yet futile attempt, to save a hydrophobic patient by venous injection of two pints of tepid water, occurred about this time. Although unsuccessful, it is, as Magendie stated, a remarkable fact, that a sufferer in the worst stage of this terrible and rapidly mortal disease, was placed in a state of perfect calm during eight days by the injection of two pints of water. Possibly the result might have been different, if Magendie had been aware of the liability of pure water to cause destruction of blood-corpuscles, when brought into contact with them. Microscopic observation teaches that only fluids of suitable density can be brought with impunity into contact with blood-corpuscles. Had salt water been used, therefore, the issue might have been otherwise. It is impossible to over-estimate the impulse that may be given to the practice of venous injections, by judicious application of the knowledge of the properties of the component

parts of the blood, displayed by microscopic and chemical investigations.

Froriep, in 1826, vainly endeavoured to rescue a woman affected with hydrophobia, by injecting an infusion of belladonna; and Gaspard, for the same disease, uselessly injected five ounces of tepid water.

M. Coindet unnecessarily injected about seven grains of white poppy-juice into the veins of a girl labouring under hysterical trismus: the patient recovered, without injury from the process.

An unfavourable opinion may be passed upon the case of Meplain, a physician of Donjon, who injected four grains of tartar-emetic into the veins of a child convulsed from intestinal worms; the worms were expelled by vomiting, the convulsions ceased, and the child recovered notwithstanding.

Dr. Cholmely's unfavourable instance of transfusion, in a case of marasmus from schirrhous of the pylorus, at Guy's Hospital, is deserving of mention only as an opportunity of deprecating the operation in a case of evident organic disease; for although it is reported that no abdominal tumour was discernible during life, the extreme gradually occurring, marasmus of itself too clearly indicated the existence of organic disease in some part of the economy.

The temporary beneficial influence of the transfusion may, however, have suggested its trial by Dr. Blundell, whilst attached to Guy's Hospital. Dr. Blundell's experiments and writings on transfusion are too well known to my hearers to need full mention here; his praiseworthy efforts to disseminate a knowledge of that operation having been crowned with success. He had the happiness to save a woman flooding to death; an example successfully imitated by Dr. Uwins and Dr. Waller.

But venous injections were most numerous prosecuted during the cholera epidemics of 1831-2 and 1848-9.

Dr. O'Shaughnessy, after careful analysis of the blood in cholera, being aware of the previous application of venous infusion in other diseases, proposed to re-oxygenate the dark carbonised blood of cholera by venous injection of a solution

of chlorate of potash. He subsequently recommended trial of weak alcoholic solutions.

Dr. Latta of Edinburgh has the merit of having taken the initiative in the practical recognition of Dr. O'Shaughnessy's recommendation of venous injection in cholera. Dr. Latta had the boldness to open a vein in the elbow, and to infuse pint after pint of a solution of common salt and carbonate of soda, salts of which the blood had been deprived during the vomiting and purging of that disease. The reviving influence exerted by the injected fluid was so strikingly apparent, and the expression of his relief by the sufferer so much exceeded the most sanguine expectation, that Dr. Latta was encouraged to persevere; hundreds of ounces were thrown into a single patient in the course of a few hours. In nearly every case the same extraordinary relief was obtained, although in the majority the improvement was only temporary. The journals of the period shew, that of fifteen cases of cholera-collapse operated by Dr. Latta, one-third recovered. I will here quote Dr. Latta's description of the phenomena observed during the injection. His words are these:

"There is at first but little felt by the patient, and the symptoms continue unaltered until the blood mingled with the injected liquid becomes warm and fluid. The improvement in the pulse and countenance is almost simultaneous; the cadaverous expression gradually gives place to appearances of returning animation; the horrid oppression at the præcordia goes off; the sunken, turned-up eye, half covered by the palpebra, becomes gradually fuller, till it sparkles with the brilliancy of health; the livid hue disappears; the warmth of the body returns, and it acquires its natural colour; words are no more uttered in whispers; the voice first acquires its true cholera tone, and ultimately its wonted energy; and the poor patient, who but a few minutes before was oppressed with sickness, vomiting, and burning thirst, is suddenly relieved from all distressing symptoms."

Every physician practically conversant with venous injection in cholera, will admit that this forms no exaggerated picture of the primary effect of the process upon many apparently hopeless cases of cholera-collapse.

Many practitioners followed Dr. Latta's example. I may

mention Dr. Tweedie, in whose hands one case in four recovered; Dr. Craigie, who had one recovery and one death; Dr. Murphy, two recoveries and one death; Dr. Girdwood, four recoveries and three deaths; and Mr. Arthur, thirteen recoveries and five deaths. My own experience of venous injection in 1832 was not favourable, as regards the permanent recovery of the sufferers. Three times in 1832 I had recourse to this method, and as often assisted others. One patient only finally recovered.

In 1832 I was induced to add alcohol to the injected solution, in consequence of the small and transient re-action I had in some cases observed after the injection of common salt, carbonate of soda, and chlorate of potash. The result of my experiment with alcohol convinced me that it constituted an additional and powerful means of arousing the dying heart and nervous system. The reaction after injection of a mixture of hot water, salines, and alcohol, was more lasting than after injection of water and salines only.

In 1848 I could not but witness with regret the impending return of cholera. Yet, as a medical man, retaining a vivid impression of the effects of venous injections which I had seen in 1832; convinced that an agent capable of so beneficially modifying the human organism even for a time, would, after due investigation, be found to possess a therapeutic value; and equally convinced that no other means yet discovered possessed the faculty of even occasionally rescuing from death persons already moribund,—these considerations did, to me, invest the approach of cholera to our shores with an interest which only the members of our profession, accustomed to successful encounters with death, can appreciate. At that period of public anxiety, the belief in the value of venous injections was a ray of hope amidst the depressing emotions and the gloom produced by the re-appearance of this fatal sickness. I did not anticipate the cure of cholera by venous injections, either with or without the addition of alcohol; but I trusted that, as in the last stage of typhus, when the fever has actually departed and the patient is sinking from inanition, the tottering balance inclining to the side of death, the patient is often

rescued by the timely administration of stimulants;—that as, upon the battle-field, many a wounded combatant has been saved from exhaustion and death by the heavenly esteemed gift of a timely draught of water;—or that, as a syncope which might otherwise prove fatal is removed by opportune lowering of the head, by means of which a feeble yet adequate flow of blood is transmitted to the brain,—so, in like manner, fortified by the experience of 1832, I hoped that in the approaching cholera we might be able, by venous injection, at least to save lives that were inadequately struggling into reaction.

The greater number of physicians who have resorted to venous injections in cholera have recommended their employment at a comparatively early stage, before the collapse of this terrible disease has become most intense; and probably the larger proportion of the recoveries sometimes witnessed has resulted from this practice.

Favoured by the excellent arrangements adopted by the authorities of the London Hospital on the approach of the epidemic, and also by the zeal of the officials, from the house-governor Mr. Hill, the resident medical officer Mr. Birch, to the humblest nurse, I was, during the height of the epidemic, August 1849, induced to inject a few cases. I preferred observing the effects of the treatment in a few of the worst kind, to trial of its efficacy in a larger number of mixed cases. The total number injected was eight; of these, four were so completely moribund that they exhibited no temporary amendment; of the remaining four (all extremely collapsed), one died and three recovered.

In any estimate of the value of venous injections, I should feel justified in omitting the first four cases, because it is well known that, unless a sufferer is already partly dead,—unless perhaps coagulation of blood has already commenced at the heart,—venous saline injection never fails to produce at least well-marked temporary amendment.

The three patients who recovered were males, aged respectively 22, 33, and 50 years. The first of these was injected four times to the extent of 250 ounces, or more than twelve imperial pints of fluid, each pint containing two drachms

of alcohol in addition to the salines.* This patient, therefore, received into his veins in the course of a few hours a quantity of alcohol equal to that contained in six ounces of brandy.

The second survivor was similarly injected twice to the extent of 45 ounces; and the third, once only to the extent of 40 ounces. I have recently seen the first and second of these patients; they have remained perfectly well, and have suffered no evil effects either from the cholera or from the operation.

The only instance of venous infusion effected by another practitioner in 1849, that has come to my knowledge, was that successfully operated by Mr. Howlett.

These are the "few facts" I have desired on this occasion to add to the mass of evidence already recorded of venous injections in general. I have refrained from dwelling upon my own experience; but I have ventured to intrude upon your patience by placing before you a chain of historical facts, extending over a period of two hundred years, illustrating at least the safety with which remedial agents may be introduced directly into the circulating system.

Time will not permit me this evening to state the conclusions at which an unprejudiced view of this interesting subject may enable us to arrive: I will, therefore, with your permission, postpone, until one of the ordinary meetings of the Society, the consideration of the diseased conditions in which, in my opinion, venous injections are justifiable, the materials which may be injected, and the mode in which the operation may best be performed. I shall be satisfied if, on the present occasion, I shall have succeeded in demonstrating the safety of the plan, and in awakening in your minds a more than transitory interest in the subject; such an interest as may lead to further research, and to the establishment of rules for its application.

The Hunterian Society, one of the oldest established medi-

* The saline solution employed consisted of—

Hydrochlorate of soda	ʒiij
Carbonate of soda	ʒij
Water	ʒcxxx
Temperature	F. 110°

cal Societies of this metropolis, boasting a long line of members distinguished by their social and professional position, has ever been characterised by the pursuit of inquiries into the nature of diseases and their treatment, in the spirit of the immortal Hunter.

I thank you much for the attention with which you have listened to this discourse. I confidently expect that, when the science and experience of our Society shall be applied to the elucidation of the best mode of using venous injections, a further step in the progress of our art will be accomplished,—a step calculated to increase our means of alleviating the sufferings of humanity, at least in some of those appalling diseases—cholera, tetanus, hydrophobia, and others,—in the treatment of which our experience has been hitherto the most often baffled; the diseases, therefore, in which additional means of relief are the most desiderated.

THE END.

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