THE NATURAL METHOD OF CURING DISEASES OF THE BODY AND DISORDERS OF THE MIND, DEPENDING ON THE BODY

BY: GEORGE CHEYNE (1749)

A TRANSLATION OF THE PREFACE OF THE FRENCH EDITION OF THIS BOOK BY PHIL LEAROYD

This famous book by George Cheyne, originally published in English in 1742 is in three parts, i.e.

Part I: General reflections on the oeconomy of nature in animal life.

Part II: The means and methods of preserving life and faculties; and also concerning the nature and cure of acute, contagious and cephalic disorders.

Part III: Reflections on the nature and cure of particular chronic distempers.

The book was subsequently published in a number of editions and in a variety of languages, none of which to my knowledge include any information regarding blood transfusion. However, Franz Gesellius in his 1873 book 'Die transfusion des blutes' comments (page 170) that it was De la Chapelle who 'was the first Frenchman to bring the completely forgotten transfusion back to light' and he references this comment to being: '*De la Chapelle, Cheynes Methode naturelle de guerir les maladies. Paris 1749*.'

The French translation of this book was made by M. DE LA CHAPELLE (Royal Society, London) and published in Paris (by J. F. Quillau) in 1749. The internal title page of Part I of this translation (see below) states: *With a Preface by the Translator, which contains, among other things, the Description, History, Method & Effects of the famous Blood Transfusion*. I have been unable to locate via the internet an English version of Part I of this book that includes this same Preface. The French edition of Part I of this book is available to view or download from:

https://books.google.co.uk/books/about/M%C3%A9thode_naturelle_de_gu%C3%A9rir_les_maladi.html?id=TY70Gf17E04C&redir_esc=y

After a general introduction regarding the health effects of diet on physical and mental wellbeing, which is completely within the context and content of the book itself, the author appears to somewhat suddenly and without adequate explanation to move into discussing blood transfusion that he states was 'abandoned too early'. De La Chapelle then describes Lower's experiments and the technique he used for the first transfusion between two dogs. He then summarises and comments on a number of the early experiments performed by different people in various countries before taking about the methodology used to transfuse humans, extensively describing the transfusion of Arthur Coga by Lower and King. Interestingly, given the fact that he is French, De La Chapelle does not include an equal amount of information regarding the experiments performed in France by Denys and Emmerez, and does not get involved with 'priority issues'. He argues that the differences in the results obtained following blood transfusion experiments should have resulted in additional research and more (long term) information regarding outcomes.

De La Chapelle therefore appears to have taken a 'translator's licence' by including this information on blood transfusion, in the middle of a preface that otherwise introduces comments related to the actual content of the book, together with, as would be expected, comments regarding the actual translation itself – though many of these are actually made within the 'references / comments' included within

each page (in a slightly smaller font) and referenced to the text. Due to the length of some of these comments they extend over a number of pages, making them impossible to reproduce in the same format in this translation. I have therefore sequentially re-numbered these, translated them, and included them as a list at the end of this translation.

The text includes a large number of proper nouns within sentences. This capitalisation, as well as the inconsistent use of italics, appears to have been used for effect by the author to highlight specific words or terms. I have not included these within the translation. I have included a small number of explanatory notes relating to certain words included in the original text that are contained within square brackets.

I have translated the Preface of the French Edition of this book into English in the hope that the content may be appreciated by a wider audience. Whilst I am obviously aware that instantaneous computer-generated translation is possible, this process struggles with specialist terminology and also produces a 'colloquial style' not always representative of the original text. This is made more difficult due to the fact that instead of the letter 's' the printed text includes the long medical letter for s that looks like the printed letter f (made even more difficult to read when in italics).

I have purposely made this translation to be 'un-interpreted', in that I wanted to maintain the author's original meaning / wording as much as possible. As with any translation the wording may be purposely or inadvertently altered to 'make it read better' but in doing so there has to be an element of personal interpretation involving something on the lines of 'I believe that this is what the author is actually trying to say'. I wanted to avoid that as much as possible and try to present what the author actually wrote and as a result the reader may find that the English text does not 'flow' as well as it could. Whilst some of the words/terms used by the author are obviously open to interpretation, I have attempted wherever possible to hopefully maintain the author's meaning, intent and detail. Although I have taken great care not to misrepresent the author's original wording I cannot guarantee that this work does not contain 'translational errors' and the reader is recommended to check specific details against the original text.

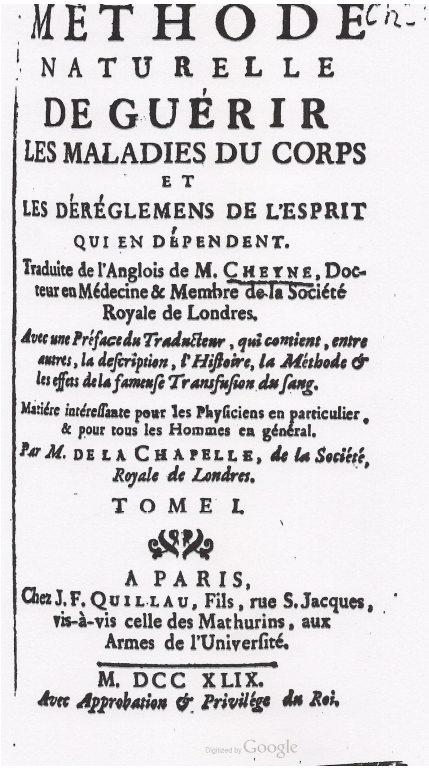
Dr GEORGE CHEYNE (1672-1743) – BIOGRAPHICAL INFORMATION

George Cheyne was a well-known physician with a practice in Bath and London. He was a fat, jovial Scotsman weighing 32 stone at one time and with a great sense of humour who could be classed as one of the characters of the period. His health suffered seriously from eating and drinking too much in taverns with his 'bottle companions' when young, and he spent the rest of his life writing books for the public to help them avoid the problems he had experienced, with a particular emphasis on diet and nervous disorders. His book entitled An Essay on Health and Long Life had particular success. Although often lampooned, he had many famous patients including Beau Nash, Samuel Richardson, The Countess of Huntingdon and Catherine Walpole, the eldest daughter of the Prime Minister Robert Walpole. He was a skilled and caring doctor and health educator, and has been said to have established the agenda for psychiatric epidemiology.
Anne Charlton. Abstract - J. Med. Biography, 2011, 19 (2), 49-55
https://pubmed.ncbi.nlm.nih.gov/21558530/

There has been a large amount of information published regarding the main author of this book George Cheyne (1672-1743), e.g.:
https://en.wikipedia.org/wiki/George_Cheyne_(physician)
https://www.encyclopedia.com/people/medicine/medicine-biographies/george-cheyne
https://www.wikiwand.com/en/George_Cheyne_(physician)

George Cheyne (1672-1743)
(Image credit: en.wikipedia.org)

Jean-Baptiste de La Chapelle (c.1710-1792) was a French priest, mathematician and inventor who contributed many articles on arithmetic and geometry to the Encyclopédie (published between 1751 and 1772) who was elected a Fellow of the Royal Society of London in 1747.



METHODE
NATURELLE
DE GUÉRIR
LES MALADIES DU CORPS
ET
LES DÉRÉGLEMENS DE L'ESPRIT
QUI EN DÉPENDENT.

Traduite de l'Anglois de M. CHEYNE, Docteur en Médecine & Membre de la Société Royale de Londres.

Avec une Préface du Traducteur, qui contient, entre autres, la description, l'Histoire, la Méthode & les effets de la fameuse Transfusion du sang.

Matiére intéressante pour les Physiciens en particulier, & pour tous les Hommes en général.

Par M. DE LA CHAPELLE, *de la Société, Royale de Londres.*

TOME I.

A PARIS,
Chez J. F. QUILLAU, Fils, rue S. Jacques, vis-à-vis celle des Mathurins, aux Armes de l'Université.

M. DCC XLIX.
Avec Approbation & Privilége du Roi.

Digitized by Google

Title page of 'Méthode naturelle de guérir les maladies du corps et les déréglemens de l'esprite qui on dépendent'
Translation by: M. De la Chapelle (1749)
(Image credit: books.google.co.uk)

PREFACE
FROM THE TRANSLATOR

When we cast our eyes on the number of diseases which besiege or afflict the human genus, the multitude appears so prodigious, that we would make people tempt to believe, that man is not made to have the feeling of his existence only that of pain.

There are some who are sick; many remain as such throughout their lives; a big enough number is often strong; all or almost all pay some tribute to pain in their childhood. Finally, most men die with violence, or without having fulfilled the time of their natural duration.

Although the war that men perpetually engage in, through their passions which contradict each other, has made many philosophers doubt that man was not for society, since the greater part of his actions and his feelings tend to dissolve it or to violate its laws; one cannot dispute, however, that one derives infinite advantages from it. But those who pay attention to the influence that the various states of society may have on the human body, or those who have read the book *De Morbis Artificum* which deals with the diseases of workers, or the diseases particular to each profession, will agree that man is subject to a greater number of diseases, in the state of society, than in pure nature; that is to say, in that where there is no other law, than the feeling of pleasure, and that of pain; such as the savages, who can live in troops, like pigeons or sparrows, but whose personal interest is not obliged to relate to that of others.

Also the relations, which we have of these peoples, only mention a very small number of diseases, of which they are attacked. And, in general, they are playes [sic – this and the subsequent use of this word within the text may indicate that it means 'wounds'] rather than internal ailments, one of those ailments which infect the whole mass of moods; and it will perhaps not be useless to add here, that the way in which several of them heal, is perhaps what is simpler, more natural, and most effective like this: for, before applying any poultice to them, they begin by cleansing them exactly, by dint of sucking them (1). This is very apt to express purulent matter, the ordinary cause of the long duration of playes. They behave in this like a few animals, which take advice only from nature, healing their own playes by licking them.

Another observation, to which we cannot be too attentive, is that it is very rare that we find, or that we hear of madmen among these peoples; while among us, or in nations which are differentiated, insanity, or the disturbance of mind and reason, is one of the most common, the most general and the most constant diseases. It is certain that the greatest good of men is to enjoy the beauty of the body and the spirit. Why then does society, designed to make them happier, seem to alter the main source of well-being in them? If we except accidental ailments, after the cause which I have already indicated, I will not go more general than gluttony, intemperance, incontinence, the use of strong liquors; and, which is undoubtedly the mother of these destroyed vices, bad education; mainly in the big cities, where the opulence and the splendour of the tables reign; I understand by this the habit where one is to present, even to children, dishes so prepared, that one is invited to take more than the stomach would naturally receive, without the murderous art of the kitchen.

What havoc must not cause, in such tender bodies, food and drink, which stop or disturb the action of thinking, in the strongest of men? And, since experience shows that we heal the mind by working on the body, we must agree that what alters the springs of the human body; carries, at the same time, impressions or attacks on the soul, who is the pilot.

Nothing in the world should appear cleaner to disgust men, or to correct them for gluttony or intemperance, than to serve them death, or slaughtered corpses. However, art, and the habit of seeing this spectacle, have made such delicacies so fond of us, that we sit down with pleasure at a table covered with massacres. But, by

eating without restraint, and too frequently of these foods, which by the salts & sulphur, which they abound, irritate our organs, and light up our moods, does not daily experience show us that we receive in our bowels germs of disease and premature death?

Indeed, in view of the evils and corruption, to which our insatiable greed subjects us, to feed us on the blood and flesh of animals; would we not believe that dead as they are, they are avenging themselves for the massacres, which we surely commit?

The corruption of the body engenders, little by little, that of the mind, whose bizarre thoughts are quite often a result of the irregular actions of the body. It seems to me though, that prejudices of understanding are the most general cause of follies, so frequent among civilized nations.

We have never contested in China, the advantage of having a people, which most regularly puts into practice the politeness of the dead. Let us therefore imagine a Chinese, who passes from the breast of his nurse, under the guidance of some Mandarin or Doctor of Law, “Take care, my son,” said the Scholar to him, “to deviate from your duties would not only be punished in this world, where punishments are only temporary; but after your death, you would still experience very long and very difficult ones: if you are sour, you will infallibly pass into the body of a post-horse (2), where you will not be spared. You will have spur and whip, in order to make you feel well, and more will be given to you, to make you feel better: no quarter."

In childhood, we have no doubts about the reason for the strongest, and especially of the one, who distributes fasting or food, servitude or freedom at will. This opinion grows with the child, becomes stronger with his organs, and becomes so specific to him that it is identified, so to speak, with him, and no longer appears to him to be distinguished from his personal being. If he has disobeyed, in a serious case, and is faithful to his religion, he will only think of the miserable fate of a post horse; this idea will pursue him even into sleep; he will think that he is between two spurs, which pierce his sides, despite all efforts, and his willingness to get better; and, after a forced race of several leagues, he will wake up with a start, all out of breath, and all covered in sweat, congratulating himself again on not having found himself, at the end of such cruel fatigue, in a bad stable, without litter and without food (3).

It is therefore not surprising that such shocks, often and for a long time repeated, finally succeed in creating a habitual disorder in the operations of intelligence; disorder, which all the medicine of the body and the spirit will be unable to restore, in many circumstances; art not yet having been, to the point of reproducing a main organ, destroyed or corrupted.

I will not multiply the histories or the arguments on this. Good minds will sufficiently understand the whole extent of my thought; and for the others, they don't need to hear me. So, although the transfusion of blood (4) has not been successful in the cure of diseases of the mind, nor doubtless in many other respects; however, since most diseases reside in the blood, it seems to me that experiments on this subject were abandoned too early; and that by dint of doing it on animals, we would have been able to derive great benefits from it, for the health and the prolongation of human life. Nothing, it seems, deserves to be tried any more, by the amateurs of experimental physics, so cultivated nowadays, in our northern countries. The experience of it is neither absolutely cruel nor very difficult; and, in order to spread the taste, if nothing essential is opposed to it, I will give, in short, the description, history, method and effects.

After the circulation of blood had been recognized and well confirmed (5), the goodness or depravity of this fluid, being regarded by doctors as the most general cause of the health or diseases of an animal body, one imagined, not yet a hundred years ago, that by bringing out of a worthless or sick body as much blood as possible (without however completely exhausting it), to replace it with other of good quality, one would infallibly succeed in eradicating a large part of the evils which afflict

mankind. People even thought they were very well justified to think that they could push back the end of old age by doing so; and we did not despair of being able to rejuvenate. These vague ideas gave birth to a completely new operation in medicine: it was to adapt one end of a tube into the carotid artery of a healthy animal, and the other end, into the jugular vein of the sick animal; so that the latter could receive, by the torrent of circulation, the blood of the former; and, lest the vessels of the sick animal fill up with a very large quantity of blood, where precautions should be taken to get it out, at the same time about as much as it received; and this is the famous operation called Transfusion.

Mr. Louver [Lower], an English physician, is commonly considered to be its inventor. It is said that, for the first time, he publicly experienced it at Oxfort [Oxford], around 1665; and published the full description in his excellent *Livre de Corde*. [Tractatus de corde] (6) But, if Mr. Louver [Lower] was the first to have this experiment in England, it is not accepted that it was his invention. M. Chambers assures us, that he knows from a very good part, that transfusion was proposed in Paris in 1658; that another Englishman had had this idea before; and even that it was already known in Germany for some years. It is certain, he adds, that there is a passage in Libavius where transfusion is described, as I have practiced it since. In truth, this author disapproves of it, and speaks of it only to ridicule it; but in the end it shows that it was known. Whatever it is, here is the method of the English, in relation to this operation. I take it from the third volume of the Philosophical Transactions, abbreviated by Louvvthorp [Lowthorp], page 226 & seq. of the 3rd edition [Abridged – See: https://catalog.hathitrust.org/Record/011571213].

Take the carotid artery of a dog, or of any other animal, the blood of which it is proposed to transfuse, into the vessels of another of the same, or of a different species; separate this artery from the nerve of the eighth pair, and discover a length of over an inch. Then make a strong ligature in the upper part of this vessel, which must remain in this state throughout the operation; but, an inch below; that is to say, towards the heart, make another ligature, with a noose, that we can let go or tighten, as needed. After having made these two knots, pass two threads under the artery, between the two ligatures; open the vessel; put the end of a feather tube in it, which you will tie tightly with the artery by means of the two threads, and plug the tube.

This operation finished, discover the jugular vein of the other dog, about the length of an inch and a half; at each end tie a ligature there, by means of a slip knot; and, in the space between these knots, pass two threads below the vein, as you did for the artery. Now make an incision in the vein, insert two feather tubes into it; one, in the descending part of the vein to receive the blood that comes from the other animal, and carry it to the heart; and the other, in the other part of the jugular vein, which comes from the head; so that we can thereby receive, in pallets [sic – this and the subsequent use of this word within the text may indicate that it means ‘bowls’], the blood of the second dog, as it receives it from the first. When these two feather tubes are adjusted and tied tightly, plug them, until they need to be opened.

After these preparations, tie the dogs to the side, one towards the other, so that the pipes can communicate with each other; then unblock the tube, which goes down into the jugular vein of the second dog, as well as that which leaves the carotid artery of the first animal, and make these two tubes communicate, by means of other tubes, which you will fit into each other. So if you untie the slip knots, the blood will rush through the feather pipes, just like it rolls in an artery. But, as soon as the blood flows from the vessels of one dog into those of the other, care must be taken to unblock the other tube, which comes out of the upper part of the jugular vein; in order to let flow, into pallets, the own blood of the animal which receives new blood.

We suppose that we first made a ligature around its neck, or that we compressed the jugular vein on the opposite side with the finger. The blood which falls in the pallets will not be allowed to flow without interruption; it will be necessary to be attentive to the state of the animal which loses it, and not to draw it beyond its

strength; but we will let him receive some, until the other animal starts to cry, that he weakens, that he falls into convulsions, and that at last he dies.

Then remove the two tubes from the dog's jugular vein; tie the slip knot tightly; and cut the vein transversely, so that it is completely separated into two parts. (This can be done, without the dog running any danger, because a single jugular vein is sufficient, to bring back all the blood from the head and the upper parts, given the size of the anastomosis, where the two jugular veins meet, towards the larinx [sic]). After that you just have to sew the skin of the animal, let it go, and you will see it jump off the table, shake itself, & run as if it had nothing.

While doing these experiments, we must be careful, 1. that the animals are attached, at a distance from each other, such that the vein or artery is not forced to extend too much: 2. if the pulse is missing beyond the tube, in the jugular vein, the tube will be withdrawn from the artery; and with a probe or a stilet [sic], we will clear the passage in these pipes, so that the blood can have a free flow.

Instead of a feather tube, you can use a curved silver or copper tube, which is thin enough, so that one end can fit into a feather tube, and the other end, which must enter the vein or the artery, has a small projection, or a small rim, in order to be able to more conveniently attach the tube with the artery or the vein.

It is still good to notice, 1. that, in the experiments of transfusion, the blood of the animal which gives, can, after a few minutes, mix, by means of the circulation, with the blood of the animal which receives, and strengthen finally with that of the latter: this is why, to be sure that all the own blood of the receiving animal is entirely drained, and that its vessels only contain strangers; that is to say, that of which has been supplied by another animal, one must keep quite ready, two, three, or even a greater number of animals, to pass their blood through the vessels of just one.

2. One can conjecture, with a great deal of probability, that the change of blood will not alter the nature or the disposition of the animals, which will go through the experience of transfusion; although one should not neglect to carry out experiments which establish a certain presumption in a satisfactory manner. Because what happens in the transfusion, is very different from what happens in the operation of the graft, where the scion; that is to say, the small branch that one enters, converts the sap of the trunk, on which it is grafted, into its own nature. This does not appear to happen except as a consequence of the extreme filtration which the juice of the stem receives, passing through the fibres of the graft; instead, in the transfusion, there is no appearance that the blood of the animals is filtered, so as to change the nature of one into that of the other.

3. But what this experience shows us most indisputably is that an animal can live on the blood of another animal, without it being necessary for this blood to pass by the ordinary route of management; and thus animals, which lack blood or which have corrupted blood, can receive, by this means, a sufficient quantity, which has commendable qualities; provided however that the transfusion is often repeated; because blood is a substance that the animal body consumes fairly quickly. (7)

It is therefore now only a question of seeing the success of transfusion. So we have to hear from the different people who have practiced it.

I. "I once transfused," said Mr. Lower, "the blood of a mastiff, into the vessels of a smaller dog, from which I drew a quantity of blood, which was at least double the quantity of his own. The mastiff was left dead on the table; and after having untied the little dog, he began to run and to shake himself, as if he had only been thrown into the water." (8)

II. Mr. Edmond King attests that having taken a calf and a sheep, both of a great species, and that after having prepared a jugular vein of both, he inserted the usual tubes and quill pipes therein, the calf being intended to provide blood to the sheep. Then he drew 49 ounces (have-of-weight) (9) of the blood of this latter animal, before introducing some of that of the calf: but then the company, in the presence of which the experiment was made, having judged that the sheep was very weak, and that the

blood flowed from it very slowly, he closed the vein of the sheep, and unblocked the tube adapted to the calf, from which he let ten ounces of blood flow into a pallet: which was done in about 40 seconds. Then, making the pipes of the two animals communicate, the blood flowed very freely from the vessels of the calf into those of the sheep, for five minutes. However, it did not seem to come out quite as quickly as the first ten ounces. And, so that there could be no doubt that the blood had flowed without interruption, during all this time, Mr. King was careful to strike often, with his finger, on the upper part of the vein, from which the blood was part; by means of which he easily felt that each stroke responded to the vein which received this fluid, in precisely the same manner as one perceives the action of the pulse. Having therefore supposed that in the space of five minutes the sheep had received as much blood and perhaps more than it had lost, the blood of the calf was stopped, and the vein of the sheep was closed. After having untied this last animal, they let it go into the room, where it appeared to be as well, and to have as much strength as before the loss of its own blood (10).

The same Mr. Edmond King says he made another experiment similar to the previous one on two such animals, and that the success was none the less fortunate (11).

III. Mr. Coxe transfused 14 or 16 ounces of the blood of an old mixed-breed dog, of medium size, and all covered with mange, into the vessels of a young spaniel of the same size, but who was doing very well; and no alteration was observed in the healthy dog: (proof that the Transfusion (12) did not harm him, as one might have guessed, for two reasons); but, in the space of ten or fifteen days, the mangy dog was perfectly cured. What happened to him, no doubt, as a consequence of the considerable evacuation he was made to do; and perhaps the great bloodletting is the quickest and the surest remedy, which one can use in the cure of this species of disease, whether one works on men or on other animals.

IV. According to an experiment by M. Gayant, the blood of a young dog was transfused into the veins of another dog, almost blind from old age, and which could hardly move, and two hours after the operation, the old dog began to jump and frolic.

V. The Frenchman, Mr. Denys, assures to have transfused (in March 1667) the blood of three calves into three dogs, and that after the operation, all the dogs ate as well as before. He adds that one of the three dogs having lost so much blood that he could hardly move any more, the next day recovered all his strength, and showed a surprising vigour, as soon as one had passed through his veins a sufficient amount of calf blood.

VI. The same person wrote from Paris in England, that he had transfused the blood of four sheep into a horse of twenty-six years, which became much stronger by it, and had more appetite than usual.

VII. They report a transfusion experiment, done in London, which seems to me more satisfactory than any that has been mentioned so far, but the author is not named. It was done on a bitch, from which nearly 30 ounces of blood was taken during the operation, and the same was given back. Not only did this animal survive this operation, but it suffered, a short time later, another much more dangerous and cruel experiment: its spleen was completely cut off, without binding the vessels, from which this viscera had been separated: nevertheless, from that time, she was covered by a dog, even before her wound was totally healed; she became full, had babies, and appeared, after all this, as good and as cheerful as usual.

VIII. On 8th May 1677, in Bologna, Italy, a transfusion experiment was performed on two lambs of the same size. The blood of the carotid artery of one was transfused into the jugular vein of the other, from which as much blood had been drawn as it had been judged to be able to substitute for it. Two ligatures rather close to each other were made to the vein of the animal which had received the blood; and the part of the vein, included between the two ligatures, was taken away entirely, after which the lamb was untied, which did not give while walking any sign of weakness; and his

wound having healed, he grew and became as strong as the other lambs; but he died on 5th January 1678. It was opened, and his stomach was found to be filled with corrupted food. (13) Its neck having been dissected, to see what had happened to the vein, which had been cut apart, it was noticed that it had joined by some fibres to the neighbouring muscle, and that the upper part of this vein had a communication with the lower one, by means of a small branch, which could, in a way, take the place of the whole trunk.

IX. On 20th May 1668, in the Italian city of Udine, the blood of a lamb was transfused into the veins of a medium-sized spaniel, thirteen years old, of which for more than three, he had reached such a point of deafness that, whatever noise they made near him, he gave no sign that he heard. He hardly came out of a place; yet it was with so much weakness, that he could not stand on his feet; he dragged himself rather than walked. When he had undergone the transfusion experiment, he remained on the table for an hour, though he was entirely untied; but, after this time, he jumped down, and went to his masters, who were in other rooms. Two days later he left the house, and ran through the streets with the other dogs, without dragging his feet, as he had done before. His appetite returned; he began to eat more, and even with more greed than usual; but, what is most surprising is that, from that time on, he gave signs that he was beginning to hear, sometimes returning to the voice of his masters. On the thirtieth of June he appeared almost entirely cured of his deafness, and, without comparison, much more cheerful than before the operation. Finally, on the twentieth of the following month, he fully recovered his hearing. Except that he returned to the voice, beyond the one who called him, as if he had been at a very great distance from it. (14) But that did not always happen. At other times he always heard when he was called. (15)

Let us pass on to the method of transfusing the blood into the veins of men; being a little different from that, which can be practiced with respect to other animals.

We will use a silver pipe, with a stopper of the same material, a little blunt at one end and flattened at the other, in order to be able to hold it more conveniently; and we can do the operation in the following way. After having prepared the artery of a lamb, of a cow, or of some other animal, we will make a ligature to the arm, or to some other part of the body of the man, on which we propose to make the transfusion. This ligature must be tight enough to swell the vein at the place where it is intended to put the slender end of the silver pipe, which must be prepared in such a way as the silver stopper, introduced into this pipe, reaches, by its blunt end, a little beyond one of the ends of the pipe. The subject's skin will then be divided, as is customary practice in the precautionary operation, and precisely above the vein, which we want to open. After which this vein will be opened with a very fine lancet; or, if you want, if the vessel is high enough and looks good, especially when the skin is thin, you can open the skin and the vein at the same time, as you do in ordinary bleeding. Take care that someone applies to his finger, either a small, prepared compress, or finally something similar on the vein, a little below the orifice, to prevent the blood from rising; from and keeping this position, the blunt end of the pipe will be introduced into the upper part of the vein. When he gets there, it will be held between his fingers tightly against the skin. Then, we will remove the stopper of the pipe, to insert there the small channel, by which the arterial blood of the animal must pass into the body of the man, and we will finish the remainder, according to the method that has been described above.

Let us now see the effect of this experiment on a man. It was made on 23rd November 1667, by Doctor Richard Louver [Lower] and Mr. Edmund King, on Mr. Arthur Coga in the manner which will be described.

After having prepared, say these gentlemen, the carotid artery of a young sheep, we made an incision in the vein of the arm of Mr. Arthur Coga, following the method just mentioned; without changing anything, only in the form of one of our pipes, which seemed to us more suitable for our purpose. Having made the opening, as easily as

one practiced ordinary bleeding, we let out six or seven ounces of blood. So we fitted our silver pipe into this incision, and made it communicate with that of the sheep, by means of other pipes, nested one inside the other. The blood flowed very freely from the artery of the animal, into the vein of man, for the space of two minutes, at least; so that one could feel the action of the pulse in the vein, precisely beyond the end of the silver pipe. Mr. Arthur Coga, on whom the experiment was made, said that at the instant of the passage of the arterial blood into the vein, he had not felt the warmth of this new blood; although it had been told in England that this circumstance had been observed in such experiments made in France. But this difference could very well come from the fact that, in the English experiment, the pipes which transmitted the blood were long enough to cause the arterial blood to lose part of its heat, which put it at the same degree as that of venal blood. We can assure that the blood flowed without interruption during the duration of these two minutes; 1st: because we felt the pulse all this time; 2nd: because the instant we took the tube out of the vein, (on what Mr. Arthur Coga told us, that he thought he had enough) we observed that the blood of the sheep was flowing through this full channel tube. This would not have happened, if there had been some obstacle, during the duration of these two minutes; seeing that the blood has a very great disposition to coagulate in the channels, at the slightest hindrance; mainly because they had three quill pipes in length. By the quantity of the sheep's blood which we received in a pallet, while letting it flow through the pipe, we judged that it had passed about nine or ten ounces, into the veins of Mr. Arthur Coga. Nevertheless, after and during the operation, this man was in very good condition (16).

Here is a part of the experiments favourable to transfusion. The Academy of Sciences of Paris did not fail to submit for its examination a question, which could have very advantageous or very disastrous consequences. “In 1667”, says M. de Fontenelle (17), “there was much noise about a new discovery, of which the English had all the glory (18), but which the French were improving day by day; it is the famous blood transfusion, founded on the circulation, which seemed to promise, with an infinity of curious experiments, the cure of all the diseases, which make in the blood, and an almost complete renewal of medicine: this operation, which had at first been attempted only on dogs, and by became so easy that one began to perform it boldly on men. Some philosophers have already carried their ideas to the point of believing that, by the transfusion, one would change vicious characters, and that the blood of a lion, for example, would be cured of cowardice; but what touched everyone even more was the hope of being younger.”

“One examined in the Academy, a matter so important: the operation was made there on dogs, up to seven times, and it does not succeed as it did in England, and even in France, among the partisans of transfusion. In the first experiment, the dog, which received the blood in one of the veins, which issued from one of the arteries of the other, died; and the right ventricle of the heart and the superior vena cava, were found full of curdled blood. In the other experiments, the one who received the blood was almost always weak; whereas whoever gave it was doing very well; which is again directly contrary to the intention of transfusion. It always appeared that the blood which passed from one to the other curdled in the vein of the one who received it. And from there it was judged that there was very little. It is admitted, however, that some experiences were favourable to the defenders of transfusion; but the Parliament of Paris defended it by a decree.”

“Mr. Duhamel reports”, continues M. de Fontenelle, “that being in London in 1669, M. Blondel and himself saw a very robust man, on whom they had given the transfusion to cure him of madness. He was none the less mad, and did not run the streets any less than before. The most reasonable thing was that he called himself the Martyr of the Royal Society.”

"Thus vanished", concludes the pleasant and elegant historian, “the discovery of transfusion, which had kept the minds of philosophers in motion for quite a long time and had given them rather flattering hopes."

If there were only a few slight differences, between the results of the experiments of the Academy of Sciences of Paris and those of England, one would be excusable in considering this question as sufficiently examined; but the effects make it so directly opposed, that one cannot help suspecting some want of precaution, or of good faith, on either side.

So that there would not have remained any doubt as to the accuracy of the experiments of the Academy, it seems to me that it was appropriate that they were made to do, by those who boasted that transfusion had succeeded. M. Denys said wonders of his own; he did them in the same year, and in the same city as the Academy; he only had to borrow his hand. We knew what happened to the famous Mariotte, who wanted to repeat Newton’s experiments on colours; he missed them.

Thus, when transfusion is only a curious experiment (which I am very far from thinking) one should be inclined to renew it, by the sole opposition of the facts. Nothing is enough in the Academy of Sciences; and, in another corner of the same town, as well as in England, the impotent walk, the deaf hear, the old are getting younger; this is striking, and at least deserves to be examined. What do we know where this could lead? M. de Réaumur, whom I would gladly call the Law of the Prophets in experimental physics, did he not demonstrate by incontestable facts, that one could, without much art, provide insects a life three times their natural duration?

However experiments, which I would recommend more strongly, and on which I would count more readily, would be those of some ordinances of Aesculapius that I find in this place of M. de la Bruyere, which I am going to shorten a little: “Irene travels at great expense to Epidaurus (19), sees Aesculapius in his temple, and consults him on all evils. I am tired, she said to him, and overwhelmed with fatigue; the length of the road is the cause, answered the God, rest. I have no appetite at night; eat little. I am prone to insomnia; only be in bed at night. I am getting heavy; get up before noon, and use your legs. Wine is harmful to me; drink water. I have indigestion; go on a diet. My vision is weakening; take glasses (20). I weaken myself; you get older. But what remedy for this languor? The shortest thing is to die, like your mother and her mother did. Son of Apollo, cries Irene, what advice do you give me? Is this the road to this science that men publish, and which makes you revere all over the Earth? What do you teach me rare and mysterious? And do I not know all these remedies that you teach me? Why do you not use it, replies the God, without coming to seek me from so far away, and shorten your days by a long journey.” (21)

Such ordinances, scrupulously put into practice, would undoubtedly be the most sovereign remedies, and the most infallible preservatives against most diseases, if men could resolve to be sober and continual. Nevertheless, as it seems that they will always adapt better to vices which destroy them, but which move them, than to virtues which preserve them, but which do not affect them, it is necessary to have recourse to a more sought-after Arc.

One will find in the book, of which I present here the translation, all that the study, the practice and the observation could, it seems to me, to cover more effectively for the cure, or the relief of the chronic diseases; that is to say, long-standing or habitual illnesses, such as gout, dropsy; asthma, etc., of all those finally, which come from a temperament worn out by incontinence, bad diet and debauchery; which are so common in rich and sumptuous cities, and so considerably shorten the natural duration of human life, after having made it a long chain of misery and pain.

It is the work of a physician of great experience, of a distinguished mathematician, of a circumspect philosopher; and, what I esteem more than all that, of a good man, who moved over the miseries of humanity, put pen in hand to share his treasures with his fellows. I conceived this idea by the translation of his book; and it has come

to my knowledge very few particulars about his person. I only knew his name was George Cheyne; that he was Scottish; deep mathematician; doctor and grand practitioner in medicine; from the Royal College of Medicine in Edinburgh, capital of Scotland; and the Royal Society of London; where he was still living in 1742, when the third edition of this work appeared, and that he has been dead, I have been told, for four or five years. It is well known, in France, by a book of its composition, highly esteemed by doctors, and very useful to those who are not, which has the title: The Art of Preserving Health; and the extent of his high knowledge will be judged by the list that I will give (22) of his other works in mathematics, philosophy and medicine.

As for this one, I did all I could to make the translation faithful and intelligible; and I dare to flatter myself, that those who take the trouble to compare it with the English text, will be grateful to me for not having passed anything into our language in the style of my author. For, although the English language is by itself very simple, and perhaps the clearest and most concise of all the languages, known to be knowledgeable these days; however English in general, but especially M. Cheyne in particular, neglect the correctness of style so much, that this inattention or this indifference cost me a thousand times more work than the substance of things. We often find long sentences, which take a whole page, large parentheses, which contain others of the same size, transpositions of ideas; which extinguish the clarity of meaning, and I do not know how many other irregularities.

Thus, independently of the difficulties of the doctrine, I had to fight those of the style. But not wanting to take anything on my account other than the desire to be useful, I turned to the Faculty of Medicine of Paris, which had the kindness to appoint three commissioners to examine the substance of things, and the quality of the translation. All these gentlemen are no less distinguished by their great knowledge than by the titles which announce them. Mr. Falconnet is the King's Doctor of the Académie des Inscriptions and Belles-Lettres; M. Mallouin is from the Royal Academy of Sciences, and M. Cantwel from the Royal Society of London. We can see, by the approval they have given me, the esteem they make of this work. But I feel compelled to publish on my own that their excellent advice has been of great help to me. M. Cantwel, above all, of whom the English native is the native language, took for this work the sentiments of the father; he enriched it with several marked notes, M. C. [sic] and had the courage to shake up all the places, which seemed to him to present a suspicious meaning. I am completely impressed by the warm welcome he gave me, and the essential services he rendered to my translation. An example which cannot be too imitated; but authors and judges would have to convince themselves that, when it comes to true criticism and public good (23), it is flattering not to spare.

End of the Translator's Preface

REFERENCES / COMMENTS

(1) See Philosoph. Transact. No. 454, for the year 1739
(2) The Chinese believe in Metempsychosis
(3) See the Memoirs of China: by Father Count: there he speaks of a Chinese who became a Christian, for fear that by remaining in religion, he would become a post-horse after his death.
(4) We will soon say what we mean by Transfusion.
(5) It is generally agreed that the discovery of the circulation of blood is due, in Europe, to Harvey, the English physician, who published it in 1628. See the Dictionn. Encyclop. de Chambers, to the word Circulation.
(6) See the Dictionn. Encyclop. de Chambers, to the word Transfusion.

(7) It is not said in the transfusion experiments that the pipes have been given a suitable degree of heat. However, this precaution seems to me necessary, lest the blood coagulate in the passage.
(8) This experience appears to me to be faulty, in that we are not told what subsequently happened to this animal.
(9) Ounce (Have-of-weight); the English have two kinds of pounds which are very important to them. The one they call Have-of-weight, contains 16 ounces; and the Troy-weight in which one pound weighs only 12 ounces.
(10) There is still the same defect here as in the previous experiment; the sheep not having lived long enough for one to be able to be incontestably sure of the advantageous or disastrous consequences of this operation. For we admit that immediately after we resolved to bleed, that we really bleed the sheep to death,
(11) But, as these animals have not been allowed to survive long enough, the experiment is not complete.
(12) If this experiment did not have the same defect as above, and if we had indeed noted the duration of its effect; we would have here a clear proof that transfusion is very suitable for rejuvenation.
(13) Experiments VII & VIII are preferable to the previous ones; because the animals have survived the transfusion long enough for the effects of this operation to be judged solidly.
(14) This shows, it seems to me, that the animal did not hear perfectly. He probably never came back beyond the term, because hearing only weakly the voice seemed to come from very far away.
(15) This experiment deserves to be noticed, and should suffice on its own to revive transfusion, at least with regard to animals, which are the most useful or the most expensive.
(16) See the third volume of the third edition of Transact. Philosophical by Lowtorp [Lowthorp], printed in London,
(17) Volume I. of the Memoirs of the Academy of Sciences.
(18) We have seen above on what grounds this fact is contested.
(19) Epidaurus, City of Greece in a peninsula, which the Greeks called Peloponnese the Romans Achaea and which the Turks, to which it belongs, today call Morea. It is very close to the Archipelago, in the Mediterranean. “Between the Temples, which the Greeks had built in honour of Aesculapius, that of Epidaurus held the first rank; he was five thousand from that City, and we saw there the statue of God, composed partly of gold, part of ivory, by the hand of Theodotus, famous Sculptor. This statue was of extraordinary size, it represented the God seated on a throne, holding a staff in one hand, and leaning with the other on the head of a dragon, with a dog at his feet … inside this temple one read in several columns the names of those who had been cured by God, with a description of each disease, of which they had been treated... There was also a famous Temple of Aesculapius in the Isle of Cos (today Lango, near the Coasts of Anatolia in Asia Minor, quite near Halicarnassus), which was burnt down in the time of Hippocrates, to whom this Isle gave birth. We saw there various tables or various paintings, in which were described the remedies, which God had indicated to several sick people, who had been healed by this means, and who had these paintings hung in his temple, as a public testimony of their gratitude; and so that the same remedies can be used by other people who have the same illnesses. It is said that Hippocrates had copied what was written on these paintings, before the temple was burnt, etc.” (See the History of Medicine, by Daniel le Clerc, pag. 59 and 60) One can judge that these temples and statues are no less monuments of the wisdom of those who raised them, than tributes of their gratitude. To reward merit is to multiply it. Because we understand well, that Aesculapius is only a man whose rare talents and important services attracted him divine honours, on behalf of those who felt his benefits. But, if the merit rewarded, is properly a service, rendered to all mankind; as it is only distinction that flatters, the honours spread over common souls, by extinguishing emulation, stifle the germ of fine deeds, and dry up one of the greatest sources of public good. The only idea, which then supports the great souls, is that a statue, raised by flattery or by favour, will soon be destroyed by history.
(20) It is apparently, by a poetic license that M. de la Bruyere gives us glasses as a known invention from the time that Aesculapius returned his oracles in Epidaurus. “It is

certain, throughout history, that glasses were unknown to the Ancients; although their invention is not as modern as that of the telescopes. Francisco Rédi claims, in a very earlier treatise on glasses that they were invented in the thirteenth century, between 1280 and 1311; and he adds, that Alexandre Despine, Monk of the Order of Preachers of Saint Catherine in Pisa, was the first to publish the secret, which was of his own invention; and that he was determined to share it with the public, on the news he received, that another person had this secret, as well as himself. This history is written in the chronicles of this convent. The same author tells us, that in an old manuscript, which he still had in his library, and composed in 1299, one speaks there of glasses, as of a completely new invention: and that a famous Jacobin, named Jourdon of Rivalto expressly says, in a treatise composed in 1305, that it was not yet twenty years since glasses were discovered. He also quotes Lilium Medicina by Bernard Gordon, written in the same year. This doctor talks about eye drops, able to condition the elderly to read without glasses. However, Du Cange traces the invention of glasses much further back, by assuring us that there is in the king's library a handwritten Greek poem, in which it appears that glasses were in use in 1150, etc. (See the Dict. of Chambers, at the word glasses; that is to say, spectacles.) Regardless of the diversity of these opinions; as more than 2500 years ago, that Aesculapius held his temple in Epidaurus, he has not been able to prescribe a known remedy, at most, for 600 years.

(21) See Volume II of Characters, etc. by M. de la Bruyere, from the 1740 Edition,

(22) At the end of volume II.

(23) Mr Bruhier, censor of this work, and very careful not to let anything go, which may suffer some doubt as to its accuracy, pointed out to me, that Mr. Cheyne allowed himself guess work, which could abuse the multitude of spirits, accustomed to think by others. I therefore agreed to delete them in the body of the work. But having made reflection then, that the singularity of these ideas, to be able to fervour to the history of the human spirit; lest I be accused of having removed some material from it, I thought I should report here the substance of these conjectures, putting aside the necessary corrective action. The first place, which I deleted, is on page 4, n^{o} 3, of the English text: the author appears there to be convinced, “the principle of generation being only in the male, as the best natural philosophy teaches, the division of the sexes supposes a need, or something lacking, and the beginning of a fall; and that the author of nature only used it as a prop, to support a building that threatens ruin; for, he adds, if the final causes are susceptible of some evidence, it is clear, by the nature of things, that the action of placing two equal human souls, in two bodies, which have no other difference, than to be differently represented, must have been after the first design of their creation.” That is to say, in creating souls, to preside over the bodies of men: the division of the sexes was not entered into the first design of the creator. But the revelation, contained in our Holy Bible, does not say anything that can promote this idea; on the contrary, it tells us very expressly that Man and Woman were created, long enough before their fall. In the second (page 5, n^{o} 4), it is a question of explaining why the soul of man remains so long enveloped in the seminal corpuscle: “There are many conspiracies to lose, says the author, for those who would like to discover by what wisdom the creator of the body and the soul, so long confined the immaterial substance, endowed with all its faculties, in a prison as narrow as that of a seminal particle; that is to say, during all the time of the duration of the intangible spirit, from its creation & that of the organized body, until this one arrives at its last development or at its point of maturity. We feel, in sleep that the soul acts imperfectly, in comparison with the waking state; it is without consistency in debauchery; and in syncope or any other similar nervous toxin, it is hardly felt any more. However the essence and the real energy or capacity of the spiritual substance is uniformly the same; there is only the organic machine, which is disturbed, and which cannot play as it usually does. All that we can therefore conclude from these effects is that providence has proposed itself, perhaps, some moral end, in this long prison of the organic corpuscle, where it has thrown the spiritual substance; would it not have been to purify or to punish, or perhaps she has thus limited and concentrated the natural powers of the soul, only to bring them on a level with her moral faculties; so that both may equally and at the same time develop and increase.” Besides, adds the author, “I give all this only as a simple philosophical conjecture.” But the Catholic faith does not admit that the soul is enclosed in the seminal corpuscle; it would be a species of pre-existence of souls,

since, according to the philosophy of germs, all men having been created in Adam, it would be necessary, according to the author that all souls had been lodged there from the moment of their creation. This is why this feeling is condemned by the Council of Vienna, whose decision is adopted by the Catholic Church. It is also contrary to the doctrine of the church that the prison of souls for such a long time can serve to purify them. Only baptism can wash away the original stain. There is a third place that I deleted on page 50, n^{o} 40, but, as it is, more or less, in the taste: of the two preceding ones, it would be rather useless to give an analysis of them. However, I will not leave this article, without publicly doing justice to Mr. Bruhier, on the attention with which he fulfils the various functions attached to his state. Independently of what I knew of it myself, on the occasion of censorship: of this work, the public has very well noticed, that its extracts appear with distinction, in the Journal des Sçavans. It is he who holds the pen there, for all that concerns medicine. His name is celebrated in France and in England, by a work of its composition, on the uncertainty of the signs of death, and the terrible danger of hasty burials. Everyone has the greatest interest in reading his researches and observations, which appear to me to be very authentic, and unfortunately too true. And it seems to me that the magistrates of all nations should take, in very great consideration, the advice of this author; not only to save the lives of an infinite number of unfortunate people, but also not to be exposed themselves, to being buried alive. Those who, like M. Bruhier, generously render service to the public, deserve public recognition: this is why, I must not forget here M. de Romieux, Secretary General of the Navy, friend of humanity, lover of Les Belles-Letters, and of all those who cultivate them, for the benefit of the human kind. His library, which contains a large number of very good English books, has been very useful to me in my various works; and, in particular, in this one: but the character of his person obliges even more than his services. And I would have much more to say about this good citizen, if I was not persuaded that the best way to recognize the services of generous hearts, is to acknowledge them.