

Farther observations on the poison of lead / by George Baker.

Contributors

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XX. *Farther Observations on the Poison of Lead*, by GEORGE BAKER, M. D. Fellow of the College of Physicians, and of the Royal Society, and Physician in Ordinary to Her Majesty.

Read at the COLLEGE, DECEMBER 11, 1771.

SINCE the edition of the first volume of *the Medical Transactions*, several observations have occurred to me concerning the poison of lead. I have likewise received from my friends several articles of information on the same subject. These are here thrown together, as serving to illustrate what was offered in my former papers, and to add farther weight to my general opinion.

E e 2

WHAT



WHAT immediately follows, is an extract of a letter which I received from Dr. Wall, of Worcester, to whom I was formerly obliged for some important remarks, when I first began this enquiry.

“ I HERE transmit to you some
“ facts, which may serve to confirm
“ your doctrine, that *the poison of*
“ *lead may gain admittance into the*
“ *human body, unobserved and unsus-*
“ *pected.* A gentleman of this town
“ was the father of a numerous off-
“ spring, having had one and twen-
“ ty children, of whom eight died
“ young, and thirteen survived their
“ parents. During their infancy, and
“ indeed untill they had quitted the
“ place of their usual residence, they
“ were all remarkably unhealthy;
“ being particularly subject to disor-
“ ders of the stomach and bowels.
“ The father, during many years, was
“ paralytic; the mother, for as long
“ a time,

“ a time, subject to colics, and bilious
“ obstructions. She died at last of an
“ obstinate jaundice. This disease had
“ been several times removed by the
“ use of the Bath-water; but it
“ always came on again soon after
“ her return to Worcester; and at
“ last eluded every method and me-
“ dicine which was tried.

“ AFTER the death of the parents,
“ the family sold the house which
“ they had so long inhabited. The
“ purchaser found it necessary to re-
“ pair the pump. This was made
“ of lead; which, upon examination,
“ was found to be so corroded, that
“ several perforations were observed
“ in the cylinder, in which the
“ bucket plays; and the cistern in
“ the upper part was reduced to the
“ thinness of common brown paper,
“ and was full of holes, like a sieve.
“ The waters of this town are re-
“ markably hard. They curdle soap;

“ coagulate milk ; let fall a large
“ precipitate upon the addition of
“ an alkali, either fixed or volatile ;
“ and, in dry seasons, taste bitter and
“ aluminose. They consequently con-
“ tain a calcareous earth dissolved by
“ an acid, which appears to be of
“ the vitriolic kind. Though such
“ an impregnation may not make
“ water a perfect menstruum of lead,
“ yet it certainly may make it ca-
“ pable of corroding that metal ; and
“ therefore the caution of Galen and
“ Vitruvius, with respect to the use
“ of leaden pipes, for the purpose of
“ conveying water, as cited by you,
“ appears to be well founded, for the
“ reason which you have assigned, viz.
“ because so much lead may thus be
“ mechanically mixed with, and sus-
“ pended in water, as to communi-
“ cate to it noxious qualities. The
“ foregoing account fully confirms
“ the truth of your observations ; and
“ indeed

“ indeed it is more than probable,
 “ that the water of this pump, thus
 “ mixed with lead, did occasion the
 “ unhealthiness of the family, who
 “ drank of it. Since I wrote what
 “ is above, I have been informed by
 “ the plumber employed by that fa-
 “ mily, that he had several times re-
 “ paired the pump; and particularly
 “ that he had done so not more than
 “ three or four years before the gen-
 “ tleman’s death; and that he then
 “ found it nearly in the same state as
 “ it has been described; so that the
 “ corrosion was effected in a short
 “ time; and consequently the water
 “ must have been very strongly im-
 “ pregnated with the noxious quali-
 “ ties of the metal.

“ IN a former letter, from which
 “ you made some extracts, I men-
 “ tioned the case of a woman, who
 “ was afflicted with the usual sym-
 “ ptoms of the colic of Poitou, oc-

“ caused by drinking cyder, which
“ had been made at a press, the bot-
“ tom of which was covered with
“ lead. Since that, I have had two
“ more patients from the same vil-
“ lage, who were affected in the
“ same manner, and from the same
“ cause. One of these was a farmer,
“ in good circumstances, who had
“ had frequent returns of the dry-
“ gripes, which at last left him with a
“ tremor in his hands, and great
“ weakness in his wrists. As he
“ was ignorant of the true cause of
“ his complaints, he had drunk his
“ cyder at intervals, during his whole
“ illness, untill I acquainted him of
“ the dangerous tendency of it. He
“ then recollected that the pains in
“ his bowels had constantly used to
“ come on, after he had made a
“ more free use than ordinary of that
“ liquor. The other was my pa-
“ tient in the Worcester Infirmary.
“ When

“ When he was admitted into the
 “ house, he had great pain and con-
 “ stipation in his bowels; his wrists
 “ were paralytic; and the back of
 “ his hands much swoln. He told
 “ me, that, for several years, he had
 “ usually been afflicted with the dry
 “ gripes in the spring, viz. about the
 “ time when the cyder, made in the
 “ preceding autumn, began to be
 “ tolerably fine, and fit for use. That
 “ season had been remarkably wet;
 “ so that the apples had not ripened
 “ well, but the juices of them were
 “ crude and immature. The cyder
 “ therefore was more austere and
 “ acescent than common; and on that
 “ account must have acted more pow-
 “ erfully on the metal, than it usually
 “ had done in more seasonable years;
 “ and for that reason the liquor had
 “ now had a more violent and per-
 “ manent effect on him than form-
 “ erly.

“ I am

“ I am inclined to think, that cyder,
“ made in mills or presses, in which
“ lead is used, is more or less noxious
“ in proportion to its age. It seems
“ probable, that part of the metal
“ may sink down with the lees, especially
“ where it is only corroded
“ or mechanically mixed with the
“ liquor; and therefore that the cyder,
“ which is of a considerable age, and
“ especially such as has been frequently
“ racked off from the sediment,
“ may be in a great measure
“ freed from its poison. In some
“ parts of Gloucestershire, especially
“ where the cloathing manufactures
“ are carried on, the cyder-presses
“ are usually covered with lead; and I
“ have been informed by some persons of
“ undoubted credit, that, if their workmen
“ drink their cyder whilst it is new,
“ before it is well cleared, and has
“ thrown down its sediment, which
“ they

“ they are very apt to do, most of
 “ them are affected with pain in their
 “ bowels, and weakness in their
 “ wrists; but that, if they do not
 “ drink it untill it is of a proper age,
 “ they escape better, and seldom ex-
 “ perience such effects *.

“ I should sooner have transmitted
 “ this paper to you, but that I have
 “ waited to have the effects of the
 “ saturnine applications, so much re-
 “ commended by M. Goulard, ascer-
 “ tained. Upon very frequent trials,

* Hence probably it happens, that such patients are sometimes found in the Bath hospital, from the county of Gloucester, and rarely any from that of Hereford or Worcester. “ All such paralytics,” says Dr. Charleton, “ come to our hospital from
 “ the counties of Devon, Somerset, Gloucester,
 “ and Cornwall. It is a very remarkable fact, that,
 “ during the thirteen years to which this enquiry
 “ extends, there has been only one such patient
 “ sent us from Herefordshire, and not one from
 “ Worcestershire.”

See *An enquiry into the efficacy of warm bathing in palsies*, by R. Charleton, M. D. Physician to the General Hospital at Bath, page 81.

“ our

“ our surgeons have found, that the
“ *acetum lithargyrites*, or *extrait de*
“ *saturne*, as M. Goulard calls it,
“ does really deserve, in a great de-
“ gree, the character which he has
“ given of it. They have applied it,
“ with considerable success, to in-
“ flammatory and indurated tumors,
“ even in some cases which had re-
“ sisted every other method. It has
“ been particularly beneficial in the
“ *hernia humoralis*, and in some pu-
“ trid ulcers ; but in the latter case
“ it does not produce its effects so
“ certainly ; sometimes doing nothing,
“ and sometimes seeming to affect the
“ bowels. In general, it is found to
“ allay inflammations very speedily.
“ In such instances, does it not seem
“ to produce its effects by destroying
“ the nervous influence, and so tak-
“ ing off the spasm and irritation,
“ rather than by any resolving power,
“ as M. Goulard supposes ? In recent
“ strains,

“ strains, contusions, fractures, &c.
 “ M. Goulard’s application, together
 “ with a small porportion of spirit
 “ of wine, is found to be of excel-
 “ lent use; and to abate the swelling,
 “ and take off the tension, sooner
 “ than *spiritus Mindereri*, or any
 “ other of the common external ap-
 “ plications.

“ WORCESTER, MAY 30,
 “ 1770.”

By the favour of Dr. Addington,
 I have received from Dr. Hemming,
 of Crookhern, in the county of So-
 merfet, an account of the following
 fact. “ A farmer, in the year 1768,
 “ when great quantities of cyder were
 “ made in these parts, bought a
 “ wooden cistern, which contained
 “ about fourteen hogsheads, and lined
 “ the inside with sheet-lead, to the
 “ amount of six or seven hundred
 “ pounds weight. Into this vessel
 “ he

“ he poured his newly-made cyder ;
“ where it remained near a month,
“ and in that time underwent several
“ fermentations. The farmer, not ap-
“ prehending that any bad conse-
“ quence would attend it, drank of
“ this cyder himself, as did his fa-
“ mily. Several hogtheads of it were
“ likewise sold. All, who drank this
“ liquor, were seized with violent
“ spasms in their stomach ; bilious
“ vomitings ; a great tension about
“ the *abdomen* ; and obstinate cos-
“ tiveness. The farmer, and some
“ others, lost the use of their hands.

“ CROOKHERN, JAN. 24,
“ 1770.”

I AM in possession of various other attestations, serving to prove, that lead, whenever it is suffered to come in contact with cyder, does very speedily communicate to that liquor a poisonous quality ; and likewise
that,

that, in several parts of this country, our cyder has actually had all those opportunities of being affected by the poison of lead, which have been particularly pointed out in my former papers on this subject. I selected the testimony of Dr. Hemming from a great number of similar testimonies, because it came from a physician of credit, who speaks of this accident from his own knowledge; who attended several of the persons affected; and who cannot be supposed to have been deceived with respect to the cause of the malady, or those effects of which he was an eye-witness. Before I quit this subject intirely, let me not forget to mention, that I learn from unquestionable authority, that the practice of suspending a large ball of lead in the weak, sour cyder, (such as usually comes to the share of poor labourers, who are particularly subject to the dry-gripes from the use of cyder) has been much

more common than I formerly apprehended *.

THERE is likewise another very mischievous practice prevailing in several counties, which ought not to pass unnoticed in this place; I mean that of drinking cyder out of earthen vessels glazed. Dr. Watson junior, when he was lately at Exmouth, saw several instances of the Devonshire colic, during the time of harvest, apparently from this cause. And a similar instance, not long since, fell under Dr. Charleton's knowledge, of six persons, who became at the same time paralytic, by drinking cyder, brought to them, while at harvest-work, in a new earthen pitcher, the inside of which was glazed. That the glazing was dissolved by the liquor, appeared not only by the effects, which the drinking of it produced, but likewise from its having

* This practice is mentioned by Dr. Charleton, in his treatise referred to above.

given

given (as these persons informed Dr. Charleton) that astringent sweetish taste to the liquor, by which the solutions of this mineral are peculiarly distinguished *.

AN enquiry † concerning the true
cause

* See Charleton's Enquiry &c. page 80.

† In an essay on this subject, *Med. Transf. vol. i. p. 181*, I cited a passage from the preface to a french pamphlet, written by an anonymous author, wherein there is an intimation, seeming, in some measure, to correspond with the idea which had appeared to me to be more than probable. But I added, that it seemed evident from what the same writer said afterwards in the same pamphlet, that he was very far from having formed any decisive opinion concerning the cause of the colic of Poitou.

In a note, added to a late edition of this pamphlet, I find the following words: "Voilà donc
" mes soupçons éclaircis, et pleinement justifiés
" par ces observations. M. Baker a démontré en
" 1767 le fait que je n'avois fait que conjecturer
" en 1757: ainsi je lui dois des remerciemens
" d'avoir donné la preuve de ce que j'avois ima-
" giné. Mais qu'il ne dispute pas à ma con-
" jecture le droit de dix ans d'ainesse qu' elle a sur la
" sienne! Je serois assez content, si je pouvois
VOL. II. F f " me

cause of the Devonshire colic, naturally led me to the consideration of
a similar

“ me flatter (ce qui n’est par absolument sans
“ fondement) de l’avoir mis sur la voie, et de lui
“ fait naître l’idée des recherches qu’il lui a été
“ très facile de faire. J’espère qu’en faveur des rai-
“ sons, que j’allégué, il voudra bien dorenavant
“ me pardonner de n’avoir pas affirmé positive-
“ ment un fait dont la démonstration me man-
“ quoit, et qu’il m’a fournie.”

I am desirous to pay all due honour to this learned and acute physician; but, in the present case, I cannot acknowledge the justice of his pretensions. It might easily be proved, that my paper had some time been prepared for the press, before I ever saw the pamphlet in question, or any part of it; and that what I cited from it was added by interpolation. But the truth of what is here said, will hardly be doubted by those who know, that this very lively piece of criticism, written by a physician of Paris, in its first edition, was never allowed to appear openly at Paris. The gentleman, to whom I was obliged for the perusal of it, informed me, that he procured it in that city not without great difficulty, and as a mark of particular favour. In London, it has hitherto been generally unknown, as well in public and private libraries, as in the shops of booksellers.

Having again read over this pamphlet, I have found no reason to alter my original sentiment: I must therefore demur to the claim of *prior occupancy*;

a fimilar difeafe, which has been endemic in the Weft-Indies. And, having

pancy; and I am apt to think, that an unprejudiced reader, who fhall have leifure and inclination to confider the general tendency of this author's preface, and to compare it with what follows in the courfe of the pamphlet, will agree with me in opinion, that what was cited from the former part feems rather to have been thrown out accidentally and in the heat of difputation, than to have been delivered as a conjecture, which the author himfelf then thought probable.

Comparing the two editions of this pamphlet, I find a remarkable variation in one paffage. In the firft edition, p. 46, our author, having rejected five of the eight fupposed caufes of the colic of Poitou, procedes thus: " Il ne me reſte
" à parler que de la méthode curative, qui re-
" garde les trois premières caufes, ſçavoir la bile,
" les matieres minerales venimeuſes, et les vins
" verds et auſtères: or ces trois caufes (ſi tant eſt
" qu'il n'en faille pas retrancher encore la pre-
" miere) *quoique différentes en apparence*, pro-
" duifent, malgré ce qu'en peut dire M. Tron-
" chin, des coliques à *peu près* de même eſpèce,
" et qui ſe guériffent par une même méthode,
" dont on ne doit s'écarter, que relativement à
" de légères circonſtances. Voions cependant
" quels ſont les remèdes, qu'il conſeille pour ſes
" trois eſpèces de colique."

having had frequent opportunities of bringing this subject to a more strict examination, I am still farther convinced, that the dry belly-ache of those islands is neither to be considered as a disease, which the inhabitants owe to their climate, as some have supposed; nor, according to the opi-

In the second edition, p. 38, the latter part of this quotation is thus changed: “ Or, de ces
 “ trois causes (si tant est qu’il n’en faille pas re-
 “ trancher encore la première *et la dernière*) il ne
 “ resulta jamais, malgré ce qu’ en peut dire M.
 “ Tronchin, que des coliques de même espèce,
 “ et qui se guérissent par une même méthode.
 “ Voions cependant quels sont les remèdes qu’il
 “ conseille pour ses trois *prétendues* espèces de
 “ colique.”

From hence it manifestly appears, that, in the year 1758, this author had really conceived some doubts, whether *the bile* ought or ought not to be regarded as a possible cause of the colic of Poitou. But from hence it does by no means appear, that he had conceived the same doubts, with respect to *sour and austere wines*, until the year 1767. But let me not engage further in a controversy, so intirely uninteresting, and so unimportant!

nion

nion of others, as a disease produced by the inordinate use of the acid juices of certain vegetables. The truth is, that while our colonists in the West-Indies made their punch with newly distilled spirit, and drank it very strong and very sweet, they were perpetually subject to the colic; but that, having now learned to keep their rum to a proper age, and to drink their punch much weaker than formerly, and extremely sour, they in great measure escape that disease. I have heard it observed, that the servants, who drink the new rum by stealth, are particularly subject to this disease. It is likewise certain, that experience has now taught the West-Indians, that the juice of lemons and limes is so far from being the cause of this colic, that they frequently find in it a most efficacious remedy against its severest attacks. This observation was form-

erly mentioned; and it is now repeated upon the best authority. My suspicion that lead, which enters the composition of the apparatus for distillation, is the principal cause of this malady in the West-Indies, has already been communicated. But, upon farther enquiry, I discover, in several of those islands, more traces of that metal, employed in the preparation of rum and sugar, than I was formerly aware of. For first, the juice of the canes, being expressed by a mill, flows into a vessel lined with lead. From thence it is conveyed to the boiling-house through leaden gutters. Likewise the skimmings, which are taken off the liquor, during its decoction, as well as the malasses, are conveyed to the still-house through leaden gutters.

Much has already been said concerning the metallic mixture, which in general is used for lining copper vessels,

vessels, designed for the kitchen, in which composition lead bears the proportion of ten to sixteen of tin. As I have lately been instructed, the danger of this mixture does not arise merely from the probability that the saturnine part of it may be corroded by the acid juices of vegetables. It is very well known, that vessels, thus lined, frequently want repairing. The metallic mixture adheres to the copper by a very loose connection. Strong fire speedily disunites it; and it falls off in form of powder. And this appears particularly to be dreaded in the preparation of food *a la braise*, as the French term it, in which process fire is placed upon the cover, as well as applied to the bottom of the vessel.

LET me here take occasion to mention the common wine-measures; which, in this country as well as abroad, are made of a base kind of

pewter, wherein there enters a large quantity of lead. M. Roux, author of *Le Journal de Medecine*, when he was lately in this town, favoured me with the following observation on this subject: “ Le vin, qui est destiné au peuple de Paris, est ordinairement verd et foible, et par conséquent très disposé à l’acrescence. Cela va au point qu’en été, lorsque le tems est un peu chaud, une demie heure suffit pour le changer en vinaigre, s’il a le contact de l’air. Les marchands, qui le vendent, lui connoissant cette qualité, ne le distribuent jamais à ceux, qui vont boir chez eux, que dans des vaisseaux d’étain, dans l’alliage des quels il entre une très grande proportion de plomb. Il est bien evident, que le plomb ne peut empêcher ce vin de s’aigrir, que parce que l’acide, à mesure qu’il se developpe, l’attaque, se neutralise, et par là est mis hors d’état de reagir
“ sur

“ sur le vin, et d'en accélérer la de-
 “ composition ; ce qui arrive en effet,
 “ lorsqu'on le tient dans des vaisseaux
 “ de terre, de verre, ou de bois, s'ils
 “ ne sont pas bien bouchés.”

THE celebrated M. Rousseau * at-
 tributes the frequency of the colic of
 Poitou among the common people of
 Paris, to the use of poor sour wines,
 which have been suffered to flow over
 a surface of lead. The following is
 the passage alluded to : “ Les vins,
 “ qu'on vend en détail chez les mar-
 “ chands de vin de Paris, quoiqu'ils
 “ ne sont pas tous lithargirés, sont rare-
 “ ment exempt de plomb ; parceque les
 “ comptoirs de ces marchands sont gar-
 “ nis de ce métal, et que le vin, qui
 “ se repand dans la mesure, en passant
 “ et séjournant sur ce plomb, en dissout

* Emile, ou de l'Education, par Jean Jacques
 Rousseau, tome premier, seconde partie, page 34.

toujours

“ toujours quelque partie*.” M. Roux confirmed this observation, informing me, that the table, called *the counter*, on which the wine is measured at Paris, is covered with lead; that this table receives the liquor which is spilt in measuring, having for that purpose an hole in it, through which the liquor is conducted into a vessel placed underneath. The fact there-

* This practice is mentioned by an anonymous french writer; but he is of opinion, that the colic is but very rarely produced by it, because very small quantities of lead can be dissolved by such means. “ Les égouttures du vin, que débient nos cabarétiers, recües dans leur contoïr, qui est une espèce de cuvette garnie de plomb, s’aigrissent assez facilement, surtout en été, mais dissolvent si peu de ce métal, que très-rarement elles donnent la colique.” *Examen d’un livre qui a pour titre T. Tronchin de colica Pictonum, par un Medecin de Paris, p. 27.* I shall here only observe, what is confirmed by experience, that, if any part of the metal be dissolved in four wine, the noxious effects of such liquor cannot be absolutely ascertained. They will be relative to the peculiar constitution of those who shall happen to drink it. In some, they will be greater; in some less; and perhaps in others, none at all.

fore

fore being as M. Roufféau has stated it, the justice of his animadversion cannot reasonably be doubted; and since it appears that the colic of Poitou is much more frequent at Paris * than at London, its greater frequency there ought perhaps to be referred to this, as one of the principal causes of it. M. Dubois, who was more than twenty years physician to an hospital at Paris, called *la Charité*, and had therefore great opportunities of investigating and ascertaining the true cause of this species of colic, speaks of it vaguely, and without any precision; for, according to his notion, the same morbid effects may be produced by every noxious mineral and metal, almost without exception.

Mr. Gardane †, in his *recherches*

* It is computed by M. Gardane, that at Paris between five and six hundred persons have this disease every year.

† Censeur Royal, Docteur Regent de la Faculté de Médecine de Paris, Médecin de Montpellier, de la Société Royale des Sciences de cette même ville, et de celle de Nancy.

sur

sur la colique metallique, published at Paris, in the year 1768, has by the means of the same hospital thrown a very different light on this subject. Beginning from the year 1755, inclusive, he has published an extract from the register of that hospital, down to the end of July, 1767. Here we find, regularly noted, the trade and employment of each patient, who was admitted within the period above mentioned. The number is large; and it is observable, that painters, plumbers, and potters, make up a very great proportion of it. On a nearer examination of the other trades there mentioned, we generally discover, that lead, in some shape or other, has been more or less concerned. And the remainder of such patients, as seem to have had no dealing with lead in their daily employments, may, as it is observed by M. Gardane, be reasonably supposed to have contracted the disease by the use

use of wine, poisoned by a solution of lead.

WHEN I was considering the various unsuspected means by which this poison gains admittance into the human body, a very common, but dangerous practice, ought not to have been passed over without notice: I mean that of painting toys made for the amusement of children. It is well known, that children are apt to put every thing, especially what gives them pleasure, into their mouths; and it therefore can hardly be doubted, but that the disorders of the stomach and bowels, to which they are particularly subject, are multiplied by this practice; a practice, which lies the more open to censure, as it is of no real utility.

MUCH has already been urged against the use of the preparations of lead, as internal medicines; and cases have been related, tending to shew

the danger of small doses even of the *tinctura saturnina*, a tincture in which there can be only a very small portion of that metal. The particulars of the following case have fallen under my own observation. A young man, who had a gleet in consequence of venereal contagion, had been advised to take, twice every day, fifteen drops of *tinctura saturnina*, and to use an *injection*, in which was a solution of *saccharum saturni*. By these means the disorder was cured; but it was immediately succeeded by a dejection of spirits, restlessness, flying pains in the breast and arms, and a very uneasy sensation round the margins of the feet. Then followed costiveness, colic, jaundice, and stranguery. *Cremor tartari*, the common remedy in this case among the miners in Derbyshire, was tried, and with success. Of this medicine he generally took ten drachms every day;
2 and,

and, after six weeks, was intirely freed from his complaints. Having an opportunity of examining the phial, from whence the *tinctura saturnina*, which had been given to this patient, had been taken, I found in it a very large quantity of precipitated matter; so that it should seem that a part of the metal had been deposited; and that it could only be an extremely small quantity of it that had occasioned so much mischief. This history abundantly confirms the truth of what was before observed of the unsafe application of saturnine preparations to the purposes of internal medicine; since, in certain constitutions, very inconsiderable quantities of them are capable of acting as poisons; and since physicians have no lights by which they can come at the knowledge, in what constitutions (if such there are) they may be administered with security; and

and where their power of doing harm is particularly formidable. How far the solution of *saccharum saturni* *, used in the *injection*, as before mentioned, ought to be considered as having contributed to the mischief, I must leave undetermined. But I cannot help observing in this place, that it is greatly to be wished, that all the *injections*, commonly ordered for disorders of the *urethra*, were gone into disuse ; since almost every day's experience testifies, that such injudicious applications are, in the event, frequently the parent of obstinate and incurable obstructions of that passage. These indeed are not immediate effects of this compendious method of

* Dr. Charleton, in the treatise above referred to, mentions an instance of a palsy of both legs and arms, occasioned, in the opinion of a surgeon of great eminence, by an attempt to destroy venereal *verrucae* by rubbing them with *saccharum saturni*.

cure ;

cure; and it is on that account that they are the less regarded; but they are too apt to appear towards the latter end of life, and to become a cruel aggravation to the miseries incidental to old age.

Since an english translation of M. Goulard's treatise has been published, a certain preparation of lead, strongly recommended by that author, has been brought into general use. This, in skilful hands, has proved an efficacious medicine, particularly in those cases, which are above specified by Dr. Wall. But, as it is now received into private families, and is used as a domestic remedy by unexperienced persons (whose confidence in every new-fashioned medicine generally keeps pace with their ignorance) there seems to be abundant reason to fear, that the too much celebrated *extract of Saturn* does frequent mischief through misapplication.

tion. It is admitted, that it powerfully abates inflammation. But, can every external inflammation be abated with security? It checks cutaneous discharges. But are not some such discharges salutary? The truth of this reasoning has unfortunately been proved by facts. The gout, thus repelled, has been converted into a paralytic affection; and an humour on the skin, thus unseasonably suppressed, has been followed by various mischief. These indeed are objections to the external use of lead, in common with all other cold and astringent applications. I am, however, convinced, that this metal, even outwardly applied, has, in some instances, produced its specific morbid effects; and Dr. Hawley has favoured me with an account of the following curious fact, which seems to establish the truth of this observation.

“ A gen-

“ A gentleman, who had for many
 “ years had a fontinel in his thigh,
 “ finding that the pea was not suf-
 “ ficiently depressed by the usual
 “ bandage, for two or three years
 “ past, applied occasionally a piece
 “ of the thinnest * lead over the oil-
 “ skin, which covered the pea. This
 “ apparently answering the purpose,
 “ the oil-skin was by degrees omit-
 “ ted ; so that the lead was generally
 “ in immediate contact with the pea
 “ and the orifice of the fontinel. This
 “ was the case about the end of
 “ June 1771 ; when an uneasiness
 “ and oppression were felt at the
 “ *præcordia* and diaphragm, with
 “ anxiety and difficulty on making a
 “ deep inspiration. (This complaint,
 “ it is supposed, much resembled that
 “ which is not uncommonly called

* Taken from an Indian tea-chest : in size the
 piece was not equal to an inch-square.

“ by hospital patients, *a pain at the*
“ *heart.*) The disorder, daily increas-
“ ing, became, towards the end of
“ July, so grievous as to require the
“ serious attention of the person af-
“ flicted. On recollection, he began
“ to suspect that his complaints
“ might be owing to the noxious
“ quality of the lead, which cover-
“ ed the fontinel. He therefore im-
“ mediately threw it off; and from
“ that time, without the use of any
“ medicines, the disorder very soon
“ abated, and in about one month
“ was intirely removed; nor has it
“ in any degree returned.”

THAT lead, either when dissolved by fire, or corroded by an acid, emits poisonous *effluvia*, is sufficiently shewn by the diseases incidental to plumbers, and painters; nay even by the same effects, which not unfrequently happen to those who inhabit houses newly painted. But that a degree of
heat,

heat, much less than that which is required for melting lead, is capable of detaching such *effluvia* from this metal, is a fact, which has not generally been noticed. It was before mentioned, that printers, who imprudently use their *types* while they are hot, are subject to palsy and contraction of the fingers. Upon enquiry, I find the truth of this observation abundantly confirmed. The *types*, after having been used, are washed; and, in order to dry them, they are placed near the fire. An intelligent printer informs me, that, while they are in this state, an offensive smell, like that of melted lead, arises from them; and that the workmen in general well know the danger of touching them, till they become cold. I have heard of some instances of the colic of Poitou seemingly produced by this cause; and it is observable, that, in M. Gardane's

dane's hospital-list, above-mentioned, we find many printers.

WE have another similar instance of the bad effects of the *effluvia* of lead, in the case of persons employed in *scolloping* glass. Having examined a large manufactory of this kind, I have received the information which follows: The last polish, given to glass, is done by the means of calcined lead. But there is one part of the process of cutting glass into surfaces of various shapes and angles, which is performed by the attrition of the glass against a thick circular plate of lead, turned with great velocity, from whence a smoke is emitted, which is extremely poisonous. The machine, used in this manufacture, is a complicated one, consisting of many wheels of iron, of wood, of several sorts of stone, and one only of lead. It was remarkable, that the man who sat working at the
3 leaden

leaden wheel, was a poor, pale, emaciated, paralytic creature; whilst all around him seemed to be in good health. It is observed, that many, who are thus employed, become consumptive; some lose their senses; but the generality of them are subject to a colic, which usually terminate in a palsy of the hands*. Dr. Charleton has mentioned the effects of the leaden wheel from the papers of the late Dr. Oliver; and adds, that there issues from it a blue flame, which smells sulphureous †.

* The glass-grinders, or those whose business it is to polish mirrors, &c. perform that process by the attrition of heavy weights, cased in wood, and moved by a wooden handle. Although this case be sometimes filled with lead, yet no part of it is acted upon by the glass, or by the hands of the workmen. The common medium of attrition, during the most laborious part of the work, is sand, emery, and rotten stone. But here likewise the last polish is given to the glass by a putty made of calcined lead. Hence it is, that so many of these poor people are found in our hospitals, tortured with the colic of Poitou.

† Charleton's enquiry, page 93.

THUS have I attempted to point out some of the most remarkable ways, in which this poison has opportunities of exerting its virulence on the human body. Doubtless, more observations of the same kind might be added; but enough has been said to shew, how much it is to be lamented, that a metal of such singular convenience, and so easily applicable to various purposes in human life, is not more innocent in its effects on the health of mankind.

THE best preservative of those poor people, who are obliged to expose themselves to the action of this poison, is greasy, unctuous food. This is well known to those who work in lead-mines; and it is a common practice of the most prudent among the painters, to take some fat broth, butter, or oil, every morning before they begin their daily work. Dr.

5 Cremer,

Cremer, phyfician at Ofterhoüt, a
 fmall town near Breda, communi-
 cated to me, in the year 1766,
 the following curious obfervation:

“ Ofterhoüt is the place of refidence
 “ of a great number of potters, who
 “ are constantly employed in glazing
 “ earthen veffels. Having practifed
 “ phyfic here fifteen years, I never
 “ obferved among thefe men one in-
 “ ftance of the colic of Poitou; in-
 “ deed very rarely any affection of the
 “ bowels. Their exemption from this
 “ malady feems to be intirely owing
 “ to the large quantities of cheefe,
 “ butter, and fat bacon, which is
 “ their common food. It is, how-
 “ ever, obfervable, that, though thefe
 “ poisonous *effluvia* are enervated
 “ with refpect to the *primæ viæ*, yet
 “ very few of thefe men are free
 “ from diforders of the breaft; but
 “ are fubject to coughs, hoarfenefs,
 “ *afthma*,

“*asthma*, and sometimes spitting of
“blood.”

THIS prophylactic method having been shewn by experience to have been generally successful in preventing the colic, the indication of cure, during the paroxysm, has been, in the opinion of some physicians, to soothe and quiet the nerves; to inviscate the offending matter; and to expel it by gentle and gradual means. Opium therefore, and oil, and the mildest laxatives, are the principal instruments, which they have employed. This method has been strongly opposed by others, particularly some of the french physicians, who contend, that these are not only *levioris armaturæ præsidia*, and insufficient, but even that they are doubly unsafe; for that first, repeted emollients weaken the intestines, already too weak; secondly, that, though they were intirely innocent, the use
of

of them would take up some precious time, the right, or the wrong application of which decides the fate of the patient.

THE following is the process of cure which is established in the hospital, called *la Charité*, at Paris.

IMMEDIATELY on the admission of the patient, the following clyster is administered.

℞ Infusi foliorum senæ uncias
duodecim,

* Electuarii diaphœnici unciam
unam,

Vini

* Electuarium diaphœnicum
Pharmacopœæ Parisiensis.

℞ Pulpæ dactylorum mundatorum, in hydromelite coctorum, per cribrum trajectæ,
Penidiorum recentium, ana semilibram,
Amygdalarum dulcium excorticatarum uncias
tres et semis:

Contusis et permixtis omnibus adde mellis depumati libras duas.

Coquantur paullatim; dein insperge
Pulverem, Zingiberis,

Piperis

Vini emetici turbidi uncias quatuor.

Misce; fiat enema.

A FEW hours after this medicine has produced its effect, a second clyster is injected according to this formula.

R \bar{x} Olei nucum,

Vini rubri, singulorum partes æquales.

Misce; fiat enema, quocum, pro re nata, decoquantur capita papaveris albi quatuor.

ON the following day an emetic is given him, in this form and manner. Five grains of *tartarum stibiatum* are

Piperis,

Macis,

Cinnamomi,

Foliorum rutæ siccorum,

Seminum dauci cretici,

Fæniculi dulcis ana drachmas duas,

Turpethi tenuissime triti, uncias quatuor,

Diacrydii unciam unam et semis.

Misce; fiat electuarium secundum artem.

diffolved

dissolved in one pint of warm water. This solution is divided into three equal parts; one of which is to be taken every quarter of an hour. If, however, the two first doses have produced a sufficient operation, the third is omitted. To facilitate the effect of this medicine, the patient is ordered to drink plentifully of warm water. At night half a drachm of *theriaca* is prescribed, and a decoction of the sudorific woods, of which he is to drink freely, in order to promote sweating.

On the next day no medicines are given; but on the subsequent morning, this purgative is prescribed.

℞ Infusi foliorum fenæ, uncias sex,
Electuarii diaphœnici,
Syrupi e spina cervina, singu-
lorum unciam dimidiam,
Pulveris radice jalapii, grana
quindecim.

Misce; fiat potio.

THIS

THIS purgative is repeted once or twice more, always at the interval of some days. The theriaca is always given at night, after the purgative. It is said, that it is seldom necessary to repete the emetic. I am assured by several gentlemen, who have attended this hospital, that the same method is constantly pursued, and almost always with success: and it is confidently affirmed, that those persons, who, at the time of their beginning this process, are not become paralytic or epileptic, are generally secured by it both from palsy and from epilepsy.

ALTHOUGH a less severe treatment than that which has here been described, has sometimes been equally successful; yet those who are the most conversant with the colic of Poitou, agree, that it requires quick and active purgatives. These are the remedies which are principally employed

employed in our London hospitals. In some cases, however, emetics are given in the beginning with good effects: sometimes the cure is facilitated by the warm bath, and laxative clysters: sometimes the violence of the pain induces the physician to join opium with purgatives: but all these are applied only as occasional assistants; and are not considered as being always necessary and indispensable. I have several times seen the balsam of Peru, which Sydenham recommends as sufficient in itself to the cure of this species of colic, tried both in an hospital and in private practice; but its effect has not seemed to answer the character given of it by that author *.

PALSY

* In the year 1756, I visited two plumbers, who, at that time, suffered a most violent attack of this colic. It was, in both cases, remarkable, that large doses of opium (such as two grains of the thebaic extract taken every six hours

PALSY is seldom observed to appear in consequence of the first paroxysm of colic, where the colic has been properly treated. The cure of it is generally attempted by stimulating medicines, both internally and externally applied. When these have been found ineffectual, the use of Bath water has frequently succeeded. Whatever method is followed, a peculiar attention must be paid to the state of the bowels.

THERE is hardly a disease more formidable than the colic of Poitou

hours, for the space of two days) did not appear to give them the least degree of ease; but, on the contrary, brought on an intolerable thirst. Various purgatives, in form of pills, were tried, but without success. At last the disease, in both instances, yielded to repeated doses of a solution of *sal catharticus amarus* in simple pepper-mint water; which, although at first it was rejected by the stomach, very soon were less disagreeable to it; and at once freed the intestines from constipation and pain. They both were paralytic; but one of them became likewise delirious and blind, and remained so for some time.

in

in a chronic state. Thus far, concerning it, I have learned from experience, that little benefit is to be expected from mere medicines, unless they are assisted by an accurate regimen and diet. At a time when all the muscles of the body are weakened and wasting; and when those organs, which are subservient to the digestion and assimilation of the aliment, are in a particular state of debility, that food only is proper, which is easily convertible into nourishment. Wine and spices, which the patient is apt to desire, and which may seem to be rationally opposed to such extreme languor, give indeed a temporary comfort; but, in fact, are injurious; tending only to harden the food, to promote indigestion, and therefore to impede nutrition. Singular benefit has sometimes been received, in this case, from a steady perseverance in a milk-diet, together

ther with the long-continued use of the Bath water.

HERE certainly there cannot be room for controversy, whether or not strong evacuants are required. I once in this case saw convulsions immediately follow a mild emetic by Ipecacoanha. However, as the bowels are almost always inclined to costiveness, even in the intervals of the paroxysms, it will be necessary to correct this disposition occasionally by some mild, but efficacious laxative; for otherwise the returns of colic will be apt to be more frequent, as well as more severe. The *oleum ricini*, when it does not disagree with the stomach, perfectly answers this intention. During the severity of pain, opium will often be necessary; which here does not act as a mere palliative, affording only a momentary relief; but is likewise singularly beneficial as an antispasmodic, assist-

3 ing

ing the operation of purgatives, and facilitating their passage through the intestinal tube. When it is not in our power to remove the cause of a disease, it is a valuable attainment to be able thus to counteract its effects, and to shorten its paroxysms. For, in truth, when this disease has affected the habit for some time, I have never been so fortunate as to find any method of cure so far successful, as to restore the patient to a better, than to a tender, infirm, valetudinary condition.

PERHAPS the principal cause, why physicians are in general so unsuccessful in their treatment of this disease, is, that they are frequently ignorant by what means the poison is taken into the body. From what has been said on the subject, it may easily be supposed, that it may happen, that the cause of the mischief, continually accumulated in some im-

perceptible manner, may render the best remedies ineffectual. Dr. Heberden had a patient, who became paralytic, in consequence of frequent attacks of colic. How the disease had been excited, it did not immediately appear; but an inquiry being made into all this gentleman's habits, it was discovered that it had long been his custom every day to drink a pint of Lisbon wine. Dr. Heberden, having before had reason to suspect Lisbon wine of being sometimes corrected by lead, desired him to drink no more of that liquor. His advice was complied with; after which the patient was very soon freed from the disorder, of which he has had no return.

THE opening morbid bodies after death, if it does not always assist a physician in his future practice, has its singular use, in as much as it frequently exhibits the genuine effects
5 of

of a fatal disease. One opportunity only has occurred to me of observing the effects of the colic of Poitou, in its chronic state, on a dead body.

A gentleman, who had long been tormented with this disease, and by degrees had become almost universally paralytic, fell suddenly into convulsions, and died apoplectic. Two days after his death, the body was examined. And it was here observed, that the stomach had no morbid appearance. The whole tract of the intestines likewise was found. They were neither wasted in their coats, nor in any part contracted. The liver was less than common; and there were a few small concretions in the gall-bladder. The substance of the brain was much softer than ordinary; and about half an ounce of extravasated blood was found on

the anterior lobe of the left side of the *cerebrum*. The muscles, in general, instead of their usual fleshy appearance, were become white, and were wasted in a most remarkable manner.