

the enclosed designs, justly entitles you, as a tradesman, to what future benefits may be derived from the sale of others, formed from the same designs.

You have, therefore, my permission to make from the said designs, as many of the instruments, as may be required, and also to publish, in any manner you may think most proper, the descriptions of the same, with which I have furnished you.

In the hope (for your sake) that the demands may be considerable,

I remain, Sir,

Your obliged and most obedient servant,

Mr. JOHN SAVIGNY,
King Street, Covent Garden.

W. JARDINE.

To Dr. BRADLEY.

DEAR SIR,

MY attention having been particularly engaged for many years past on the subject of mineral waters, which I have long considered as a fertile source of important remedies, I feel particular pleasure in availing myself of your respectable Journal to direct the attention of medical men on some improvements lately introduced into this country by Mr. Paul, of Geneva, in the imitation of mineral waters; improvements which he had introduced abroad for many years past, and which I should certainly have taken the opportunity of mentioning in the work which I published about two years ago on that subject, had they, at that time, reached my knowledge. And I feel the more inclined to take this kind of public notice of the ingenious labours of Mr. Paul, as this gentleman has, in the most liberal manner, divested himself of any kind of secret or mystery, with regard to all physicians, or other competent persons, who have desired to become acquainted with his inventions and processes, and as I am one of those to whom he has communicated, without any reserve, all that could interest me in those respects.

Mr. Paul, on his first introduction in this country, has laid before the public the translation of a Report made in the year 1799, to the Institute of France, by some of the most distinguished chemists in that country, on his manufacture of artificial mineral waters at Paris. These gentlemen have considered the establishment in question not only as an object of medical and scientific

scientific inquiry, but also as a kind of public concern, and an undertaking which ought be encouraged, from the national advantages which it is likely to produce.* This report, which is accompanied by the most favourable certificates from the Faculty of Geneva, and that of Paris, bestows the greatest praise on Mr. Paul, both as a mechanic and chemist, and renders to his establishment the most authentic justice. I do not by any means propose following here the Institute of France in their circumstantial examination of Mr. Paul's pneumatic laboratory, and of the mechanical part of his operations. All that I would say in this respect is, that the whole of his laboratory, and especially his method of impregnating water with gas, have appeared to me singularly well contrived and executed, and have entirely corresponded with the impression which I had received from the reports above mentioned.

In my *Treatise on Mineral Waters*, I have pretty fully stated the opinion which I have formed on the utility of that class of remedies, and have offered also some conjectures on the mode of their operation. I have attempted to show, that the remarkable effects which are obtained from certain substances, taken in that diluted form, rather than in a solid shape, as also the apparent disproportion between the minute quantities in which these substances are taken, and their powerful effects on the animal economy, ought to be attributed partly to their state of extreme division, partly to the effect of the aqueous vehicle itself, and that those effects are, in certain cases, powerfully assisted by an increase of temperature.

As to the gaseous waters, and particularly those that are strongly impregnated with carbonic acid gas, of which Seltzer water is a striking instance, I shall not repeat here the opinions which I have advanced in the same work, on the medicinal use of those waters.† Every body, I believe, is now ready to admit, that in most dyspeptic complaints, the portion of gas which escapes from the liquid immediately on its reaching the stomach, and is thus applied to that organ in a gaseous form, produces, at least, very grateful palliative effects; and as it is generally acknowledged, that the ‡ portion of gaseous acid, which enters the circulation along with its aqueous vehicle, gradually produces on the animal economy other more important, though less immediate effects. The universal repute which this class of waters has gradually acquired in Europe, both as affording a
pleasant

* See the Reports, &c. † *Treatise on Mineral Waters*, p. 232.

‡ *Treatise on Mineral Waters*, p. 460.

pleasant beverage, and an efficient medicine, and the encouragement which has been given in this and other countries to the artificial preparation of those waters, are, of themselves, strong proof of their beneficial effects; and I feel the greater satisfaction in seeing their utility every day more generally acknowledged, as I was the first who recommended them, at an early period of my medical practice, to the attention of professional men, for the relief of some of the most distressing disorders.*

I have stated at full length in the Treatise, to which I beg leave once more to refer, my opinions on the imitation of mineral springs, and my notions respecting the advantages and disadvantages that may be expected from mineral waters artificially prepared. Mr. Paul has not only distinguished himself by his improvements in the imitation of the natural gaseous springs, but he has also introduced to notice, other gaseous medicinal waters, which are not met with in Nature, and appear to be compositions altogether new and artificial.

Previous to the late improvements in the imitation of mineral waters, this art had for many years been carried to a considerable degree of perfection, by the labours of several natural philosophers, and particularly by those of the illustrious Bergmann. Assisted by accurate analysis, chemists had long since imitated various natural springs, and had even succeeded in impregnating, in some degree, these artificial waters with their gaseous contents, a difficulty which had long appeared unsurmountable. But Mr. Paul, by long continued labour and experience, and assisted by a careful study of natural philosophy, and of mechanical science, decidedly appears to have arrived at a more perfect imitation of natural springs, than any former chemists; he has, besides, usefully varied and combined these imitations, and has even succeeded in presenting, under a liquid form, certain gaseous substances which Nature never affords in that shape, and which several respectable medical men have already recommended as valuable acquisitions.†

In regard to the natural gaseous waters, and particularly that of Seltzer, Mr. Paul has not only carried their artificial composition, in point of energy and strength, much beyond Nature itself, but he has also introduced a new method of preparing what he calls the *mild* Seltzer water, which has been considered abroad as a real and important improvement. Every one knows the common method of obtaining carbonic acid gas for the purpose of impregnation, which consists on pouring sulphuric acid
on

* See a Letter to Dr. Percival in his Medical Essays.

† Reports to the Institute.

on chalk, marble, or any other sort of carbonated lime. This method Mr. Paul employs, for the preparation of his strong Seltzer water. But it has been observed, (and the remark, I believe, has occurred abroad much more frequently than in this country), that those waters, when prepared in that degree of strength that renders them so agreeable to the stomach, are apt to produce in hectic patients and in certain constitutions extremely irritable, too stimulating effects. These effects, which are not so obvious in the natural gaseous waters, have been supposed to depend on some particles of the vitriolic acid being dissolved in the gas and carried along with it into the water. In order to obviate this inconvenience, Mr. Paul has had recourse to the method of disengaging his gas from chalk by heat alone, and he has found that water prepared with this gas, in the same degree of impregnation, was milder in its effects, and entirely free from those irritating qualities. This idea has had the fullest approbation of the National Institute, and of the Medical Society of Paris. I have had the opportunity of tasting water prepared by that method, and it appeared to me rather less agreeable to the palate than the strong sort, although perhaps not less resembling the natural spring. With regard to its medicinal qualities, I have not had yet any opportunity of ascertaining them by experience, and this new kind of water has scarcely yet, I believe, been tried in this country. But admitting it to possess those advantages in particular cases, that the French chemists and the faculties of Paris and Geneva have ascribed to it, I believe its use will be found much less general than that of the strong sort, particularly in this island, where such extremely irritable habits are far less common, and where a decided preference is likely to be given to the most agreeable and stimulating kind.

The Sedlitz water is another sort of artificial mineral water introduced by Mr. Paul in this country. It is another instance in which Art has considerably improved the process of Nature. This water consists of vitriolated magnesia, in the proportion of two drachms or even half an ounce to the pint, and is so powerfully impregnated with carbonic acid, as to render the bitterness of the salt scarcely discoverable. Of this water I have already some experience, having for some time been in the habit of prescribing it as a very pleasant aperient medicine. The Sedlitz water has also been tried with success, in conjunction with a chalybeate, and is likely to prove in this way, a very useful tonic purgative, and peculiarly well adapted to diseases of the liver, such as occur both in Europe and in warmer climates, especially under habitual costiveness, and the diminish-

ed secretion of bile; the proportion of the magnesia vitriolata may be varied at pleasure.

I have occasionally met with patients who found this water rather more strongly impregnated with gas than they could easily bear; but this can at all times be remedied, simply by suffering the water to stand in the glass for a few moments before drinking it.

The gaseous alkaline water, commonly called soda water, has long been used in this country to a considerable extent, and has, for many years past, been prepared in England with great success. Mr. Paul is fully as happy in this as in other preparations; and he has introduced also the gaseous pot-ash waters, to which, in certain cases, some practitioners give the preference. These alkaline waters are more extensively used than any other kind of mineral waters, and are certainly, from the large portion of alkali they contain, of great importance in the treatment of several disorders. But I cannot help thinking, that a great number of persons who drink soda water, without any medical interference, and merely on account of the pleasant effect of the gaseous acid on the stomach, would probably find the Seltzer water more grateful than the soda water, in which the acrid alkaline taste is more or less prevalent, and which may frequently owe the preference which is given to it, to the name having become more familiar.

With respect to the oxygenated water, and the other kinds of gaseous waters, which are altogether artificial compositions peculiar to Mr. Paul, I cannot say I have yet had any opportunity of examining their medicinal effects. But it appears to me, from the authentic Reports of the Faculties of Paris and Geneva, that some of them, and the oxygenated water in particular, are not unlikely to become useful medicines, and that if any advantage in certain cases may be expected from *oxygenating* the system, an opinion which several medical men of character have lately entertained, this would appear to be a much safer and more rational mode of oxygenation than the means proposed.

I shall only farther mention another improvement introduced by Mr. Paul, which is that of using for his mineral waters, glass bottles, instead of the earthen bottles which have hitherto been generally used for that purpose. It is certain that the latter, from their porous texture, and from their being imperfectly glazed, suffer a quantity of gas to escape, and even sometimes of the liquid itself; whilst, by means of glass bottles, and with the indispensable precaution of laying them on their sides, mineral waters can be preserved for any length of time, without

out any loss of their gaseous contents; and experience has shown that they can be conveyed, unaltered, to any distance whatever.

Near Broad Street,
Nov. 5, 1802.

I am, &c.

W. SAUNDERS.

Cases admitted under the Care of the Surgeon of the Finsbury Dispensary, St. John's Square, Clerkenwell, from October 10, to November 10, 1802.

Phlegmone Testis - - -	1	Contusiones - - - - -	2
Mastodynia - - - - -	3	Lues - - - - -	3
Paronychia - - - - -	3	Gonorrhœa Impura - - -	2
Pernio - - - - -	1	————— Mucosa - - -	1
Sarulis - - - - -	1	Vacciola - - - - -	6
Abscessus Genu - - - -	1	Schirrus Mammæ - - - -	1
————— Maxilla - - - -	1	Hydarthrus Genu† - - -	1
————— Scrophulosi - - -	7	————— Ischû - - - - -	1
Sphacelus Faciei - - - -	1	Hydrocele - - - - -	1
————— Dorfi - - - - -	1	Hernia - - - - -	1
Ulcera Artuum - - - - -	7	Spina Incurvata - - - -	1
Rhagâs Mamillæ - - - -	1	Prolapsus Ani - - - - -	1
Fistula in Perinæo - - -	1	————— Uteri - - - - -	1
Leucoma - - - - -	1	Dysœcæa - - - - -	1
Combusturæ - - - - -	4	Varix - - - - -	1
Fracturæ Costarum - - -	2	Tinea - - - - -	1
Spasma Cubiti* - - - -	1	Eruptiones Chronicæ - -	3
Paralyfis Traumatica - -	1		
Vulnus Artus - - - - -	1		
		Total	67

* The injury which we usually denominate, in common language, a sprain, does not seem to have been distinguished as of a peculiar nature, by any Nosologist, except Vogel, who intends, if I understand him right, to express this accident by the term *spasma*, Gen. 479, "*Species solutionis continui tendinum, vel ligamentorum CITRA RUPTURAM, membri mobilitatem dolorificam inducens.*" Other Nosologists do not make any distinction between sprain and rupture, as under the genus *Ruptura*, both varieties of the accident seem to be defined; thus Sauvage defines *Ruptura*, "*Tendinum, &c. &c. Solutio, vel VEHEMENS DISTRACTIO;*" while Vogel, as above, seems to distinguish them, as appears to me with propriety, "*Citra Rupturam.*" For although in sprains some fibres may be in many instances torn asunder, yet I should prefer applying the word *Ruptura* to those accidents which are evidently attended with rupture of tendons, &c. and *Spasma* to those which are not evidently so connected, and which we usually term Sprains. In the nosological arrangement of chirurgical diseases, by Mr. H. Monro, the author has classed this accident in the same species with "*Contusio.*"

† Cullen has called the disease, White Swelling, *Hydarthrus*; which however, does not appear to express the real nature of the disease, as *Hydarthrus* would seem to imply a dropsical accumulation in a joint, which is not the case in