

70 ON MATLOCK WATER.

THE following Table exhibits a comparative view of the different temperatures of Bath, Buxton, Bristol, and Matlock waters, measured by Fahrenheit's thermometer.

* B A T H.

King's Bath Pump	- -	112°.
Hot Bath Pump	- -	114 $\frac{1}{2}$.
Cross Bath Pump	- -	110.

* B R I S T O L.

Hot Well Pump	- -	76.
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B U X T O N.

Bath	- - -	82.
St. Ann's Well	- -	81 $\frac{1}{2}$.

M A T L O C K.

Baths	- - -	68.
Spring	- - -	66.

* Vid. Mr. Canton's Experiments, Phil. Trans. vol. 57. page 203.

ON

ON FIXED AIR. 71

ON THE
MEDICINAL USES

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F I X E D A I R.

IN a course of experiments, which is yet too unfinished to lay before the public, I have had frequent opportunities of observing that fixed air may, in no inconsiderable quantity, be breathed without danger or uneasiness. And it is a confirmation of this conclusion, that at Bath, where the waters copiously exhale this mineral spirit, (a) the bathers inspire it

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(a) See Dr. Falconer's very useful and ingenious Treatise on the Bath Waters, 2d. Edit. p. 313.

it with impunity. At Buxton also, where the bath is in a close vault, the effects of such *effluvia*, if noxious, must certainly be perceived.

ENCOURAGED by these considerations, and still more by the testimony of a very judicious Physician at Stafford in favour of this powerful antiseptic remedy, I have administered fixed air in more than thirty cases of the PHTHISIS PULMONALIS, by directing my patients to inspire the steams of an effervescing mixture of chalk and vinegar, through the spout of a coffee-pot. The hectic fever has in several instances been considerably abated, and the matter expectorated has become less offensive and better digested. I have not yet however been so fortunate in any one case, as to effect a cure; although the use of mephitic air has been accompanied with proper internal medicines. But Dr. Withering, the gentleman referred to above, informs me, that he has been more successful. One phthifical patient under
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his care, has by a similar course entirely recovered; another was rendered much better; and a third, whose case was truly deplorable, seemed to be kept alive by it more than two months. It may be proper to observe, that fixed air can only be employed, with any prospect of success, in the latter stages of the *phthisis pulmonalis*, when a purulent expectoration takes place. After the rupture and discharge of a VOMICA also, such a remedy promises to be a powerful palliative. Antiseptic fumigations and vapours have been long employed, and much extolled in cases of this kind. I made the following experiment to determine whether their efficacy, in any degree, depends on the separation of fixed air, from their substance.

ONE end of a bent tube was fixed in a phial full of lime water; the other end in a bottle of the tincture of myrrh. The junctures were carefully luted, and the phial containing the tincture of myrrh
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was placed in water, heated almost to the boiling point, by the lamp of a tea-kettle. A number of air bubbles were separated, but probably not of the mephitic kind, for no precipitation ensued in the lime water. This experiment was repeated with the *tinct. tolutana, Pb. Ed.* and with *sp. vinos. campb.* and the result was entirely the same. The medicinal action therefore of the vapours raised from such tinctures, cannot be ascribed to the extrication of fixed air; of which it is probable bodies are deprived by *chemical solution* as well as by *mixture*.

IF mephitic air be thus capable of correcting purulent matter in the lungs, we may reasonably infer it will be equally useful when applied externally to foul ULCERS. And experience confirms the conclusion. Even the fancies of a CANCER, when the carrot poultice failed, has been sweetened by it, the pain mitigated, and a better digestion produced. The cases I refer to are now in the Manchester
Infirmary,

Infirmary, under the direction of my friend Mr. White, whose skill as a surgeon, and abilities as a writer are well known to the public.

Two months have elapsed since these observations were written, (a) and the same remedy, during that period, has been assiduously applied, but without any further success. The progress of the cancers seems to be checked by the fixed air; but it is to be feared, that a cure will not be effected. A palliative remedy, however, in a disease so desperate and loathsome, may be considered as a very valuable acquisition. Perhaps NITROUS AIR might be still more efficacious. This species of factitious air is obtained from all the metals, except zinc, by means of the nitrous acid; and Dr. Priestley informs me, that as a sweetener and antiseptic it far surpasses fixed air. He put two mice into a quantity of it, one just killed, the other offensively putrid. After twenty-five days they were both perfectly sweet.

IN

(a) May, 1772.

IN the ULCEROUS SORE THROAT much advantage has been experienced from the vapours of effervescing mixtures, drawn into the *fauces*. (a) But this remedy should not supersede the use of other antiseptic applications. (b)

IN MALIGNANT FEVERS, wines abounding with fixed air may be administered, to check the septic ferment, and sweeten the putrid *colluvies* in the *primæ viæ*. If the laxative quality of such liquors be thought an objection to the use of them, wines of a greater age may be given, impregnated with mephitic air, by a simple but ingenious contrivance of my learned friend Dr. Priestley, which will very soon be laid before the public. (c)

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(a) Vid. Mr. White's useful Treatise on the Management of Pregnant and Lying-in Women, p. 279.

(b) See the Author's Observations on the efficacy of external applications in the Ulcerous Sore Throat, Essays Med. and Experimental, 2d. Edit. p. 377.

(c) DIRECTIONS for impregnating water with fixed air, in order to communicate to it the peculiar spirit and virtues of Pyrmont water, and other mineral waters of a similar nature; by Joseph Priestley, L. L. D. F. R. S.

The patients common drink might also be medicated in the same way. A putrid *diarrhœa* frequently occurs in the latter stage of such disorders; and it is a most alarming and dangerous symptom. If the discharge be stopped by astringents, a putrid *fomes* is retained in the body, which aggravates the delirium, and increases the fever. On the contrary, if it be suffered to take its course, the strength of the patient must soon be exhausted, and death unavoidably ensue. The injection of mephitic air into the intestines, under these circumstances, bids fair to be highly serviceable. And a case of this deplorable kind has lately been communicated to me, in which the vapour of chalk and oil of vitriol, conveyed into the body, by the machine employed for tobacco clysters, quickly restrained the *diarrhœa*, corrected the heat and fetor of the stools, and in two days removed every symptom of danger. A similar instance of the salutary effects of mephitic air, thus administered, has occurred also in

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my own practice; the history of which I shall probably lay before the public. May we not presume that the same remedy would be equally useful in the DYSENTERY? The experiment is at least worthy of trial.

THE use of wort, from its saccharine quality, and disposition to ferment, has lately been proposed as a remedy for the SEA SCURVY. Water, or other liquors already abounding with fixed air in a separate state, should seem to be better adapted to this purpose, as they will more quickly correct the putrid disposition of the fluids, and at the same time, by their gentle stimulus (*a*), increase the powers of digestion, and give new strength to the whole system. Dr. Priestley, whose inventive genius suggested both the idea, and the means of executing it, has, under the sanction of the College of Physicians, proposed

(*a*) THE vegetables, which are most efficacious in the cure of the scurvy, possess some degree of a stimulating power.

proposed the scheme to the Lords of the Admiralty, who have ordered trial to be made of it, on board some of his Majesty's ships of war. Might it not, however, give additional efficacy to this remedy, if instead of simple water, the infusion of malt were to be employed?

I AM persuaded such a medicinal drink might be prescribed also with great advantage in scrophulous complaints, and other disorders in which a general acrimony prevails, and the *crasis* of the blood is destroyed. Under such circumstances I have seen *vibices*, which spread over the body, disappear in a few days, from the use of wort.

A GENTLEMAN, who is subject to a scorbutic eruption in his face, for which he has used a variety of remedies with no very beneficial effect, has lately applied the fumes of chalk and oil of vitriol to the parts affected. The operation occasions great itching and prickling in the skin,

