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978-1-108-06016-5 - An Account of the Nature and Medicinal Virtues of the Principal Mineral Waters of Great Britain and Ireland: And Those Most in Repute on the Continent

John Elliot

Excerpt

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OF THE  
IMPREGNATION OF WATER  
WITH  
FIXED AIR.

From Dr. PRIESTLEY's Experiments, Vol. II.

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CHAPTER I.

THE HISTORY OF THE DISCOVERY.

**I**T often amuses me when I review the history of experimental philosophy, to observe how very nearly one discovery is connected with another, and yet that, for a long time, no person shall have perceived that connection, so as to have been actually led from the one to the other; and especially that he who made the first discovery should stop short in his progress, and not advance a single step  
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farther, to make the other, which was perhaps of infinitely more consequence. And yet the case may be such, that it shall be so far from requiring more genius, or ingenuity, to advance that other step, that it is rather a matter of wonder, how it was possible for the most common capacity to stop short of it. We also frequently find that they who make the most important philosophical discoveries overlook the most obvious *uses* of them. Several striking examples of this kind will be found in my *History of electricity*, and also in the *History of discoveries relating to vision, light, and colours*.

In such cases as these it behoves an historian to be much on his guard, lest he should hastily conclude that to have been fact which he only *imagines* must have been so, but for which no direct evidence can be produced. As this

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is a case of some curiosity respecting the human mind, I shall give an instance of it; and I am able to produce a very remarkable one relating to the subject of this section.

When it was discovered that the acidulous taste and peculiar virtues of Pyrmont water, and other mineral waters of a similar nature, were owing to the fixed air which they contained; when this air had been actually expelled from the water, and it was found that the same water, and even other water, would reimburse the same air; we are apt to conclude that the person who made these discoveries, and especially the last of them (who also must have known that fixed air is a thing very easy to be procured) must have immediately gone to work to reduce this *theory* into *practice*, by actually impregnating common water with fixed air, in order to give it the

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peculiar virtues of those medicinal mineral waters which are so highly, and so justly valued, and which are procured at so great an expence, especially in this country. Accordingly, Dr. Nooth has advanced, *Phil. Transf.* vol. lxxv. p. 59, that “the possibility of impregnating water with fixed air was no sooner ascertained by experiment, than various methods were contrived to effect the impregnation;” and I doubt not this ingenious philosopher imposed upon himself in the manner described above. This, however, is so far from being the case, that I do not believe it is possible to produce the least evidence that any person had the thing in view before the publication of my pamphlet upon that subject, in the year 1772.

Indeed had this thing been so much as *an object of attention* to philosophers,

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phers, it is impossible but that some of them must have hit upon a method that would have sufficiently succeeded. Nay, the thing is so very easy, and the end attainable in so many ways, that there must have been, in a very short time, a great variety of methods to impregnate water with fixed air, as there are now; and we should certainly have heard of *artificial mineral waters* being made according to them. It is impossible not to conclude so, when we consider the *time that has elapsed* since the publication of all the discoveries that led to it.

Dr. Brownrigg's paper, giving an account of his discovery of fixed air in the Spa water, was read at the Royal Society June the 13th 1765, and was published in 1766. This excellent philosopher completely decomposed that mineral water, but he gives no hint of his having so much

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as attempted to *recompose* it, or of making a similar water, by impregnating common water with the same volatile principle. It is sufficiently evident that he had not thought of this, though we may wonder that he should not have done it, because he has not mentioned it, as an object of pursuit.

In the year following, Mr. Cavendish's valuable papers on the subject of factitious air were published. He first ascertained how much fixed air a given quantity of water could be made to imbibe; yet it does not appear that he ever thought of *tasting* the water, much less that he thought of making any *practical use* of his discovery.

If any negative argument can be decisive, it is that in the year 1772, the very year in which my pamphlet came out, Dr. Falconer published his

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his excellent and elaborate treatise on the *Bath waters*, in which he treats very largely of mineral waters in general, and all their possible impregnations; and yet, though he treats of *fixed air* as one ingredient in many of them, see p. 185, he drops no hint about composing such water, by imparting fixed air to common water. Also on the 12th of September in the same year, Dr. Rutherford published his ingenious *Dissertation on Fixed Air*, in which he speaks of the presence of it in Pyrmont water, p. 3, but without giving the least hint of his being acquainted with any method of imitating them. And yet, Dr. Nooth says, in fact, that from the year 1766, at the latest, *various methods* were contrived to effect the impregnation, though he allows that I was the only person who “ published

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“any description of an apparatus calculated entirely for this purpose.”

According to this account of the matter there were, in the interval between 1766 and 1772, a space of six years, a variety of methods for impregnating water with fixed air, some of them prior to, and perhaps much better than mine (though he gives no hint of his own having been invented in that period, but speaks of it as suggested by the consideration of the imperfection of mine) but that I happened to get the start in the publication. Dr. Falconer, however, though the friend of Dr. Nooth (see his treatise on Bath Water, vol. ii. p. 323) had certainly never heard of any of those methods, or even of mine, at the very termination of that period; and though my own acquaintance with philosophical and medical people



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ple is pretty extensive, I never heard of any of the *various methods* that Dr. Nooth speaks of; nor since the publication of my method have I heard of any person whatever having pretended to have done the same thing before; though nothing is more common than such claims, and very often on the most trifling pretences.

Mr. Venelle, indeed, immediately upon the translation of my pamphlet into French, which was within a few weeks after the publication of it in English (owing to the laudable zeal of Mr. Trudaine, for promoting all philosophical and useful improvements) published an extract of his papers from the *Memoires de Mathematique & de Physique*, to vindicate to himself not my discovery, but, in fact, that of Dr. Brownrigg. However, what he pretends to have discovered was, that the virtues of the acidulous wa-

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ters were owing to *air, in general*, without having any idea of the difference between fixed air and common air; so that his discovery was so far from being the same with mine, that it could not possibly have led into it.

As I have hitherto only published the method of impregnating water with fixed air in a small pamphlet, for the use of those who might chuse to reduce it into practice, without giving any account of the manner in which the discovery (if it deserves to be called one) was made, which has been my custom with respect to every thing else, I shall do it here; and I hope the narrative will not be altogether displeasing, as this business has gained so much attention in all parts of Europe, as well as in England, and promises in a short time to save the very great expence of transporting acidulous