upon the productive pulp, itself the only living part,—the only part connected by the vascular system and by the nervous system with the rest of the organism,—this pulp diminishes in volume as the productive power decreases; so that the period at length arrives when the component cones of the ivory likewise begin to diminish, &c.” —pp. 14, 15.

This description of the dental bone, in 1839, implying such unaccountable oversight of the labours of Purkinje, Müller, and Retzius, was judiciously omitted by Dr. Knox in the able translation of M. de Blainville's work, for which your readers are indebted to that anatomist.

But, when this description is offered to the French Academy as “complète dans l'état actuel de la science, (see “*Note lue par M. DE BLAINVILLE, en présentant son Ouvrage sur l'Osteologie des Animaux Vertébrés*,” “*Comptes Rendus*,” 1839, p. 782,) the correspondent of that Academy would be wanting in his duty if he neglected to lay before it proofs of a mode of formation of the teeth diametrically opposed to that described by M. de Blainville, or who omitted to call the attention of his fellow-member to the works of those anatomists in which the doctrine of the lamellated structure of ivory had been completely refuted. I am, Sir, your obedient servant,

RICHARD OWEN.

London, June 13, 1840.

* * We have but a single remark to make on the foregoing letter of Mr. Owen. We received for review a copy of the “*Comptes Rendus*” on the one hand, and the “*Athenæum*,” “*Literary Gazette*,” and a printed extract from the 8th vol. of the “*Transactions of the British Association*,” on the other. The latter was marked on the title-page, “*Extract from the 8th vol. of the Transactions of the Association* ;” and we should never have alluded to it in our review, had we entertained the most remote idea that the eighth volume of the “*Transactions of the Association*” had not yet been published. With this explanation we leave Mr. Owen's letter to Mr. Nasmyth, whose business it now is to explain and justify his own views of dental development.

PROVINCIAL MEDICAL ASSOCIATION.

The eighth anniversary meeting of the Provincial Medical and Surgical Association will be held at Southampton, on Wednesday and Thursday, 22nd and 23d July next. The first general meeting will be held at the Audit-house, July 22; and the president, Dr. Jeffreys, of Liverpool, will resign the chair at half-past two p.m., to Dr. Steed, the president-elect.

The Analysis and Medicated Properties of the Tepid Springs of Buxton. By Sir CHARLES SCUDAMORE, M. D., &c. Third Edition.

THIS work being framed for superficial readers, was not destined for the inspection of well educated men (at least so we presume). But as it purports to be the production of a physician, it ought to be subjected to the ordeal of medical criticism. It contains seventy-eight pages. The first twenty are devoted to a geological and chemical description of the Buxton tepid springs; for which we are informed, *in a note*, that the author is indebted to Mr. Webster, the geological lecturer, and to Mr. Garden, the druggist, of Oxford-street: an obligation which is thus modestly expressed, as regards the chemical department—“*In my analysis I received the valuable assistance of Mr. Garden.*”

The plain facts respecting the springs of Buxton are these:—they are situated in what is termed the mountain limestone formation; a geological deposit, of a dark colour, generally containing numerous fossils and carbonaceous matter upon which the coal-beds rest. The water “rises freely, by numerous fissures, through the limestone,” and at this point possesses a temperature of 82°. It is then artificially conducted into a large marble basin, termed St. Ann's Well, where its temperature is 77°. The mean temperature of common spring water, in the same latitude, and at the same altitude, will probably be about 50°. Hence the Buxton spring water has a temperature nearly equal to that of the New River water at London in summer. So far, then, as temperature is concerned, the latter is equal to the Buxton spring water, so much lauded in this production. The next inquiry is, Does the water possess any chemical constituents which can act efficaciously on the human body when plunged therein? According to Mr. Garden, the solid contents of the Buxton water are as follows, in an imperial gallon:—

Muriate of magnesia.....	.58 grs.
———— soda	2.40
Sulphate of lime	.60
Carbonate of lime	10.40
Extractive matter and a minute quantity of vegetable fibres..	.50
Loss	.52
	<hr/> 15.00

And its gaseous contents—

Carbonic acid	1.50 cubic inch.
Azote	4.64
	<hr/> 6.14

We took the trouble to examine a specimen of New River water sent to us from the point where the New River disappears from public view at Sadler's Wells Theatre. The solid contents in the gallon we found to amount to 15.06 grains, or rather more than that contained in Buxton water. The insoluble matter, in dilute acid, consisting of sulphate of lime and dissolved animal and vegetable matter, amounted to 2.46 grains, or rather more than is contained in Buxton water. The other solid constituents were similar. The gaseous matters present appeared to be common air and a little carbonic acid; both of which exist in a greater or smaller proportion in nearly all kinds of water. It deserves remark, that Buxton water, that of the New River and of the Thames, contains nearly the same quantity of solid ingredients. Mr. Garden found that of the Thames to contain in the gallon—

Muriate of magnesia.....	0.28
————— soda	1.40
Sulphate of lime	1.44
Carbonate of lime	11.80
Silica and carbonaceous matter	0.30
	<hr/> 14.22
Loss	.28
	<hr/> 14.5

The author quotes this analysis, but does not allude to any gaseous substances as existing in the water, which undoubtedly do occur. The author attributes a great many virtues to the presence of nitrogen, or azote, in the water. But all water would appear to contain a much greater quantity of azote, in proportion to the oxygen, than exists in common air. Common air is generally viewed as formed of 79 nitrogen and 21 oxygen. But Dr. Thomas Thomson has shown that 100 volumes of air, when absorbed by the water of the Clyde, and then extricated by boiling, yielded

45.39 azote, or nitrogen.

18.63 oxygen.

Hence it is easy to account for the presence of azote and the absence of oxygen in the Buxton water, if we conceive that a small portion of oxygen has been taken up by some oxydising body; carbon, for in-

stance, to form carbonic acid. But Sir Charles Scudamore "must consider that the azotic gas is the only constituent in the water to which a positive medical property can be fairly allowed; but that this is energetic," he says, "I am well persuaded; the *action of the water on the kidneys is sufficiently remarkable, and, in general, is promptly shown.*" (!!) We suppose, upon the *vice versa* principle, by which men drink in warm weather, that when there is so much out-going there must be a proportionate incoming; for it is quite clear that if a gallon of water be placed in a cask, more will escape by the spigot when it is opened, than if only half a gallon had been deposited in the reservoir. The author has, therefore, afforded us a fine illustration of this important principle.

We have shown pretty clearly that Buxton spring water, and the water of that filthy ditch, the New River, are nearly identical; it is, therefore, amusing to read the following observations:—

"In delicate cases of dyspepsia the good effects on the stomach (internally) are often experienced very quickly, and shown in the improvement of the appetite and digestion; I view the remedy altogether as a very useful stimulant, aqueous diluent, and always admissible, unless the inflammatory diathesis be present, (?) or a plethoric state of vessels forbidding any physical cause of excitement."

If pure water be a stimulant, mankind must be dreaming—not a soul of his species can be alive. Shades of ancient philosophy arise, and enjoy your victory! An immortal Scudamore, M.D., of the nineteenth century, has superseded the old axiom, "Cogito, ergo sum," by "aquam bibo, ergo, non sum."

The author's directions for drinking spring water.—"The first dose of the water should be taken before breakfast, so as to leave an interval of half an hour." This reminds us of the classical physicians who recommended for stone to take a pint of urine in the morning fasting.

"At the commencement half a pint may be mentioned as the total daily quantity taken at twice; the second quarter of a pint at one or two, or other hour if more convenient; a reference being had to the period of taking meals.

"It is to be considered that this water does not quit the stomach so quickly as saline aperient waters, or those highly carbonated; and, therefore, if a large quantity be taken at once, a sense of oppression is

felt, and very probably of fulness of the head with giddiness, and attendant flushing. The utmost total quantity per diem that I have seen useful has been a pint and a half, and a pint is the average. As the full doses are used, it will often be expedient to visit the well thrice instead of twice for the purpose. I am sure of the advantage of not drinking much at once. Those can drink the largest quantity without the inconveniences I have mentioned, upon whom the water exerts an active diuretic effect."

This affords a second illustration of the marvellous principle, that "great out-goings admit of great in-pourings." The wine merchants must find that the doctor is a tee-total water-drinker. Be that as it may, he is certainly a *pure water doctor*, and deserves some credit for the admission.

"With respect to the diuretic property of the water, its effects are found very useful in the painful complaints of the kidneys and bladder arising from gravel; and in this class of cases it may be used advantageously with more freedom than in any other."

Upon the principle, we suppose, that if a large portion of fluid be mixed with a small quantity of solids, there will be more of the former than the latter. We confess we cannot recur at present to any more profound doctrine which shall explain why water—pure water alone—should cure gravel.

"The same remark," the author proceeds to say, "also applies to those instances of indigestion; and of which gouty persons are so frequently the example, where the lateritious sediment in the urine is abundantly found."

The author is aware that "many persons speak of this water as being too simple in its composition, too much like common water, to deserve any reliance upon it as a medicine." *Lucus a non lucendo*. For the same reason he exclaims, "Do I think favourably of its qualities." It is obviously difficult to reason with the author, because he sees clearly through a millstone, which we positively cannot.

But according to our author, the pure water acts like a washerwoman on the stomach. The aqueous *dejeuner* which he prescribes, affords a Lilliputian illustration of the Augean stable purification, for "in diluting and assisting towards the removal of any acrimonious secretions which are delayed in the stomach and duodenum, this aqueous diluent may have much more useful effect than may at first sight (the mill-

stone again!) be imagined, particularly by those who see a remedy only in what is very potent in its nature and composition."

New Discovery—Azotic Gas, or Nitrogen, bad for the Stomach.—"If used fresh from the pump, it will contain a small portion of azotic gas in solution, and, therefore, as a beverage, to be freely drunk in its natural state is not to be recommended."

Let us see how this observation bears the test of figures; for medical men will find numbers to be the proper agents for testing the asseverations of mere theorists. Now, Buxton water contains, in the gallon, 4.64 cubic inches of azote; and 100 cubic inches of water, from the river Clyde, afforded 3.113 cubic inches of air. But a gallon contains 277.27 cubic inches of water; the air, therefore, contained in this bulk will be 8.63 cubic inches: 100 volumes of this air were found to consist of 70.9 azote and 29.1 oxygen. Following the same proportion, we have 100 : 70.9 :: 8.63 : 6.118 cubic inches = the amount of azote in a gallon of Clyde water. If we now subtract the Buxton azote from the Clyde gas—

6.118

4.64

1.478

we shall find that there is nearly $1\frac{1}{2}$ cubic inches in the Clyde water more than in that of Buxton; and, although we have no data at present for making the statement, we think there will be little doubt that spring water, which has not been exposed to the air, or to heat, will, in general, contain more than that proportion. It might be asserted, that in Clyde water the azote exists in the form of common air; but the analysis shows that it is not present in the proper proportion for that purpose. Besides, common air is a mixture, both gases acting independently of each other. Perhaps the author would say that the azotised water causes the fever of Glasgow. But, according to his own principles, it ought to cure putrid fever by its inflammatory stimulus. The Clyde water is used for all purposes by the inhabitants of Glasgow.

To show the innoxious effect of azote upon the system, we may refer to the anecdote related by the celebrated John Ray, in his "Travels to Venice," in 1663:—"A nobleman," says he, "of this city showed us a boy who had a faculty of charging his belly with wind (oxygen and azote), and dis-

charging it again, backward, at pleasure, which we saw him perform. When he charged himself, he lay upon his hands and knees, and put his head on the ground, almost between his legs." It is curious that this position is nearly that recommended by our author in bathing at Buxton, as will immediately appear.

The author gives very particular directions for bathing, with respect to the particular kinds of diseases. It is a grand thing, as his contemporary, Whitlaw, would say, for gout, rheumatism, and paralysis. The author directs the bather to go plump into the bath, and endeavour, as quickly as possible, without dilly-dallying, to fall flat on his face. You must not dive with the head downwards, for "the gravitation of the blood in this mode might create serious mischief." Some persons recommend wetting the head first, because, the heart, being a forcing-pump, might project an undue quantity of blood to the head; but, if you effuse water over the head first, just as old women prevent the water in a tea-kettle, over a smoky fire, from being tainted, by sprinkling a little common salt over the lid, you obviate "the unfavourable determination of blood to the vessels of the brain. With gentlemen," he adds, "a bathing-cap is never necessary, in these days of little hair without powder." So minute is our author. "But ladies would be seriously inconvenienced by not being allowed the use of a bathing-cap."

People have hitherto thought that there could scarcely ever be any harm in washing or cleansing the body with pure tepid water, but the worthy author shows that this is no small mistake. A lady complained of indigestion, headach, much weariness, and great irregularity of the circulation. She made trial of the natural bath (77°). "Immediately, on immersing herself, she felt a sense of rushing of blood to the head, with pain and confusion, and thought she should faint in the bath. The head and feet remained singularly cold for some time." It is questionable whether any one but the author would have been much alarmed at these effects.

The work concludes with a bundle of similar cases. If it have reached a third edition without an exposition of the gross fallacies with which it is replete, its obscurity may be thanked for its salvation. The

ill consequences to the good name of science, producible by an *ad captandum* work of this nature, being palmed upon the public as the production of a member of an English College of Physicians; and of the opinion which every thinking man must form of the character of our medical institutions, which ranks among its members worthy individuals who are ignorant of the first principles of chemical physiology. We undervalue not the benefits that may accrue to invalids from temperance, exercise, and the alteration of bad habits, during their residence at watering-places, but object to the apparent use, but in reality the abuse, of science, to prove, for selfish motives, that the effect depends upon the author of such works practising, at Buxton in "the season," upon the nature of the water which is drunk, or bathed in, and not upon the circumstances, which are quite obvious to every man of common sense.

LECTURERS' FEES.—We recently received a letter for publication, containing the following statement:—The validity of a verbal agreement between a medical pupil and his tutor, not having hitherto suffered the ordeal of a court of law, I determined, on public grounds, in May, to put it to that trial. I had paid three guineas to Mr. Pereira (a lecturer on chemistry at a school near the Post-office, St. Martin's-le-Grand,) for entrance to a course of lectures on chemistry, on these terms; namely, that in case I was required to attend all the lectures in London at his school, he would entitle me to enter my name at the Hall for registration, and thus escape the operation of the prolonged three years' study regulation, just at that time coming into operation; but in the event of my entering at the Pine-street School, Manchester, the money which I paid to Mr. Pereira was to be returned. On application for it, under the latter alternative, the lecturer lost his recollection of any thing more than a vague conversation on the subject, and kept the money, without my having for it any consideration. I refreshed his memory on the subject on Thursday, at the Court of Requests, in Kingsgate-street, when Mr. Commissioner Dubois sent the case to a higher tribunal, without prejudice to my claim, (a rare occurrence, not happening there once in seven years,) and ordering the lecturer to pay the costs. I will repeat the application next term-time, in Westminster Hall.

JOHN WILKINSON, Surgeon.

18, Upper George-street,
Bryanstone-square.