

This is not the place to discuss the merits of the principle which dictated the measure, or to point out its fallacy, but only to allude to the physical effects that followed it, as a caution against the adoption again of such a course.

The weavers were men constantly confined to a sitting posture, in close rooms of an uniform temperature, their bodies ill adapted to meet any change of temperature, or to bear with impunity external impressions that may be disregarded by those whose lives are passed in the open air. Their trade was such as to bring only certain muscles into action, leaving unemployed, and of course rendering feeble, those muscles which are required in other kinds of labour.* They were thus, from confinement, from the temperature in which they lived, from the posture in which they worked, from the very manipulations of their trade, the worst prepared perhaps of the community for a transition in their mode of life, or a change in their habits of labour. It need scarcely be observed, that those tradesmen (at least many of them) had passed the greater portion of long lives in the circumstances described, and it will not therefore be wondered at, that they should have fallen "like shrubs beneath the poison blast," when taken from their former way of life; they were sent, under the additional privations—want of food and despondency of mind, in the commencement of winter—to break stones upon the public highways.

Attention, which had been heretofore bestowed on depressed trade and want, was now turned to meet overpowering pestilence. Among the measures adopted, soup-kitchens were established in most parishes of the city. The convalescent after leaving hospital, and those on dispensary lists who had gone through the disease in their own homes, were supplied with food. The good effects were soon apparent. In the spring of 1827, the epidemic began to decline. Providence blessed the country with a most productive harvest, and in less than a year from its commencement, this epidemic that had threatened, from the suddenness with which it arose, and the rapidity with which it progressed, to surpass all former visitations, had disappeared.

[The remainder of this valuable paper will be given in our next Number. We have to apologize to Dr. Corrigan for the length of time that it has been in hand, but from what is now passing in Ireland, it could scarcely have been published at a more opportune period than the present.—ED. L.]

* Muscles of the spine for example. Hence we find weavers in old age more stooped than labourers.

ON PRUSSIC ACID.

By MR. ABRAHAM BOOTH, *Experimental Chemist.*

I HAVE often found in my experiments upon prussic acid, both as obtained in commerce and my own manufacture, that the quantity of real acid present may vary very considerably, and that whilst a specimen may possess the peculiar physical properties of the more concentrated acid, it may yet be found to contain but a very small proportion of the substance.

Strength.—That the variable reports of the doses of this medicine owe their rise to something more than the peculiar idiosyncrasy of certain constitutions, appears very certain, when we consider the above fact. *The specific gravity* of the acid is no certain criterion of its strength, as in proportion as that *increases*, so in a greater ratio does the quantity of real acid *decrease*. The range of the acid met with in commerce by Dr. Ure, and what I found by my own experiments, may be stated as follows:—

Dr. URE.		Mr. BOOTH.	
Sp. Gr.	Real Acid per cent.	Sp. Gr.	Real Acid per cent.
·9958	3·	·9979	1·63
·9964	2·7	·9980	1·55
·9967	2·5	·9981	1·39
·9970	2·3	·9983	1·22
·9973	2·1	·9985	1·07
·9974	2·0	·9987	·75
·9975	1·77		
·9978	1·68		

It will thus be found that in this short range the quantity of real acid will vary from 3 to ·75, or one-fourth.

Doses.—The very uncertain activity of this medicine, therefore, requires some specific and ready test by which the practitioner may know how to *apportion his doses*. None can be more easy and certain than that proposed by Dr. Ure, being the quantity of per-oxide of mercury (red precipitate), which a certain quantity of this acid will dissolve. From the relation of the equivalent numbers of these two substances, being one to eight, and the salt in its dry state being a bicyanide, we have a proportion of one to four in the formation of the salt, and hence derive the following simple rule of analysis. To 100 grains of the acid contained in a small phial or test tube, add in succession small quantities of the peroxide of mercury in fine powder, till it ceases to be dissolved on agitation. The operation may always be completed in five minutes, as the red precipitate dissolves as rapidly in diluted prussic acid with the aid of slight agitation, as sugar dissolves in water. The weight of the red precipitate taken up being divided by four, gives a quotient representing the real quantity of prussic acid present. By weighing out be-

forehand on a bit of paper or a watch-glass, forty or fifty grains of the per-oxide, the residual weight of it shows at once the quantity expended.

Adulterations.—Prussic acid is, however, often contaminated with muriatic acid, which may very much modify the results of the last experiment. Nitrate of silver, in common cases so valuable an agent for detecting muriatic acid, is here of no avail, as it gives with prussic acid a flocculent white precipitate, soluble in liquid ammonia, and insoluble in nitric acid, and which may be mistaken by common observers for the chloride of that metal. In this case, the volatility of prussiate of ammonia compared with that of muriate of ammonia, may be had recourse to with advantage. We must add, therefore, ammonia in slight excess to the acid, evaporate to dryness at a heat of 212 degrees, when the prussiate of ammonia will exhale, and the quantity of muriatic acid present may be known by the residuary sal ammoniac. Should the absolute quantity present be required, it may be known by decomposing this salt with the nitrate of silver, and ascertaining the quantity of chloride present. In the performance of these nicer experiments, I have found that the quantity of ammonia present in distilled water, if not obviated by its being neutralized with nitric acid, will materially affect the results of the experiments; and the want of sufficient attention to this circumstance, has, I apprehend, caused much of that discrepancy which exists among chemical writers, particularly in their experiments, to deduce the atomic composition of certain bodies. Care must also be taken that the red precipitate be pure. If well prepared, it will wholly volatilise with heat. It is rarely sophisticated, but will generally be found to contain a little sub-nitrate of mercury, which will, however, interfere with the accuracy of the experiment, although not sufficiently in a common investigation. I therefore prepare the peroxides, by washing it well previously with distilled water, and drying it at a gentle heat.

This test will also be found both useful and simple in ascertaining the strength of some other acids, which the scientific practitioner will readily appreciate.

Probably no formula for the preparation of prussic acid will ensure the uniform composition of this substance; I therefore recommend to manufacturers of this article, the examination of every sample before it is sold, and to be specified upon the labels the quantity of real acid present. By this means alone, may the practitioner be supplied with a certain and useful as well as a dangerous preparation.

95, Shoe-lane, Fleet-street,
June 24th, 1830.

EXPERIMENTS WITH PRUSSIC ACID.

To the Editor of THE LANCET.

SIR,—The manner in which you have always discussed and laid before your readers the various discoveries connected with the profession, induces me to forward to you the results of several experiments performed with the above substance, by myself and a scientific friend. We made our own prussic acid from the ferro-prussiate of potass, and I should state that it was of such a strength that the inspiration of the fumes in a large room occasioned vertigo, and a tickling sensation in the larynx.

1. We administered to a full-grown male cat, one minim of the acid upon the tongue; violent convulsions were produced, with an intermitting pulse. We gave another minim in five minutes, which again induced convulsive writhings of the body, terminating almost immediately in death. This experiment was made to try the strength of the acid. On opening the cat we found extravasation of blood on the brain, and the lungs highly inflamed.

2. I gave to a kitten six weeks old, one minim of the acid, which in half a minute inflamed her tongue considerably. The dose was immediately followed up with a strong solution of tartrate of potass; convulsions ensued, and the kitten was apparently dead. In five minutes, however, she manifested reanimation. I now gave it a drachm of a saturated solution of tartrate soda, repeating it at short intervals. The kitten repeatedly evacuated fæces; in six hours it walked about, though extremely weak, and in twelve hours the acid had lost its effect.

3. To another kitten about the age of the preceding, we administered one minim of prussic acid *without the remedy*. This animal died in a minute and a half.

4. Made a slight incision on the back of a kitten, and inserted one drop. Violent convulsions followed. I gave a strong solution of tartrate soda and potass (equal parts of each), at short intervals, till the kitten recovered. She is now quite healthy, and the cicatrix has perfectly healed.

5. I poured on the tongue of a large dog about six years old, eight drops of the prussic acid, and instantly exhibited two drachms of a saturated solution of tartarised soda and tart. potass. In ten minutes I gave ten drops more in the same saline liquor. In one minute convulsions came on, with (as in the other instances) an intermitting pulse, followed by fæcal evacuations. Twenty drops of tinct. opii instantly revived him, and he vomited copiously. Administered:—

Sodæ tart. ʒij

Aquæ distillatæ ʒv; and three minutes