

one of its salts is reduced by solution of protochloride of tin; the precipitate caused by this re-agent is so pulverulent that it requires some hours to subside.

In proof of the non-action of metallic mercury when finely divided, Dr. Christison mentions the results of some experiments upon animals by Dr. Samuel Wright. (Unpublished Prize Thesis—Edinburgh: 1840.) This gentleman administered finely divided metallic mercury, prepared by decomposing calomel with muriate of tin and washed with acetic acid, for a length of time to animals without the specific effects of mercury being produced. Dr. Christison does not mention what animals were made the subjects of Dr. Wright's experiments. If the experiments were made upon horses, cattle, or sheep, and mercurialism was not produced by full and repeated doses, I should be inclined to admit that metallic mercury even when minutely divided has no action upon the system, as these animals are easily affected even by comparatively small doses of the preparations of this metal. But if they were made upon dogs, I cannot consider them conclusive, as these animals reject medicinal and poisonous substances so readily from the stomach by vomiting, that no experiments upon them are decisive, unless the œsophagus is tied, which could not have been done in the present instance. I was informed some years since by a medical man, that he had given as much as a scruple of corrosive sublimate to a dog without any effect; there can be no doubt that it was speedily rejected by vomiting. Conclusions as to the actions of medicinal agents deduced from experiments upon the lower animals are often, for many reasons, far from satisfactory.

Dr. Thomson, in his "Materia Medica and Therapeutics," after stating that mercury, when long triturated, is supposed by some to become oxidized, and by others to be only minutely divided, and that he is almost convinced, from the experiments of Mr. Bell, that the latter is the correct view of the case, adds these words: "that it is not merely mechanically divided, is rendered probable from its solubility in hydrochloric acid, which metallic mercury is not." Now its solubility in this acid, allowing that it is so, alone proves that it is not in the state of protoxide (sub-oxide) as Dr. Thomson appears to suspect. "One proof," Dr. Thomson continues, "of its being an oxide, is its striking resemblance to the grey oxide," made by decomposing calomel with potassa or lime. In answer to this it may be said that the powder formed by triturating mercury resembles in appearance the precipitate of finely divided metallic mercury, made by decomposing a salt of this metal with protochloride of tin, fully as much as it does the grey oxide, while in chemical properties it has greater analogy

to the former than to the latter. Respecting its solubility in hydrochloric acid, I find that after removing all the chalk, sub-oxide and protoxide from the mercury with chalk by means of acetic acid, and the greater part of the liquorice and conserve of roses from the blue pill with boiling water and with rectified spirit, the residues when treated with strong hydrochloric acid, either cold or boiling, are partially and slowly acted upon, the acid when diluted and filtered, giving a precipitate of sulphuret of mercury when sulphuretted hydrogen gas is transmitted through it. On treating the residue again with hydrochloric acid, a further quantity of mercury is taken up as indicated by the same test. It is not impossible that by repeatedly acting upon the residue with this acid, the whole of the mercury, excepting what is unequivocally in the fluid state, (the globules being recognisable either by the unaided sight or by means of a lens,) would be dissolved. The fact of this residue being partly soluble in hydrochloric acid seems to prove either that mercury, when finely divided, is partially and gradually acted upon by this agent, or that the metal in these preparations is partly in the state of an unknown oxide. I have not as yet ascertained whether metallic mercury, as obtained by precipitation with muriate of tin when kept for some time in contact with strong hydrochloric acid and occasionally agitated, is perfectly insoluble.

In order to ascertain whether mercury, when administered in the metallic state, is without any action upon the system, I would recommend the adoption of the following plan:—wash the precipitate formed by muriate of tin with warm acetic acid, and test the washings for mercury, so as to ensure the residue containing no sub-oxide or protoxide, then make it into pills with very soft conserve of roses, and with as little manipulation as possible. Administer these pills to patients labouring under chronic diseases requiring the use of mercury, but where the loss of a few days in the treatment, supposing the pills to be inert, would be of no material consequence. The patients selected should be such as from previous experience we know can be affected by mercury without much difficulty. Pills made somewhat according to this method have, I think, on one occasion, been tried in England and found effectual; and an ointment, made in a similar manner, has been used and recommended, as answering a better purpose than the common mercurial ointment, by an Italian physician, Orosi. I am not certain, however, that in these cases sufficient care was taken to ensure the perfect freedom of the precipitated mercury from all traces of an oxide or salt of the metal.

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