

carbons which float on it, and then neutralizing the alkali by an acid, which liberates the carbolic acid. This was Lament's method, but the amount of pure acid in this was very small, and the preparation was offensive from the strong tarry odour.

Mr. F. C. Calvert, of England, has obtained a very pure preparation by the direct transformation of benzene into carbolic acid. This new phenic or carbolic acid crystallises in white prismatic crystals, soluble in 20 parts of water, fusible at 10C° F., and boils at 359° F.; when mixed with ammonia, it gives a blue color; the same effect is produced when you expose to the fumes of hydrochloric acid a chip of deal soaked in this carbolic acid.

This acid is very pure and free from any objectionable flavour or odour, and should always be used as a therapeutic agent internally, in preference to all others.

There is a second quality he manufactures quite as pure, but having a peculiar tarry taste; this, however, may be used externally, as the odour is not very strong.

There is still a third quality, but it is only fit to be used as a disinfectant; this is the preparation which was used so largely in England during the recent outbreak of Rinderpest and cholera; at present, I think, it stands pre-eminent as a disinfectant.

Previous to the time Professor Lister began its use as a local application, he states that pyæmia and hospital gangrene used to be very prevalent in his wards in the Royal Infirmary of Glasgow, but during the time he was using it, such things were scarcely known in his wards, though they were exactly in the same state and condition, nothing whatever having been done to improve their healthy condition. This is encouraging, for, under similar circumstances, we ought to use it as a disinfectant. The sanitary state was brought about, no doubt, by the evaporation of the acid from his dressings.

When first Professor Lister began its use in compound fractures, he used to take a piece of lint and soak it in pure liquid carbolic acid, and then with a pair of forceps, pass this into the wound and press out as much of the acid as possible, amongst the effused blood. Of late, however, he has given this up, and uses a lotion con-

taining 1 part of acid in 20 of water. He gets all the benefit of arresting putrefaction; finds it easier to inject and diffuse amongst the tissues, which are the seat of extravasation. Frequently obstinate vomiting was produced when he used the pure acid, which he attributed to the absorption of the acid; but by the present mode of treatment, this is obviated. Then having soaked another piece of lint, a trifle longer than the wound, he applies it over the wound, and outside of this he puts cotton wool and an ordinary pasteboard splint; this he leaves undisturbed for three or four days, though daily he would apply the acid to the external piece of lint, on removing the dressing. Then, he usually found no sign of pus, the sore healthy and granulating, and free from all unpleasant odour; in some cases slight excoriation of the skin takes place.

Owing to the volatile nature of the acid, he then made use of oiled silk, to be put over the first piece of lint, and again, outside of this, another piece of lint soaked in the acid; but this was not enough to prevent the evaporation, and the next improvement was the use of black tin, as a covering, which seems to have answered very well. Blood that had been effused among the tissues became rapidly absorbed, and in some instances, he states, that bone which was white and apparently dead became vivified, granulations sprang up around it, and it assumed a pink and healthy appearance once more. For a report of such cases, I must refer you to the *Lancet*, for March 23rd, 1867. As soon as the wound is tolerably well filled by granulations, he omits the use of the acid, as it seems rather to prevent cicatrization than hasten it: he then uses simply water dressing or something similar.

The next improvement was the mixing of linseed oil with the acid, and then a sufficiency of carbonate of lime to convert it into a paste or putty. In cases where the wound is large, and the flow of blood and serum profuse, this served much better to prevent decomposition. A rag dipped in the oil and carbolic acid was first applied over the wound, and then over this the paste was placed, so as to extend some distance beyond the wound, while there was any discharge. The paste was changed daily, but the rag was left in situ. A great many interesting cases on this point are reported by him in the *Lancet*, of