

that the enemy had attempted to cross the river during the night, and that Erie was in possession of our troops. After halting the men for about an hour at this spot, I marched them quietly in to Erie, where I reported myself to Col. Lowry. On the following morning I was relieved from my command.

I have, &c.,
(Signed,) CHAS. S. AKERS,
Capt. R. E.

Capt. McCallum's Report.

To Lieut. Col. Dennis, Fort Erie:

SIR,—At your request, I have the honour to make the following report:—On Saturday last, 2nd June, between the hours of 3 and 4 p. m., after your departure, I retreated down the river under a galling fire, a distance of about three miles, with two men of the Naval Brigade and 13 men of the Welland Canal Field Battery—the rest having been cut off, and consequently taken prisoners, including the following officers, viz: 2nd Lieutenant Macdonald, of the Naval Brigade; Lieutenant Scholfield and Ensign Nimmo, of the Field Battery, wounded, and one man of the Naval Brigade. Lieut. Robb, with the steamer *Robb*, came in boats and took us on board. I then held a consultation with Lieut. Robb as to future proceedings. We then determined, on account of being encumbered with so many prisoners on board, 57 in number, and so very few men left to guard them, to run to Port Colborne, and send the prisoners to a place of safety. In passing Fort Erie up the river, we, for a distance of a mile's run, were under a heavy fire of musketry from the Canadian shore. We passed without any casualties worth mentioning, and arrived safely at Port Colborne at half-past 6 p. m. of the same day, and delivered the prisoners over to Lieut. Col. McGivern, with commitment and names inserted, all of which is respectfully submitted.

(Signed,) L. MCCALLUM,
Capt. N. B. Dunnville.

CARBOLIC ACID AS AN ANTISEPTIC.

The *American Artizan* says:—Mr. Wm. Crookes, F.R.S., has made a "Report to Her Majesty's Commissioners on the Application of Disinfectants in arresting the spread of the Cattle Plague," from which we extract the following relative to carbolic acid:

Pure carbolic acid is a white crystalline solid, melting at 34° C., and distilling at 180° C.; a trace of water or oily impurity renders it liquid, and for disinfecting purposes it is always supplied in this form, to avoid the extra expense and trouble needed for the separation of the last traces of impurity; cresylic acid is liquid, it boils at 203° C., and closely resembles carbolic acid in odor and other properties. Before the commencement of these inquiries it was thought to be of little or no value as a disinfectant, but Dr. Angus Smith has lately shown that it rivals, if it does not surpass, carbolic acid in antiseptic properties. For the present purpose of cattle plague disinfection it is immaterial which acid is used, and to avoid unnecessary repetition I shall use the term carbolic acid to express

either acid, or the commercial mixture of the two acids.

From time immemorial carbolic acid, creosote, or bodies containing them, have been used as antiseptics. Passages in Pliny, read by the light of chemical science, show that the Egyptians used for embalming their mummies, a compound made from pitch, which must have contained large quantities of creosote. Carbolic acid is the active agent in tar, which, either in its ordinary state or burnt as a fumigator, has always held high rank amongst disinfectants. Pitch and tar were the most popular medicines in use against the cattle plague when it visited this island in the last century; the animals being preserved against contagion by having their noses and jaws rubbed with tar, whilst the cow-houses were disinfected by burning pitch and tar in them (in which process a certain quantity of the vapors of carbolic acid would escape combustion). The almost universal custom of burning gum resins and odoriferous woods in connection with religious ceremonies may have originally arisen from the disinfecting powers of the creosote in the smoke. The well known efficacy of smoke in preserving meat is entirely due to the presence in it of this agent.

Pitch oil, oil of tar, and similar products, owe their value entirely to carbolic acid (22). This body may in fact be called the active principle of tar, just as quinine is the active principle of bark, or morphia of opium, and it has the advantage of being easily prepared in any country where coal or wood can be obtained.

Sulphurous acid probably owes some of its antiseptic value to its affinity for oxygen, whereby the oxydation of the matter under treatment is retarded. It has been suggested that the value of carbolic acid is due to a similar property, and that it acts merely by preventing oxydation. It being important to a thorough understanding of its action that this point should be settled, the following experiments were made:

1. Lumps of metallic sodium were cut with a sharp knife; the progress of the oxydation could be readily followed by the change of color of the surface. The experiment was tried several times in an atmosphere strongly charged with the vapor of pure carbolic acid and cresylic acid; comparative experiments being made at the same time in pure air. No difference in the rate or amount of oxydation could be detected.

2. A colorless solution of subchloride of copper in ammonia was prepared and divided into two parts; one being mixed with a little carbolic acid. On pouring them through the air into flat white dishes no difference of the progress of the oxydation could be detected.

3. A mixture of pyrogalllic acid and solution of potash was shaken up in a large stoppered bottle. It was then opened under water, and the amount of absorption of the atmospheric oxygen noted. The same experiment was repeated after the addition of carbolic acid to the potash solution. The same quantities were used and the agitation was continued for the same time. On again opening the bottle under water the absorption was found to be the same as before.

4. The last experiment was repeated, substituting crystals of sulphate of iron for pyrogalllic acid.