but we do know, in some respects, what the people were in Queen Elizabeth's reign. They were not a perfect race, but they had many great qualities. At that date seven millions, at the last census nearly thirty millions, of the race existed in these islands; besides the swarming millions in the New World and in Australasia. Is there any correlative improvement in the fine qualities of this race? There is, in many qualities. Yet it is impossible to pass the population in review at a census without observing in many grave defects; in many, shortcomings; in many, organic degeneracies; in many, criminal depravities. In large portions of the world, only low and barbarous races roam. How, out of the existing seed, to raise races of men to a divine perfection, is the final problem of Public Medicine.

ON THE USE OF ANTISEPTIC CERE-CLOTH FOR COVERING WOUNDS.*

By EDWARD LUND, F.R.C.S.,

Lecturer on Anatomy, and one of the Surgeons to the Manchester Royal Infirmary.

I AM anxious to bring before the notice of the Surgical Section of the British Medical Association a material which I have lately used with great advantage for covering wounds, and which I have called *antiseptic cere-cloth*. It is, as the name implies, cloth or thin calico saturated with waxy matter in the form of solid paraffin, to which are added a little oil and wax, with carbolic acid in certain proportions. It possesses this double property, that, when placed over a wound, ulcer, or the opening of an abscess, it not only serves to exclude the air as an impervious dressing to the part, but it constantly emits from its surface the vapour of carbolic acid, as it is disengaged by the heat of the body, and so forms an antiseptic atmosphere around the wound.

It will be found an economical and ready substitute for the antiseptic lac plaster of Professor Lister, by which he has obtained wonderful results in the management of severe lacerated wounds, abscesses, and the like; and, in the particular method of applying the cere-cloth, I have endeavoured as far as possible to carry out those minute and careful directions which Professor Lister has given, as the only means by which to secure for the "antiseptic method" a fair chance of success. I will not occupy the time of the Section by entering upon the disputed question, how it is that the antiseptic method really acts—whether *chemically*, upon the tissues and fluids of the part; or *physiologically*, if I may so say, by arresting the development of those "septic germs" and "living organisms" which by their presence, under certain conditions, seem to determine the existence of suppurative inflammation on the surface of wounds, and thus interfere, more or less, with the healing processes; for, quite independently of this, it is very desirable, especially in hospital practice, where surgical cases are crowded together, to prevent the putrescence of the secretions from wounds, and the foetid tainted atmosphere which they engender; so that, merely on the score of cleanliness and neatness, it must be admitted that the antiseptic method has much to recommend it.

In the preparation of the cere-cloth, solid paraffin is used as the basis of the composition with which the cloth is saturated. It has these advantages: that paraffin in itself is not at all irritating to the skin; and, when made into cere-cloth, it adapts itself easily to the surface to which it is applied, moulding itself to any peculiarities of form by the warmth and gentle pressure of the hand, at the same time that it is in no way adhesive, as ordinary ointments or cerates would be; and, therefore, when it is required to be removed, it can be raised or slid off from the surface with the least possible disturbance, and a fresh piece placed in its stead. This mixture of solid paraffin, oil, wax, and carbolic acid, in the proportions which I am about to mention, does not liquefy much below 190° Fahr.; so that it retains its solid form at the ordinary temperature of the body, the vapour only of the carbolic acid being slowly dissipated. It is likewise an inexpensive material—a matter of no small importance in public practice. I am not prepared to state its exact cost; but I am sure, if made in large quantities, it will be found to be a very cheap form of surgical dressing. It can be kept in the solid state, protected from the air, for a great length of time; it can then be

warmed and liquefied as required. The calico saturated with it, by simply drawing a portion through it while in a fluid state, congeals immediately, and is ready for use; or it may be made, in pieces of any length and width, by rolling the calico over cylinders containing cold water as fast as it has taken up the cerate, as I have shown by a machine in the museum collection of new instruments at our present meeting.

To illustrate how effectually the vapour of carbolic acid, thrown off from this cere-cloth at ordinary temperatures, will prevent putrefaction, I placed some piece of fresh meat in several wire cages of a cubical form, covering each with the cere-cloth, and fixing it loosely round by an India-rubber band. This was done on the 12th of June last, and again on the 23rd of the same month; and, on opening one of the packets to-day, it will be seen that the piece of meat has remained unchanged, as far as putrefaction is concerned; although, from the time it has been kept in a warm room, it is quite dry and hard. To prove that this was due to the carbolic acid vapour, and not to mere exclusion of the air, on June 12th I also placed a piece of fresh meat in a cage, and covered it over in the same way with calico steeped in exactly the same composition as far as the paraffin, oil, and wax were concerned, but *without* carbolic acid; and in less than nine days the meat was quite putrid and moist from decomposition, and I was compelled to throw it away. This has suggested to me that possibly this cere-cloth might be found very useful for the purpose of wrapping up pathological specimens to preserve their colour and freshness for future microscopical examination; for, if it be the vapour of the acid which produces the result, this alone could not occasion any serious change in the structure or chemical composition of the tissues.

In using this cere-cloth for dressing wounds, although it is important to bear in mind that the exact size and quantity to be employed must vary with the extent and depth of the wound to be covered, and the time which is to elapse before its re-application, yet it is always prudent not to use carbolic acid at a greater strength or for a longer period than is really needed to prevent or check putrefactive changes. As soon as these have ceased, or, after a reasonable time, have not manifested themselves by the presence of foetor, the weaker the carbolic preparation the better; for there can be no doubt that carbolic acid is an irritant, and in some constitutions a very powerful irritant; hence it becomes a cause of protracted suppuration by over-stimulation. How to adjust the exact strength of the application in any given case is a matter of great difficulty; and it is doubtless one reason why many surgeons, who have given carbolic acid a trial with the object of averting putrefaction, have ceased to use it, thinking that at times it seemed to do more harm than good.

To obviate these difficulties, I make the cere-cloth of three degrees of strength, as it contains one-fourth, one-sixth, or one-eighth of carbolic acid. The strongest quality is needed in the management of the early stages of a wound; the others are more useful while cicatrisation is going on.

The exact formulæ for the cerates with which the calico is saturated are as follows; the form in each case being intended for twelve fluidounces of the cerate in the liquid state—enough to spread about one square yard and a half of the cere-cloth. The quantities which I give are to be measured by bulk, and not by weight—that is, for the carbolic acid and the oil, as well as the paraffin and the wax which have been previously liquefied; for I find that in this way I get a greater uniformity in the composition.

No. 4, or the strongest form of the cerate, is composed of pure carbolic acid, Calvert's, *liquefied*, f. ʒiii; olive oil (coloured red with alkanet-root, to distinguish the cerate), f. ʒiiss; yellow wax, *liquefied*, f. ʒiiss; paraffin, *liquefied*, f. ʒvi. Mix.

No. 6, the next in strength, and of a yellow colour, is composed of pure carbolic acid, f. ʒij; olive oil, f. ʒiiss; yellow wax, f. ʒiiss; paraffin, f. ʒv. Mix.

No. 8, the weakest, which should be nearly white, is composed of pure carbolic acid, f. ʒiiss; olive oil, f. ʒi, f. ʒvi; white wax, f. ʒi, f. ʒvi; paraffin, f. ʒvii. Mix.

I trust that these few remarks will induce some of the members of the Association to make trial of this material; and that its use may serve to advance the general adoption of those principles in the antiseptic method of treating wounds which have been so ably and perseveringly advocated by Professor Lister.

I shall be happy to give samples of the cere-cloth to any interested in the subject, who are likely to have an opportunity of testing its value as a covering for wounds.

THE LIBRARY OF THE OBSTETRICAL SOCIETY will be closed from Monday, September 6th, to Saturday, September 18th, both days inclusive.

* Read in the Surgical Section at the Annual Meeting of the British Medical Association in Leeds, July 1869.