F. = Free from the disease.

The table shows that the disease has been transmitted mainly, but not entirely, through the female line, and that the offspring of those who escaped have never been affected. The family is a long-lived one.

In the second volume of Hebra's *Atlas* will be found an admirable representation of the condition of the hands; it is named "keratosis or tylosis palmæ." Crocker's *Atlas*, vol. i, also figures the condition. Unna (edition 1896) calls the disease "keratoma palmare et plantare hereditarium," and gives the following histological account from Thist: Elongation of papillæ, granular layer thickened; the main thickening found in the middle layer of epidermis. The cutis and fatty tissue with the blood vessels enlarged. The coil sweat glands much hypertrophied with very large mouths.

Ulna concludes that the thickening of the cutis and fatty tissue, as well as the very marked acanthosis and hypertrophy of the coil glands stamp this congenital tumour formation as a naevoid hypertrophy of the whole palms and soles. He notes especially the "reddish margin" so well observed in my case. It would be interesting to know whether Professor Weismann would consider this transmitted disease as evidence in favour of his pangenesis theory of heredity.

THE USE OF NITROUS OXIDE GAS AND OXYGEN DURING SURGICAL OPERATIONS.

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So many advantages might be claimed for the introduction of an anæsthetic agent which would combine the four attributes of safety, a rapid unconsciousness, muscular relaxation, and freedom from after-effects, that a few further remarks on the results which are at present attainable with nitrous oxide gas when mixed with suitable proportions of oxygen may prove of interest as offering the addition to our list of an inhalation less incapacitating than chloroform and ether, but scarcely inferior in value for many surgical procedures of moderate gravity.

The question at once arises, Under what conditions will such an anæsthetic be of special value?

1. A complete examination of the pelvis and abdomen is often needed before a diagnosis can be arrived at in cases which may require either for an operation shortly afterwards; on these occasions, without any special preparation, gas and oxygen will prove a most convenient help.

2. As ether is very safe, in modern days it is no exception to find patients who have inhaled it several times, but suffer considerably from after-effects; to these the substitution of a tasteless gas during a surgical operation is a great relief.

3. Many operations require some further painful procedure during convalescence, the removal of drainage tubes, the moving of stiffened joints, the reopening of a wound for hæmorrhage or redressing; in these it is particularly desirable not to upset the patient's digestion by a second dose of ether if nitrous oxide can be made to rise to the occasion.

The apparatus invented by Dr. Frederic Hewitt for use in dental practice is adaptable to surgical cases after a slight enlargement of the oxygen apertures in the mixing chamber, from 10 to 20 per cent. of oxygen being required when the face-piece is kept continuously applied. About 50 gallons of nitrous oxide and 7 or 8 gallons of oxygen are inhaled on the average during each quarter of an hour's narcosis. Beginning with 2 or 3 per cent. of oxygen the patient inspires the gases for

five or six breaths, and by means of a dial plate the oxygen is then increased in amount, according to the depth and rate of breathing and the colour of the ears and face.

We know exactly the symptoms of **asphyxia** which nitrous oxide given alone produces—namely, cyanosis, jerky, rapid breathing, twitching of the limbs, and dilated pupils. These objectionable results are avoided by the presence of oxygen, and by means of experience in the use of gas alone the amount of oxygen required in each case is discernible the moment respiration tends to vary at all from that of normal softly snoring sleep. Clinically, if the breathing grows faster and deeper and colour a trifle dusky, more oxygen is wanted; if quieter and slower, the oxygen must be reduced.

Let us now inquire what type of anæsthesia is produced, and the symptoms observable during the narcosis. The colour is normal, the breathing of a softly snoring type, not so stertorous as with ether, not so quiet as under chloroform; the pulse is strong, full, and regular; the abdomen is generally quite flaccid, but the limbs may show a slight tendency to rigidity; though the legs will offer no resistance to being placed in the lithotomy position, they may show slight reflexes from time to time. The blood from an incision during this anæsthesia may appear somewhat venous at intervals; this is not, however, due to congestion, but to the fact that nitrous oxide to some extent replaces oxygen in the hæmoglobin and the purple colour of the new product becomes evident in the flowing blood, even while the facial colour is healthy in appearance.

Alcoholic patients are not good subjects, nor are very powerful athletic men ; but most women and well-nourished persons generally can be regarded as suitable cases, while those who are weakened by illness often take the gases remarkably well.

In my first article on this subject, in the *Lancet* for June 12th, 1897, I gave an account of the uses to which I had applied this anæsthetic during the previous two years. In the August number of the *British Gynecological Journal*, 1897, I gave a further account of its suitability for certain cases in that branch of practice, citing, in each paper, several instances of its prolonged inhalation.

Since that time I have notes of a number of successful administrations lasting from 15 to 20 minutes, and in these I have not observed any symptoms which would indicate that the anæsthesia has any more definite limits with regard to time than that of chloroform or ether.

The recovery to consciousness after removal of the face-piece has been very rapid, often complete in 2 to 3 minutes, and sickness has been conspicuous by its absence.

Such operations as the removal of a cystic adenoma from the breast, dilatation of the cervix uteri, removal of an inflamed hymen, reopening of a lumbar renal incision, opening and curetting of a large mammary abscess, and several cures for varicocele among the number, will illustrate the usefulness to which these gases may attain.

I think the safety of nitrous oxide and oxygen is greater than that of the former gas alone—the safest of all known anæsthetics—for during the past eight years its adoption in dental practice has been rapidly becoming general, and no fatality has ever been recorded under its influence.

BACTERIOLOGICAL INSTITUTE FOR CEYLON.—Dr. H. M. Fernando will probably be the Director of the Bacteriological Institute to be opened in Colombo shortly, and is leaving for Europe in connection with the institution. The final plans of the building have been completed, and the work will be taken in hand at once. It is expected that it will be opened early next year. The apparatus and laboratory fittings have been ordered out.