SUN TREATMENT AS AN AID TO THE OPEN-AIR TREATMENT OF SURGICAL OR NON-PULMONARY TUBERCULOSIS.¹

By Dr. T. HARTLEY MARTIN.

Liverpool Open-air Hospital for Children, Leasowe.

EXPERIENCE gathered at the Liverpool Hospital for Children, Leasowe, during the past eight years has convinced me that the exposure to the sun's rays produces beneficial effects in cases of non-pulmonary tuberculosis.

Unfortunately, the vicissitudes of our insular climate prevent the practice of the treatment during the winter months, but local exposure can be practised on sunny days provided arrangements can be made to keep the child warm.

The routine adopted to produce acclimatisation varies little from that adopted by Rollier of Leysin, and since this is well known I will not enter into any detail, but will endeavour to enumerate some of the advantages which my observations lead me to believe accrue from systematically controlled exposure to the sun.

The results achieved may be described according as they concern either the general health of the subject or the local health (by which I mean the changes which take place in the local manifestations of the disease).

The improvement in the general health follows the pigmentation of the skin and may be said to vary in degree with its intensity (due allowance being made for the colour type of the subject). These changes manifest themselves in :—

The improvement of the health of the skin and subcutaneous tissues, more especially the facility with which secondary bacterial and superimposed parasitic infections are disposed of. The improvement of appetite, increase of vigour and the improved rate at which the body weight increases, being most marked in the strumous type of child, and in children suffering from tuberculous abdominal lesions. The diminished tendency to attacks of chronic conjunctivitis and corneal ulceration. The improved vaso-motor and trophic control in children suffering from paraplegia.

In addition to these general changes, clinical evidence is available of an improvement in health.

At Leasowe, the Arneth count is used for purposes of diagnosis and prognosis, and it has afforded much interesting information of the progress of the case towards recovery. It has been found that the polymorphonuclear count in these cases is, in the active stages of the disease, much below normal, and that it returns to normal slowly once the spread of the disease has been checked. This return to normal was thought to be of a gradual nature, but it was found that it could be accelerated by such things as exposure to radiant heat and more especially by exposure to the sun's

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rays. During May, June, July and August of last year the change was very marked. May and June were hot months with a very low rainfall and not much wind. The nuclear count in all cases under observation rose rapidly to the standard count (as taken from healthy children attending a suburban school), but in July and August, two wet and unusually cold months, it fell again below normal.

Control cases in the hospital not exposed to the sun's rays did not show the same rapidly increased count, and further evidence is being collected that other forms of light and even heat rays will produce this change, though not to such a marked degree as the sun's rays.

Another curious fact has been observed, which is as yet unexplained. About 3 or 4 per cent. of the children in hospital have periodic attacks of acidosis, characterised by vomiting and the presence of acetone and diacetic acid in the urine, brought about, it is thought, by a disordered metabolism. It is found, however, that these attacks do not occur during the months when exposure to the sun's rays can be practised.

The changes which take place in the localisations of tuberculous disease are more apparent.

Sinuses exposed to the sun show marked changes. The inflammation surrounding the mouth of the sinus soon disappears and the discharge, although at first increased in quantity, soon diminishes and is less offensive. The perisinoidal inflammation is absorbed and the sinus—if allowed—tends to heal from the surface.

Abscesses arising from osseous or glandular foci show varying changes. In some, the surrounding inflammatory thickening disappears and the contents become absorbed, whilst in others the contents are liquefied, thus facilitating more rapid evacuation.

The effect on the focus of disease itself is, as far as my observations are concerned, at present undetermined. Unfortunately, sun-treatment at Leasowe is often interrupted.

I hope to be able to accumulate statistics which will show that in the more superficially seated lesions the progress of the disease can be checked and its duration shortened, but at present I cannot do this, nor am I able to say whether or not the duration of the disease in deep-seated lesions can be directly influenced by sunlight.

I have observed that delayed recalcification of bone can be stimulated by exposure to the sun, but that this may be due to increased metabolic activity I cannot refute.

I am satisfied that sun-treatment, in whatever way it may act, is a valuable aid to cure in the treatment of non-pulmonary tuberculosis in children.