

most part a bad general condition. Weakened by long periods in the hospitals below, or by repeated operations, discouraged by the failure of former treatments, they have lost all faith in the possibility of cure, and even worse, the will to be cured. One must treat the spirit as well as the body, and heliotherapy, used first alone, then in association with the cure, helps us in the most wonderful way. The brilliant sunlight, winter and summer, in the mountains, gives the patients all that profound and intimate satisfaction, which comes from the renewed activity of the faculties, as it were, an expansion of the whole being. This spiritual re-birth of the tuberculous patient on the mountains is undeniable; we see it every day. It is for the doctor an invaluable auxiliary, for it simplifies for him the psychotherapeutic side of his work, so necessary in chronic disease, and collaborates in the interest of the patient. Thus, by the careful combination of the sun-cure and the work-cure, with their double influence, psychological and physical, on the patient, we realise successfully that rational therapy of healing Nature, which aims at the active immunisation of the organism, by stimulating the natural forces of defence against the infectious agent. But the cure of surgical tuberculosis is but half the battle; the ground gained must be consolidated, and for this reason the after-history of our old patients has been a constant source of anxiety. Too often, convalescents, and particularly those without means, return to unhealthy houses, workshops or factories, where the hygienic conditions are such that relapse is a constant danger. The best way of assuring the tuberculous patient against a return of his disease is to maintain his general condition in a state of vigorous defence. Sun and air remain always the great protectors of the organism, and to enable him to take full advantage of them the old tuberculous patient should renounce for ever the city life which caused him to develop the disease.

The Work Colony.

With this in our minds we started in 1903, in collaboration with Pastor Hoffet, the work colony, which enables our old patients to complete their cure and maintain their re-found health at a very slight cost, which is partially covered by the product of the work.

This return to work, excellent as it is for the morale of the patient, reacts also on his physical condition. The tuberculous patient, by regaining the taste for work, loses that depressing feeling of his own uselessness and wins a new self-confidence. This is for him the first stage on the way back to a normal life.

The striking results given by the work cure in our poor clinics have encouraged us to consider the possibility of its more extended application at Leysin, in the shape of a model manufacturing clinic reserved for patients without means and for convalescents. In such a clinic patients could occupy themselves with appropriate manual work, while continuing to benefit from the helio-Alpine treatment, and the product of their work would go to their upkeep. This would be perhaps the best solution of the financial problem, which so often complicates the treatment by heliotherapy of necessitous cases.

Preventive Heliotherapy.

From what has been said above, the conclusion may legitimately be drawn that heliotherapy, systematically applied, is capable of bringing about a real resuscitation in organisms profoundly undermined by tuberculosis. A splendid general condition, a new skin, the resistance of pigmented integuments, and a complete reconstitution of the musculature, which often endows former cachectic patients with the bodies of athletes—such are the characteristics of cures by heliotherapy. But the rôle of helio-

therapy is not only curative. If it has shown itself able to conquer surgical tuberculosis in all its stages, it seems evident that, *a fortiori*, it should be able to prevent its onset. Our experience has amply proved this hypothesis. It is well known that tuberculous infection generally occurs during childhood. It has been proved that at the age of puberty 95 per cent. of children have paid their tribute to tuberculosis. Since, then, the seeds of the disease are laid in childhood, it is during childhood that we must fight it and reduce it to impotence. To this end the resistance of the child must be fortified to the maximum, and everything avoided which might in any way diminish it. Experience has shown that there is no surer way of obtaining this result than the air and sun-cure combined with rational exercise. We have carried out since 1900 this preventive heliotherapy in the School in the Sun at Cergnat, near Leysin. This simple experiment of lessons given in the open air and sun has shown us what a striking improvement may be expected in delicate and predisposed children. After a few weeks sickly children with narrow sunken chests, flabby limbs and atrophied muscles, undergo a striking transformation. Bronzed skin and fresh complexion replace the anæmic pallor; the general condition is toned up, the hæmoglobin percentage steadily mounts; flabby muscles become firm and the chest expansion is increased; while the X-ray shows a progressive sclerosis of tracheo-bronchial lymph nodes. An awakening of the intelligence goes hand in hand with the development of the body; the *joie de vivre* is evident on the sunburnt faces of the children.

We have carried on, ever since, a campaign in favour of the air and sun-cure prophylactically applied. Open-air schools, as you know, are spreading in all countries; and, though I cannot here deal with all the experiments carried out in this domain, I must at least mention the work of the most eminent pioneers. No land has done more than England for the wider application of these ideas. The name of Dr. Saleeby, that brilliant exponent of life-giving light, is familiar to all. For many years he has worked with tireless energy to convince the English authorities of the importance of sunlight for all classes of the population; and it is gratifying to see that his toil is at last bearing fruit. In the domain of surgical tuberculosis, Sir Henry Gauvain was one of the first to use the healing properties of sunlight, and he has successfully demonstrated that excellent results can be obtained by an intelligent use of the combined air and sun therapy under English climatic conditions. The work-cure has been developed at Papworth under Varrier-Jones and at Chailey, where Sir Robert Jones and Murray Levick use light treatment and occupational therapy in combination, the splendid work of Mrs. Kimmins is well known. Similar institutions have been opened up and down England and are doing excellent work.

We hope to found in Switzerland a rational and systematic prophylaxis in the schools, not only in the open-air schools, which are, after all, the exceptions, but also in all the orphanages, crèches, in the soldiers' barracks, in the cities and, above all, in the schools in general. The public school is too often a place of physical deterioration, where the mind is cultivated at the expense of the body, instead of providing an ideal opportunity of giving to the children, under a common discipline, an education in solar hygiene, from which they would benefit all their lives.

The School in the Sun.

The school, as we conceive it, would thus attain that ideal cherished by the ancients, *mens sana in corpore sano*, and it is not perhaps too optimistic to hope that by improving the health of the body the improved health of the soul will follow.

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