

actually do penetrate the tissues and, like the Roentgen rays and radium, do produce actual changes in tissues. Such rays, we know, are obstructed and diffused by vapor and clouds, and in the summer, create with heat those conditions under which fungi, as rust and mildew, develop on plants and in houses.

*Influence of Altitude.*—One of the most remarkable effects of high altitudes, as in the Alps, is the notable increase of red corpuscles in the blood. When one goes quickly from say Vera Cruz in Mexico to Mexico City, at 7,300 feet of altitude, in 12 hours, he is conscious at once of exhaustion on the slightest exercise. The reason is that the 4,000,000 corpuscles per cubic centimetre are not normally capable of absorbing enough of oxygen to supply the needs of the tissues, hence there is actually an anoxystation. Now it is probable that the defective supply of oxygen which is rapidly overcome, say in a fortnight, through an increase of the corpuscles to 6,000,000, or more is due to the bright sunshine. Rapid metabolism or changes of tissue results, since to get enough of oxygen deeper and more frequent inspirations invariably and necessarily are the temporary effect.

Thus we have here again rapid reconstruction of tissue by increased demands for food, and the rapid increase of red corpuscles is insured, provided that exhaustion is prevented by temporary rest or slight exercise, and protection is insured against a loss of body heat by adequate clothing, with the very rapid fall of often 40 degrees of temperature within two hours as sunset approaches.

I have thus, as briefly as possible, indicated not only how air or oxygen enters the system and produces effects there, but have also shown how its normal constituents, oxygen and moisture, and its abnormal contents, disease germs, produce certain effects and how house atmospheres or excess of moisture, cold, sunshine, and altitude all play their parts for good or ill upon the human body. We have to deal now with actual climatic conditions as we find them in Canada, and to indicate some conclusions which seem to grow out of these.

Remembering that in tuberculosis we have a disease which yearly takes its toll of some 9,000 deaths in Canada, and realizing that all sanitarians call it essentially a house-disease, increasing directly with house density of population, we may properly study it in relation to climate and in this include house atmospheres or *artificial climates*. It will further be apparent that whatever climatic conditions influence this disease, influence probably equally other diseases.

The problem of lessening tuberculosis presents two factors;