

demics. Then there is the pneumococcus, residing in the mouth, which often causes pneumonia when the host is "run down" and unable to make the ordinary resistance to invasion. Next comes some of the pus organisms. There are others, also, whose names and addresses are imperfectly known.

Ordinarily, colds are self limited diseases; that is, they run a definite course, when there are no complications, and disappear. They are never fatal, simply as colds, though a cold may start a disturbance that finally develops into fatal effects. Speaking by present knowledge, a cold is an infection of the membranes of the nose, gullet and throat that is not pneumonia, diphtheria nor any of the other grave disease in which some of the symptoms are present, and which ordinarily runs its course in about two weeks, for the most part in defiance of drugs. This limited duration is probably fixed by the time required by the human defensive mechanism to develop the resistance needed to overcome the invasion. Substantially the same characteristic of limited time duration shows in pneumonia, which is intrinsically a very severe cold "on the lungs," though this is not quite the whole story.

One sick with pneumonia reaches a "crisis" in the disease within about ten days from the onset, and thereafter gets well or dies, according to circumstances. In the cases that recover, the time up to the occurrence of the crisis apparently measures the time required for the body to make its defence effective. In the uncomplicated, plain cold, this time, as always noted, is about two weeks when—and this proviso is of little suspected importance with most persons—when the subject of the cold lives under ordinary conditions of indoor winter life in these latitudes. By proper treatment with plenty of fresh, cold air, the duration of what is usually a two weeks' cold can be cut down to three or four days.

Fresh air, for the purpose of this discussion, may be defined as outdoor air reasonably free from dust and smoke, and without any traceable taint, otherwise odor, from human or other animal bodies. The last specification may seem purely malicious, but it will presently appear to be quite otherwise. The dampness of fresh air is not of importance, provided the air is moderately cold. Here is the mechanism

of the process, probably. It is unfortunate that the facts are not more fully known; but the following explanation is much better than guesswork:

Being in cold air, the human being has need of producing more heat to maintain the normal body temperature. Bodily heat is produced by oxidation within the tissues, sustained by the oxygen taken into the lungs as one of the components of the mixture known as air—air being about 20 per cent. oxygen and about 80 per cent. nitrogen, with traces of other matters according to varying circumstances. The need of more heat when in cold air results in a greater consumption of oxygen; hence in a more rapid and complete combustion, not only of the fats which the body devotes to heat production, but also of the waste products of all the bodily functions and those resulting from voluntary muscular movements—even to the matter of thinking. As a result, the chemical interchange and renovation, metabolism, is more than usually active and thorough. In addition, it seems fairly clear that the mere coldness of the air acts as a stimulant, and that so long as the body is kept warm, cold air tends to exceptionally thorough metabolism, largely by virtue of its coldness. This hypothesis appears to be strongly supported by proved value of cold, fresh air in the treatment of pneumonia.

Joined with the stimulation and active metabolism produced by good breathing of cold, fresh air is the absence of irritation to the respiratory membranes. Cold air rarely or never hurts healthy lungs and nasal passages; nor very often ailing ones. The result of this absence of irritation to "cold" infected membranes, joined with the renovating effects of the rapid oxidation of tissues due to the body's increased demand for heat, puts the body in the best possible state to combat the microbes whose invasion has saddled it with a "cold." In consequence, the enemy is more quickly and easily routed than when the body is confined to warm rooms, where the air affords no stimulus to the body reactions and may furnish unsuspected irritation to the infected membranes.

Persons of the necessary vigor and "constitution" may throw off a cold in a few days, even while living indoors, simply because their bodies are able to develop an effective counter attack on the microbes in less time than is required by the average