

BIBLIOGRAPHICAL NOTES.

SAMUEL LOCKWOOD. *The Hygiene of the Atmosphere*. North American Review. Vol. CLV., No. 4. October, 1892; pp. 446-455.

It is only within the last few years that the dust of the atmosphere has received much attention from meteorologists, but now through the recent painstaking investigations of Mr. Aitken, we have learned how important is this dust in the formation of fog and rain. The modern science of bacteriology, also, has made us familiar with the fact that the atmosphere contains myriads of microbes, working for good or evil. In his paper Prof. Lockwood deals with the question of these bacteria in the atmosphere, which, he says, are really plants, perpetuating their species either by self-division or by spores. They are possessed of marvellous vitality, retaining their vigor even though frozen in ice, and the spores of some of them resisting the heat of water nearly to the boiling point. There are diurnal fluctuations in the number of these bacteria in the atmosphere. They are very numerous at about eight o'clock in the morning, decreasing in number until noon, increasing again until a maximum is reached at about eight o'clock in the evening. From midnight till three o'clock they diminish in numbers, and then increase again till the morning maximum at eight o'clock.

In concluding his paper Prof. Lockwood gives the result of some investigations he made during the past summer with reference to the cause of hay fever, which he believes to be due to the dust in the atmosphere. We quote the author:—

“A distressing malady is *æstivis*, or hay fever. Behind the disease is a neurosis, or supersensitiveness of the nerve centres. The air passages have their mucous walls in a disordered condition, and in a state of tenderness not unlike that of the outer flesh when scalded or denuded of the skin. Hence, generally, air dust of any kind is a painful irritant to the mucous surface. And probably this is especially true of the organic or vegetable matter in the air. As president of the United States Hay-Fever Association, it seemed my duty to throw some light on the question of the difference of the air in places where *æstivis* prevailed, and the regions sought as sanitarium being largely exempt from the malady. Possibly in these mountain retreats, owing to the resins of the balsam forests, peroxide of nitrogen, mistaken for ozone, is present. The air, too, is dryer and its average much cooler, all of which makes the summer climate more tonic. Yet it seemed to me that the chief factor was to be sought in the character of the air dust itself. In a word, the instrumental work was less with the barometer and thermometer than with the microscope. Accordingly, in August and September, at my retreat in the White Mountains, at an elevation of about one

thousand five hundred feet, I set traps to catch the contents of the air, instructing my son, by correspondence, to do the same at the same time at my home in New Jersey, at an elevation of nearly three hundred feet above the sea. His daily catch was put away in an air-tight box to be studied on my return. My particular quest was pollen, and only on two traps in fifty did I find any. One yielded five grains of aster pollen, and another three grains of spiræa. This paucity of pollen was a genuine surprise. The study of the home slides afforded an astonishing contrast. A single trap gave me over two hundred pollen grains of ragweed, or Roman wormwood, probably the very worst irritant of æstivis. Then there was hardly a slide without pollen of some kind. Time will not allow for technical descriptions, but there were pollens also of other plants, though the ragweed dominated largely over all. There was mineral dust, too, in great quantity, woody matter, and considerable *dibris* of an artificial sort, such as fibres of woolen and cotton goods, peculiar to populous places. Scales of insects, great quantities of very fine vegetable exuviae that I have likened to epithelial scales, were present in profusion. But, to my surprise, the traps showed a considerable amount of fungus spores, rather pretty, but decidedly unlovable objects when once inside the air passages. In my judgment, of the ingredients which make up the air dust, pollen, especially that of the ragweed, is the worst for the sufferer from hay fever."