

ing morning. Such temperature usually produce immediate and decided effects on vegetation, assuming the character of "killing frosts."

On the following Sunday morning the writer made a run on the road leading out of Clarksdale, which for three miles traverses ground near to what was the bank of the Mississippi River before a "cut-off" several centuries ago converted this part of the river channel into a lake. The road then turns from the old river bank and traverses fields in the interior.

There is a luxuriant growth of cotton along the road for many miles, and that which is on the ground in the vicinity of the former bank of the river is green and vigorous in appearance, showing no effects of frost; while all the foliage on the cotton in the fields remote from the river bank was completely killed.

The thermometer that recorded the above temperature is located near the old river bank, and at the same elevation as the growth of cotton stalks referred to.

The writer is unable to imagine an agency that could produce the results above recited, except a difference in the character of the soil in which the cotton grows.

The soil near the old river bank is composed of river silt mainly, while that of the interior fields is a heavy, dark clay, locally called "buck shot."

The assumption is that the silty soil possesses the property of storing the sun heat during the day, and that this stored heat given out during the night protected the cotton from the frost temperature; and that the clay soil does not possess this property in the same degree.

The frost temperatures above noted came rather suddenly, without preceding low temperatures to deprive the soil of previously stored heat.

It should have been stated that the "old river channel" above referred to is not now a body of water, but by gradual filling has become arable land. Also that this is a level country.

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## QUOTATIONS

### HOW TO AVOID INFLUENZA

ALTHOUGH man has lived in houses of one kind or another for several thousand years, and in western Europe since the introduction, somewhere in the fifteenth century, of glass for domestic windows, in houses which can be almost hermetically sealed, yet a human strain capable of withstanding the evil influences of unventilated rooms has not so far been evolved. Our ancestors of a few centuries ago immured themselves in tightly-closed houses, slept in bedrooms with windows closed, sometimes even in cupboards or box beds with shut doors. The result was reflected in their mortality, in the prevalence of the plague and other plagues, and in their short average span of life. Though we are wiser than they, and pay lip service to the virtues of fresh air, and talk much and learnedly on ventilation, the severity of the present pandemic of influenza is enough to show that we need to grow wiser. Dr. Leonard Hill, who has done perhaps more than any one else to give a scientific explanation of the air conditions of health, makes another contribution to our pages this week in which he relates some interesting experiments on himself and other volunteers. They lead him to urge as the best means of combating the infection of influenza, the deep breathing of cool air brought about by exercise, and by sleeping in the open air—this last perhaps a counsel of perfection. The advice applies not only to influenza itself, but to the colds and catarrhs which, in the aggregate, are responsible for so much discomfort and loss of efficiency. A striking illustration has been related to us by Colonel C. T. C. de Crespigny, D.S.O., A.A.M.C. During August, 1918, a transport left Australia bound for Great Britain. The 1,200 troops which she carried were accommodated in four troop decks of about equal capacity. Three decks were well ventilated with windsails, but the fourth deck was in this respect very unsatisfactory. Early in the voyage a form of infective pharyngitis and epidemic catarrh broke out among the troops. The incidence of the infection was ten times greater among the men occupying the

badly ventilated decks than it was among the others. In all other respects the men were exposed to precisely similar conditions; they wore the same clothes, ate the same food, and all of them slept in hammocks slung very close together. Thus the experience has the value of a carefully planned experiment in showing the effect of freely moving air as a preventive of infections of this nature. Another striking instance, recorded by Colonel Adami, F.R.S., in the first volume of his book on the "War Story of the Canadian Army Medical Corps," was noted in the review published in the first number for this year. The winter of 1914-15 was very wet, and the troops under canvas on Salisbury Plain suffered extreme discomfort, but nevertheless continued in excellent health. When, after some six weeks, the discomfort of tent life and the increasing cold of winter induced the authorities to replace the tents by huts, then influenza and throat troubles began to spread at once and rapidly, and, what was worse still, a series of cases of cerebro-spinal fever occurred.—*The British Medical Journal*.

#### SCIENTIFIC BOOKS

*Life Zone Investigations in Wyoming.* MERRITT CARY. North American Fauna, No. 42. October 3, 1917, pp. 1-95; pls. I.-XV.; text figs. 1-17.

The Biological Survey has for many years been gathering data on the ecological relations of animals and plants in North America with particular reference to the transcontinental life zones. Several generalized maps of the entire continent have been published, and a series of detailed studies by states and provinces is well under way. The results of some of the latter have already been published, and another is now presented in the present report on Wyoming. This is based on a number of years' field work in the state by the author and other members of the Biological Survey.

In a brief introduction attention is called to the life zones as "a fairly accurate index to average climatic conditions, and, therefore, . . . useful as marking the limits of agricultural possibilities, so far as these are dependent upon climate." They are thus valuable as an

index to the possibilities of agriculture in undeveloped regions.

With the caption "Physiography and Climate," there is also a description of the varied physiography of Wyoming, which is characterized particularly by mountains, plains and valley basins. This variety of surface produces likewise a varied climate, though mostly cool by reason of the high base level, and arid excepting on the higher mountains.

Under the heading "Life Zones of Wyoming," the transcontinental ecologic belts occurring in the state are treated at length, and a careful account is given of their divisions, if any, their area, altitudes, the most important localities covered by each, their physical and faunal characteristics, and their agricultural possibilities. For each zone there are added long lists of trees, shrubs, herbaceous plants, of mammals, and of breeding birds; mention is made also of reptiles, but of no other vertebrates and of no invertebrates. Doubtless, however, the mollusks and insects would, at least in the main, substantiate the results obtained from the plants and the higher vertebrates. The characteristics of these five zones are so carefully worked out that a summary of the author's conclusions may be worth presenting in this connection.

The Upper Sonoran Zone, which occupies most of the valleys and lower plains, from altitudes of 3,100 to 6,500 feet, is the home of the broad-leaved cottonwood, juniper, salt bush and yucca; of such mammals as *Eutamias minimus pictus*, *Citellus tridecemlineatus parvus*, *Lepus californicus melanotis*; and of such breeding birds as *Zenaidura macroura marginella*, *Tyrannus vociferans*, *Passerina amoena*, and *Icteria virens longicauda*.

The Transition Zone, which embraces the high plains, the basal slopes of the mountains, and all the foothills except the highest, and ranges from altitudes of 4,000 to 8,500 feet, is characterized by yellow pine, narrow-leaved cottonwood, and sage brush; mammals like *Odocoileus virginianus macrourus*, *Sciurus hudsonicus dakotensis*, *Neotoma cinerea cinerea*, and *Lepus townsendi campanius*; and such breeding birds as *Centrocercus urophasianus*, *Cryptoglaux acadica acadica*, *Empidonax*