

Weather Science as College Course

Meteorology

The scientific study of the weather, meteorology, should be offered as a well-developed college course. There should be three different types of instruction, one of the highly technical nature demanded by candidates for professional work in meteorology, one less technical but still highly practical, designed for agricultural students, and finally a purely cultural course for persons who would not expect to make practical use of it but would study the weather as they now study botany or geology, just for the satisfaction of knowing about it.

This is the program advocated by Dr. W. J. Humphreys, physicist of the U. S. Weather Bureau. The courses in meteorology offered in many of the universities and colleges at the present time, he says, are quite

inadequate, being taught, as a rule, as a side-line in the geology department by a professor who is not trained as a professional meteorologist. They are, however, frequently misnamed, being called meteorology when they should be called climatology, which is the study of "past weather".

"Meteorology, on the other hand, treats of the weather of the very present, especially why it is, what it is, and from that in turn deduces what it next must become," Dr. Humphreys says. "Climatology integrates the past and infers the general average for years to come. Meteorology analyzes the present and deduces the exact state of the future, but as yet in terms only of hours to come, or days (*Turn to next page*)

Rubber Work Curtailed

Economics

Much of the experimental rubber work previously planned and started by the U. S. Department of Agriculture will have to be abandoned and curtailed during the next fiscal year, due to a decrease in appropriations in the bill now before the U. S. House of Representatives.

The chief curtailment will occur in the work in the tropical and sub-tropical possessions of the United States, such as Panama and the Philippines. Experiments with the guayule plant in the Salinas Valley of California are to be continued.

Regarding these experiments, Dr. William A. Taylor, chief of the Bureau of Plant Industry, said before the House Committee on Appropriations: "It is in small acreage yet, and the ultimate method of producing it under cultivation can not yet be said to be perfect. It is a four-year crop, practically, from planting to harvest."

The entire guayule plant is used in making this type of rubber, he said, and therefore its production is a very different undertaking from the hevea-rubber production, where the trees are tapped and the exuding milk is collected.

Hevea rubber trees planted in Florida, Dr. Taylor said, were doing very well, but were not old enough yet to tap.

Rubber production in the Philippines, he declared, is not yet beyond the experimental stage, despite the fact that there were a few plantations there. He (*Turn to next page*)

Buildings Have Diseases

Bacteriology

Buildings die of germ diseases just as people do. The decay of stone castles, cathedrals and monuments is not due to the solvent action of gases in the air, reinforced by fumes from coal smoke and chemical works. Dr. R. M. Buchanan, a London botanist, reported that he has found bacilli, yeasts and moulds infecting decaying stone surfaces. Their prevalence in regions remote from smoke justifies a definite disease name, and Dr. Buchanan proposes "Lupus lapidis", which Englishes into "stone consumption". The germs of stone decay have been artificially cultured by their discoverer, and he finds that each type of decay is characterized by a definite germ flora, just as each human, animal or plant disease has its own special causative organism.

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Island Yields Phosphate

Chemistry

Phosphate cargoes bulking over a quarter of a million tons a year are now being shipped from Nauru, a small island only 26 miles south of the equator, whose resources are being exploited by Australians. The phosphate is marketed in Australia, New Zealand and Japan.

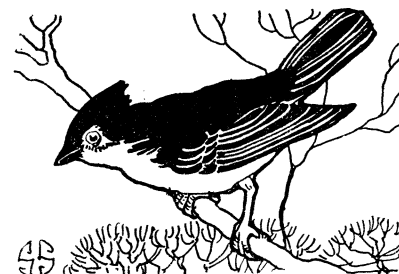
Some thousands of Kanaka and Chinese laborers are employed in the workings, their labor supervised by a force of 100 to 120 Europeans. The latter are recruited mainly in Australia. They "take on" for a two-year "hitch."

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NATURE RAMBLINGS

By FRANK THONE

Natural History



Titmouse

"On the bank of a river a little tom-tit Sang 'willow-tit-willow-tit-willow'..."

Why Gilbert should have made out the cheerful little titmouse as the singer of a lugubrious song is hard to figure out. Gilbert was a cheerful person, and he should have given fraternal credit to another cheerful person. To be sure, it is highly probable that the little bird would frequently have "a rather tough worm in his little inside", but this is something he would be used to, for he is a great destroyer of wire-worms, caterpillars and other insect larvae in the summer, and of insect eggs and pupae in the winter.


The crested titmouse is a rather common bird throughout most of the United States east of the Rocky Mountains, frequenting winter thickets along stream courses, but is very apt to be overlooked because of his inconspicuous coloring and retiring habits. He is gray all over his upper parts and white underneath, except for a small area of brighter feathers back of his legs, so that he blends very well with gray trees and sky and white, snow-covered ground. His one mark of gayety in attire is his conspicuous crest; and his wife is crested also.

He does not sing "tit-willow", but "pe-to", repeating the notes about five times; this has earned him the name "Peter-bird" in some localities. Like his cousin the chickadee, he also has a call note, "de-de-de-de", which he uses when he wants more immediate attention. He resembles the chickadee also in his liking for acrobatic stunts, swinging about on twigs in all sorts of upside-down attitudes, as he spies about for insect eggs.

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We Grumble at Detours—

Economics

LEON C. MARSHALL in *The Story of Human Progress* (Macmillan):

In the early colonial days wheeled vehicles were unknown. They had been rare in the mother country, England. They were useless in the new country, where the only roads were narrow Indian trails, and from 1650 on colony after colony made provision for roads on which wheeled vehicles began to appear. But these colonial roads were not like those of today. "Road making" often meant merely clearing out fallen timber, blazing or notching trees so that one would not lose the road, throwing logs into marshy places, and cutting stumps so that they did not stick up too far. There were few or no bridges, and the fords were dangerous.

The early American road was a frightful thing. Watery pits were encountered wherein horses were drowned and loads sank from sight. The first post-rider's trip between New York and Boston (made in 1673) took three weeks. We cover that distance today in less than two hours by airplane. As late as 1766 it took two days for a passenger coach to go from New York to Philadelphia. It now takes two hours by train. It was not until 1782 that coach service was installed between Boston and New York, and the trip took six days. In 1796 it was said of the road from Philadelphia to Baltimore, "chasms to the depth of six, eight, or ten feet occur at numerous intervals. Coaches are overturned, passengers killed, and horses destroyed by the overwork put upon them." Before 1800, the turnpike, a road surfaced with fine stone, was rare on the Atlantic seaboard and, of course, quite unknown elsewhere.

Science News-Letter, February 16, 1929

Weather Science in College—Continued

at most. Meteorology, then, as a science, is the physics of the air, and as such draws from every major branch of general physics, and from some of them very heavily. It cannot be profitably studied at college without at least a working knowledge of that basic subject and a corresponding preparation in mathematics. Whoever, therefore, presumes to teach it should have a very wide and intimate knowledge of physics, with all the mathematical training such knowledge implies. Even then, he will be confronted daily, if wide awake, with problems that he will be unable to solve.

"This recognition of the difficulties of the subject is not offered as a deterrent to those who might wish to

study it, but as a warning that adequate preparation is an essential to the successful study of meteorology as it is to the mastery of anything else. It is hoped, too, that it may make clear the fact that meteorology in its every phase is physics pure or applied, and, therefore, in educational institutions should be either classed independently or else assigned to an important place in the Department of Physics. To allocate it to any other department would be to foredoom it to failure so far as any useful results are concerned, unless indeed that department had on its staff, for this work, a really competent physicist trained in a knowledge of the air and its ways."

Science News-Letter, February 16, 1929

Rubber Work—Cont'd

made this statement, he said, having in mind the competition with the older established producing territory of the Straits Settlements and the Dutch East Indies.

Rubber trees will grow in the Philippines all right, but "the way to do it has not yet worked sufficiently to convince the people who have the capital that there is a good chance for them there. Of course, there is this other feature, too, which is a limiting factor, namely, the size of unit which the Philippine land laws permit any single operator to control."

This maximum unit, it was explained, is 2,500 acres. Large corporations will not limit themselves to 2,500-acre plantations.

American tire companies, Dr. Taylor said, have plantations in Sumatra and Java. Firestone has one in Liberia and Ford one in Brazil.

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Extinction of Pure Reason

Evolution

SIR ARTHUR KEITH in *Darwinism and What It Implies*, quoted from *Nature*, January 19, 1929:

The day man becomes a perfectly rational being marks his end.

To extinguish the spirit of competition is to seek for racial suicide.

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A jackrabbit can run 35 miles an hour, a government scientist found, when one raced ahead of his automobile.

Use of electric power in the 16 southern states is increasing more rapidly than in the rest of the country.

Overgrown Brain

Anatomy

MORLEY ROBERTS in *Malignancy and Evolution* (London), quoted in *Emergent Evolution and the Development of Societies* (Norton):

In discussing the factors of evolution objections to our regarding the encroachments of the fore-brain upon the animal function of the human body as perpetual approximations to and recessions from a state of morbid overgrowth, on the ground that to this we owe human progress, are wholly irrelevant. Progress, whatever it may be, is obviously relative and a healthy Neanderthal or Cromagnon man, who might as easily dispose of a modern athlete as any gorilla, could be held excused if he thought his bald and almost jawless successor to be in the highest degree degenerate. There can be no doubt that what we, perhaps in our blindness, call the upward progression of the human race, has always been accompanied, especially when advance seemed most rapid, by an increase in disease, and it would in no way be surprising if we learnt at last that the remarkable increase in the fore-brain was not only one of the causes of malignancy but was to be in the end one great cause of the extinction of man. If that proved to be a fact, such a result would but class man as one of the many races of animals which perished of special overgrowths and a possible lack of fertility.

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Experiments by Japanese scientists indicate that Japanese children given less rice and a more varied diet than is usual in that country tend to become taller and heavier.