

of maps of the region in the time of the Revolutionary War shows that the land extended considerably farther out than it does at present, and that there was a road approximately in the position of the corduroy recently uncovered; it therefore seems quite probable that this corduroy road is the old road leading to the now submerged Prissy Wick Shoal.

On April 6, 1931, the road was again exposed, this time more distinctly. On a patch of sod, about one tenth of a mile west of the log road, were seen several horse footprints. As far as can be learned, this patch of sod had not been uncovered for at least several years. This locality is about one half a mile distant from the one near South Cape May where the tracks had been seen some fifteen years previously.

The fact that these tracks were of shod horses, while those reported by Cook at Harvey Cedars were of unshod animals, suggests that these tracks may not be quite as old as those previously seen. Nevertheless, the fact that these tracks have persisted in this sod superimposed by a thin layer of sand and covered by the sea twice a day seems interesting and suggestive of how fossil tracks are actually preserved. These horse tracks may possibly be regarded as "fossils in the making."

A more detailed and illustrated account of the occurrence of this meadow sod beneath the New Jersey beaches will be published elsewhere in the near future. This preliminary note is published in the hope that some one may report similar occurrences elsewhere.

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### TWISTED TRUNKS OF APPLE TREES

THE recent discussion relative to the twist in the trunks of certain trees has been interesting. I have carefully examined apple trees in orchards from Iowa and Minnesota to New York and Pennsylvania, and have noted that a large percentage of old trees are strikingly twisted. The twist has nearly always been to the right. The variety of apple does not seem to make any difference. It is more likely a matter of age. At least it is more readily seen in the older trees. Soil and position of the orchard does not change the character of the twist. In some orchards nearly 100 per cent. of the trees were twisted. It probably has nothing to do with wind or weather, but is more likely a form of tropism. A great many climbing plants twist in the same direction. Many species of trees also twist the same way. So far as I have observed, a twist to the left is rare. I have been told that in the southern hemisphere the twist is dominantly to the left. If this is so, then the condition is surely the result of the influence of sunlight and position

with respect to the equator. In this respect it is like the trade-winds. I am strongly inclined to believe that the twist is the direct result of the influence of sunlight, similar to the turn of the sunflower and the leaves of the compass-plant of the western prairies.

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### EARLY UTILITARIAN APPLICATION OF TWIST IN TREES

THE twist in the grain of coniferous and deciduous trees discussed by Chas. K. Wentworth in *SCIENCE*, February 13, and by Arthur Tabor Jones in the issue for March 27 was advantageously adapted to the service of agriculture in America in the 18th and the early part of the 19th centuries. Trees having a left-hand twist were then used in the construction of the mold-board portion of the so-called "wooden plow" of that period.

The length of the mold-board was determined in a measure by the angle of the grain twist since its strength depended upon the extent to which cutting across the grain of the wood became necessary in the shaping of its warped surface. The length of the wooden mold-board was, for this reason, considerably greater than that of the present day all metal plow. Clearly enough a large size hardwood tree having a close left-hand twist was greatly prized by the plow maker as he was able to secure from such a tree the raw material for the mold-boards of several plows.

When the mold-board, land-side, handles and other portions of a plow had been assembled all parts that came into contact with the soil in plowing were armored, or as it was then termed "plated," with thin wrought iron straps and plates formed to fit the wooden parts to which they were riveted. At that time all bolts and their nuts were hand made and were, therefore, more costly than hand-made rivets and key-bolts.

The occupation of "wooden plow" making was entirely confined to the individually owned small-shop period of American manufacturing industry. The plow maker, assisted, possibly, by one or more apprentices—men legally bound by agreement (articled) to his service for a period of years—performed every portion of the work. He selected the twist grain trees in the woods, cut and hauled them to his shop, attended to the proper seasoning of the wood and in the actual manufacturing operations became carpenter and blacksmith in turn. He marketed his finished product and for the most part received therefor other goods in exchange rather than real money.

One of these early American "captains of industry" was a Nathaniel Edwards, who was born June 21, 1752, Haverhill, Mass., and who died June 14,

1828, Casco, Maine. He was commonly known as "Plowmaker Nat."

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### PANAMAN

THE latest editions of the Standard Dictionary and of Webster's International Dictionary give the preference to Panaman as the adjectival form of the word. Both dictionaries give Panamaian (Pan-a-ma-yan) and Panamanian as alternative forms. Both the noun Panama and the adjective Panaman carry the accent on both the first and last syllables, the antepenult and the ultimate, and not on the ultimate alone.

The accented ultimate or final syllable is very common in Spanish proper names and other words, as it is also in Persian place names. When the adjectival form of such a proper name is created in English, however, this adjective becomes subject to the rules of the English language and the accentuation of the original language need no longer be followed. There is much evidence that, in America at least, the accented ultimate is giving way to the accented antepenult, thus, Pan'a man, with the secondary accent on the ultimate. Incidentally, this seems to be the prevailing pronunciation of the noun Panama among even the well-educated Americans.

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### CURE FOR FORMALIN POISONING

IN SCIENCE for May 8, 1931, appeared a discussion of formalin poisoning with an appeal for a remedy. About four years ago I developed a most irritating case of this poisoning on my fingers. I tried various remedies and doctors for two years with no success. Then Dr. W. E. Tebbe recommended that I use lanolin. He explained that the formalin kills the sweat glands and that the only way to restore them is to use an animal fat which can be absorbed. The result has been most satisfactory. All trace of the poisoning disappeared in six months. I find that I can handle preserved specimens with safety now if I apply the lanolin at the first indication of irritation.

VESTA HOLT

### BARRO COLORADO ISLAND BIOLOGICAL STATION

(1930-31)

THE seventh annual report of this tropical biological station, as presented by Dr. Thomas Barbour, chairman of the executive committee of the Institute for Research in Tropical America, includes the following items covering the year ending February 28, 1931.

Several additions to the plant are reported, particularly a building at the end of the Pearson Trail. This structure is made entirely of lumber treated by the zinc-meta-arsenite process as a termite resistance experiment in cooperation with the Curtin-Howe Corporation, which controls the process, and the Bureau of Entomology of the U. S. Department of Agriculture. It is fully equipped for use as a residence by any visiting naturalist and located in the vicinity of innumerable bayous and with great diversity of habitats near at hand. The mangosteens and other planted trees are growing finely, the trails have been well cleared, bridges put in good condition and in general the plant is in excellent order.

Mr. Zetek, the indefatigable resident custodian, has prepared a card index of all publications referring to the island, arranged by author and subject, and is continuing the species index begun last year. It is requested that all investigators inform him at the earliest possible time of identifications that are made. Since the species index was started, Dr. Herbert N. McCoy has twice given financial assistance. Several other donations consisting of apparatus are mentioned.

A condensed statement of the facilities which the laboratory offers and the concessions granted workers by the government of the Panama Canal and by steamship companies, etc., has been printed and may be obtained from the office of the chairman (Dr. Thomas Barbour, Museum of Comparative Zoology, Cambridge, Massachusetts) or resident custodian. There have been no changes in the steamship arrangements announced in the last annual report, when they were discussed in full. One misstatement, however, was made at that time; the special rate offered by the United Fruit Company is \$75 per round trip, and not each way.

A list of seventeen investigators in residence at the laboratory for extended periods during the year is included in the report, together with brief statements of their studies. The published papers resulting from studies at the laboratory now total 148 as compared with the 118 titles last year. The current additions are listed with comments in special cases, and there are lists of the mammals, molluscs, termites, fruit flies and trypetidae. The amphibia and reptilia are listed as known from the Canal Zone as a whole.

Under "Present Needs" it is stated that "the island is badly in need of a simple electric installation to furnish light and power. The dynamo should be located on the dock where fueling would be convenient and this innovation would not only be a great convenience and an aid for work in the evening, but would enormously lessen our fire hazard. The total cost would not exceed \$750 for a one and one half kilowatt unit."