

### SOME TREES AND FORESTS OF CALIFORNIA.

BY CHARLES F. HOLDER.

An interesting movement is on foot in Southern California, namely, the reforestation of the Sierra Madre. For many years during the white regime and many more under the Indians, the fine range known as the Sierra Madre, the coast range of Southern California, has been burned over and devastated. During the past ten years forest fires have raged in the San Gabriel Valley and burned many square miles of territory contiguous to Pasadena and Los Angeles, seemingly threatening the water supply of this region. That something must be done, if the flora of the mountains was to be saved, was evident, but little progress was made until Mr. T. P. Lukens, ex-mayor of Pasadena, a lover of nature, undertook the work. At first, single-handed and alone, he began experimenting with the best trees, and now as a result, he has planted tens of thousands of pines

(*Pinus tuberculata*) on the slopes of the Sierra Madre in Southern California, especially along the line of the valleys beginning with the San Gabriel.

Mr. Lukens has met with great success, and in a few years the result of his labors will be visible from a distance and the water supply will be greatly increased.

The trees and forests of California are extremely interesting, and in their study or observation one is often impressed by their sensitiveness to various factors for or against a fine development.

Trees are susceptible to many influences. Monterey is found the remarkable oak shown in the accompanying illustration and locally pointed out as a "curiosity" as the creeping oak. The tree has made an extraordinary growth in former times, and appears to have been depressed by the winds until its many branches reach out from the trunk and appear to be creeping along the ground, while other branches fill the air above them, presenting an appearance difficult to describe, but resembling a mass of snakes more than anything else. The tree covers an acre, or 12,500 feet of ground, and has resisted for many years the raids of vandal wood choppers who covet the mass of timber.

Aside from the oak groves the real forests of California are found in the mountains. The redwoods of the Coast Range are magnified specimens. In former years, fifty years ago, there were giants within five miles of the city of San Francisco that would to-day be of inestimable value; but the sawmill was among the pioneers, and the giant redwoods were destroyed, there being no vigilantes to save or revenge them. The writer saw the trunk of one of these giants in Mill Valley which had been leveled off near the ground and was used as a dance platform. Another was a bower or hall for other purposes. The young shoots had grown up around the edge of the trunk, telling the story of its size. The redwood forests of the California Coast Range are its chief glory, but they are being devastated with a ruthless hand.

In the Sierras the giant sequoias, cousins of the redwood, are preserved, and here are many pines, among the most beautiful of California forest trees. Typical trees are the madrona and suazatteta. In Northern California the latter are found near the sea, low down, but in the south they affect the higher levels.

### THE MARCONI SCHOOL OF WIRELESS TELEGRAPHY.

BY H. J. SHEPSTONE.

The Marconi Wireless Telegraph Company, of London, England, have opened, at Frinton-on-Sea, in Essex, a school for the teaching of wireless telegraphy, the only institution of its kind in Great Britain, if not in the world. Hitherto the company have trained their men at their

works in Chelmsford, Essex, but the demand for competent operators has been so great that the company decided some three or four months ago to open a college for tuition in the Marconi system of telegraphy.

and made firm by a number of wire cables. At the time of the writer's visit to the school the students numbered six, in charge of the principal, Mr. T. Bowden, undoubtedly a very clever telegraphist and electrician. He spent a great deal of time with the famous inventor at his experimental laboratory at Poole, on the English south coast, and has also traveled with Mr. Marconi nearly all over the world, conducting experiments and erecting stations.

The object of the school is not only to teach the would-be operator how to send and receive messages, but also to impart a technical knowledge of the instruments used. Indeed, after passing a course of instruction at the school, the student would not only be capable of taking entire charge of an instrument on board a vessel, but of working and equipping a station anywhere. As all messages are sent by the Morse key, the first thing the pupil has to do is to learn the new alphabet; and the first week is in-

variably spent in learning Morse until he can read and write it just as well as he can his conventional alphabet.

Then follows a course of instruction in the various instruments, their object and mechanism being fully explained. The pupils are also taught how to repair machines, make new parts, and keep them in proper working order. The pupil is expected to be thoroughly acquainted with the system in the course of a month, though some remain in the school for a period of eight weeks. By that time they would be fully competent to go abroad and build stations on their own initiative in distant parts of the world. After a scholar has thoroughly mastered the new alphabet and the technique of the instruments he is put in charge of the Frinton station, and while in that capacity is absolutely responsible for all messages received and answered. He has also to make out a daily report to the London office and reply to all inquiries. Work commences at 9 o'clock and continues until 5:30 in the afternoon.

The instrument-room proper is in one of the kitchens of the villas, which has been considerably altered to accommodate the various instruments. It is unnecessary here to give a technical account of the apparatus, as the Marconi instruments have been fully described in this paper. It will be seen from an inspection of our photograph that the pole has two spars. From the lower one communication is enjoyed with the company's station at North Foreland, forty miles distant across the North Sea, with a tuned receiver. The writer kept up a conversation for nearly half an hour with the staff at North Foreland, all the dispatches being instantly acknowledged and answered. From the higher spar messages may be sent to the station at La Panne, on the Belgian coast, a distance of eighty miles as the crow flies, right across the North Sea. The company find the Frinton station very useful for testing their instruments before finally placing them on the vessels or dispatching them abroad. The Marconi works at Chelmsford are only twenty miles distant, and after completion the instruments are sent down to Frinton by rail and tested between these two points.

As already stated, the college consists of two houses, the upper portions of which are used as bedrooms. All students are required to sleep at the institution. The company make them as comfortable as possible. There is a spacious dining-room, while the pupils have a parlor to themselves, equipped with a piano and quite a small library of technical books. There is also a small laboratory.

What has astonished English people most is the marvelous amount of work Mr. Marconi has accomplished within the past five years. He landed in England in 1896, with a unique set of instruments which were

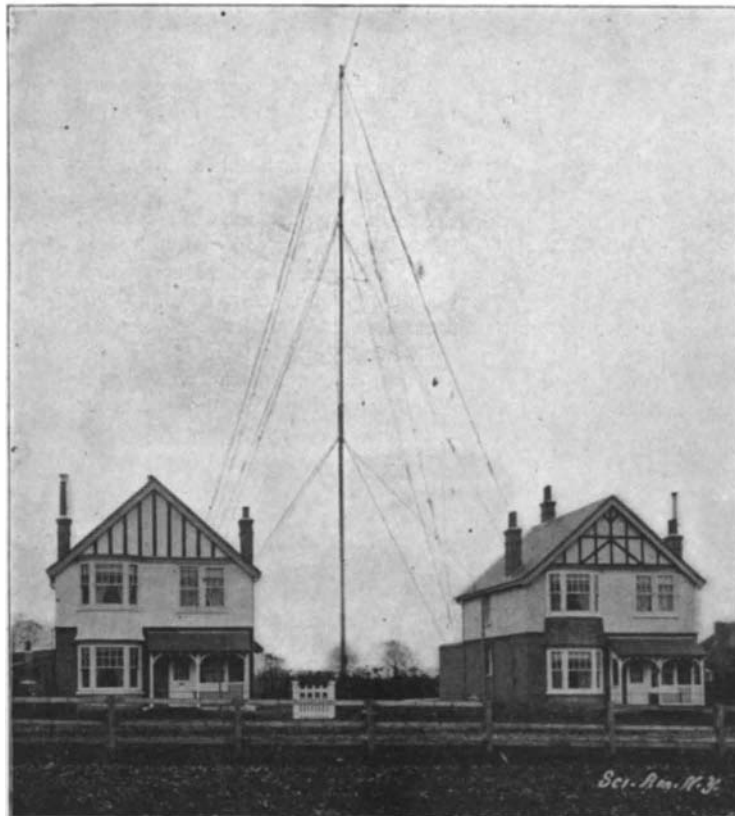


THE CREEPING OAK NEAR MONTEREY, CAL., COVERING 12,500 FEET OF GROUND.

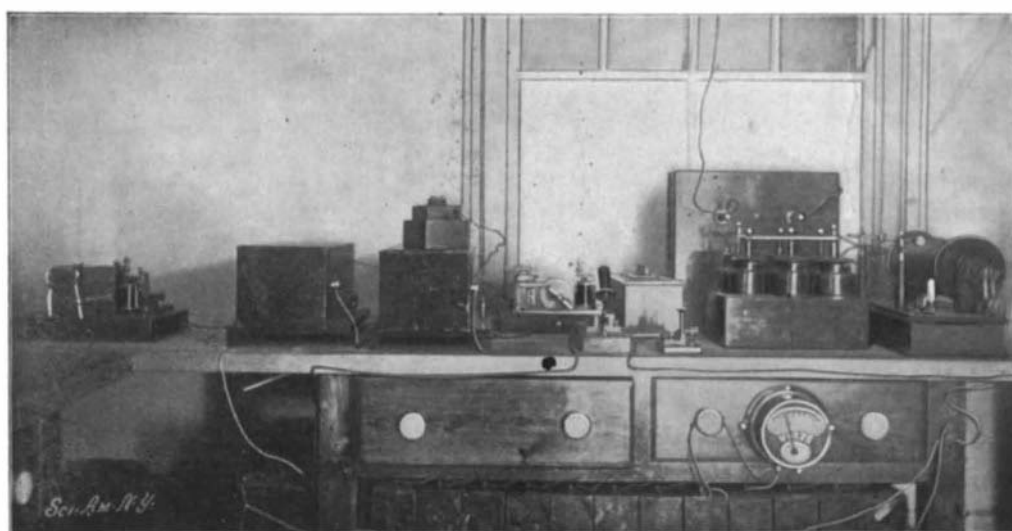
The Institution is unique in that pupils are paid a small premium to attend, although, as Major Flood Page, managing director to the company, explained to the writer, this system will not endure. Only those who have passed through technical schools or show an aptitude for such work are admitted.

The school really consists of two villa residences, the only exterior indication that it is a telegraph college being its tall pole. It is a very conspicuous feature on the landscape, being no less than 165 feet in height. It is erected in the center of the garden,

Near



THE MARCONI SCHOOL OF WIRELESS TELEGRAPHY AT FRINTON-ON-SEA, ESSEX, ENGLAND.



INSTRUMENT ROOM—MARCONI'S SCHOOL OF WIRELESS TELEGRAPHY.