

basis of ten hours pumping per month, the gas plant would cost \$39.20 per hour. The services of nine men are required for the steam plant, while six are sufficient for the gas plant. Chief Hand says that in actual practice the economies of the gas plant will be even greater, for it will very rarely happen that the entire plant will be in operation ten full hours each month.

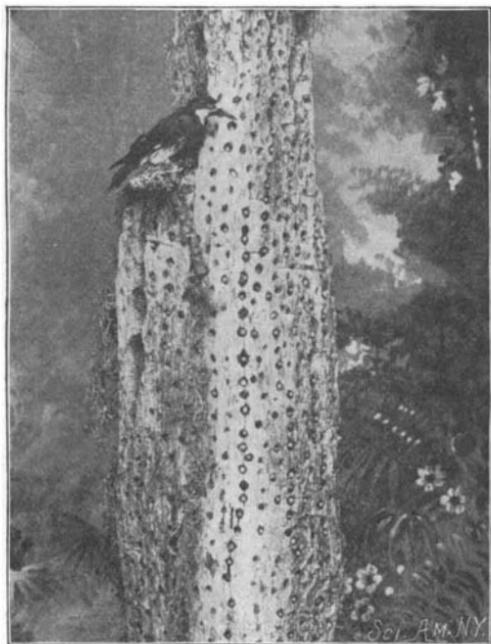
QUEER CAPRICE OF CALIFORNIA WOODPECKERS.

BY M. G. FREDERICK.

For bees to establish themselves beneath the roof or over a window in a dwelling occupied by a human family, is not rare; but it is seldom that woodpeckers follow their example and choose a residence for a store-house.

The region of Santa Barbara was once well wooded with fine live-oaks, the headquarters of large numbers of woodpeckers. Their incessant noisy hammering from daylight till dark as they cut holes in the trunks of the trees and fitted in the acorns, their sharp calls, and the frequent flashes of brilliant red, white, and blue-black, as they flitted from branch to branch, gave a certain gala atmosphere to the woods and added much to their charm.

Montecito Valley, contiguous to Santa Barbara and



WOODPECKER'S TREE-TRUNK STOREHOUSE FOR ACORNS.

the home of most of her wealthy residents, still retains many of these old oaks, often the chief feature of landscape gardens widely noted for their beauty. A fairly large number of woodpeckers continue to ply their vocation with unabated energy. Why they should prefer a residence in the midst of one of these groves, for a granary, instead of the regulation tree trunk, is a mystery. Perhaps they discovered that redwood is more easily worked than oak or sycamore, or perhaps it was the labor-saving feature that appealed to their thrift, since, instead of a separate hole for each acorn, a single hole answered for many acorns.

Whatever the reason of their curious choice, they have so thoroughly drilled the wood of the building as to cause serious damage and necessitate extensive repairs.

The cornice, or strip of molding that finishes the under edge of the roof, known as the crown molding, has most attracted their fancy, inclosing as it does a small triangular space back of it, extending entirely around the roof. One can well imagine the surprise of the first industrious little cabinetmaker who, having chiseled out a cavity of the proper size, was driving his acorn into place, when it suddenly disappeared.

A second acorn tried in the same place meeting the same mysterious fate, his unconquerable persistency doubtless led him to try again and again, in the hope of unraveling the mystery until, the immediate space being filled, he at last comprehended the situation and delightfully adopted the new method instead of the old. Anyway, the woodpeckers have made holes at convenient intervals, and literally crammed the space to overflowing. In some instances the molding is sprung half an inch or more from its place, the tightly packed acorns protruding through the cracks.

The holes are usually made in the upper edge of the molding, next the shingles, the shrinkage of the wood having evidently left a slight opening which facilitated their labors; but holes have also been made directly through the cornice, as the illustration shows. The shower of acorns that fell to the floor when the molding from the roof over a corner of the balcony was removed, is also shown.

The adventurous by no means confined themselves to the cornice. The sides of the upper story

being shingled, they have made a number of perforations down the corners and elsewhere, and in the middle of a gable is an opening large enough to admit the birds themselves. Whether they found the interior to their liking, and nested there, is not known, since there is no way of entering the attic to see. It is believed, however, that there are bushels of acorns stored away in various parts of the building.

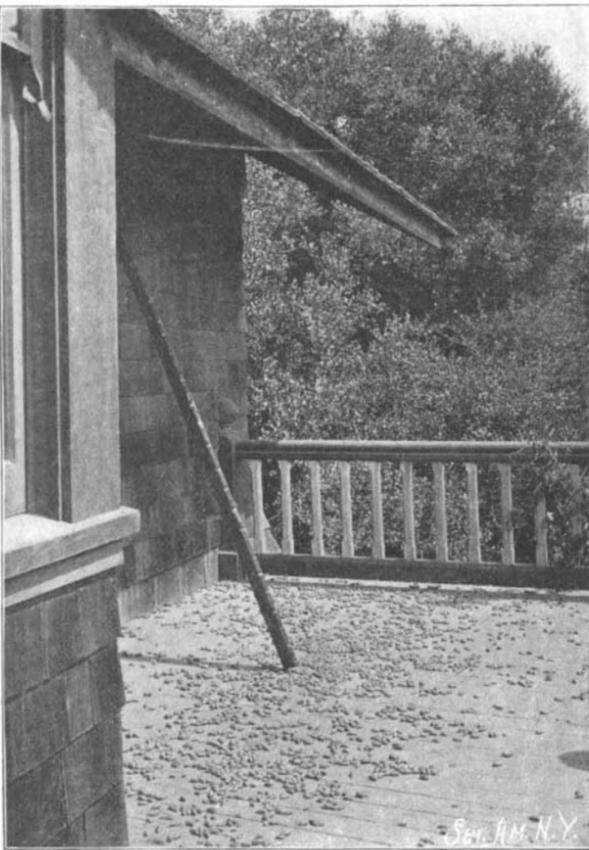
Other houses in the same locality have been attacked by the birds—in one instance they made holes along the comb of the roof, plugging them up with acorns; but in no other case have the depredations approached this in magnitude. If any one appeared while a woodpecker was at work, he would stop for a few moments, eye the intruder saucily as if trying to divine his intentions, and then go on hammering as unconcerned as if no one were watching.

Automobile News.

Henri Fournier, the noted French automobilist, arrived in New York last week, bringing with him five French machines to sell to wealthy Americans. Two of these automobiles are 9 horse power Renault cars, one of which is patterned after an English cab and the other after a landaulet; the third is a 40 horse power Mercedes of double phaeton pattern, with entrance in front, King of the Belgians seats, and finished in pearl gray; the fourth is an 18 horse power Mors, with a very low frame, triple phaeton body, and seating room for seven; and the fifth is the most novel of all, being a Lohner-Porsche, 28 horse power, gasoline-electric tonneau car, with electric motors in the hubs of the front wheels, which also steer the machine. A gasoline motor direct-connected with a dynamo furnishes power for generating electricity to run the car, any superfluous current being sent into a storage battery, which supplies extra power as it is needed. The car is said to have 14 different speeds, the maximum of which is 48 miles per hour. This system has been so successful that the Panhard Company has purchased the patents and is making machines.

When questioned regarding his new 120 horse power racer, Fournier said: "It is short in front, like a fish's head, and then long, like its tail. After you break the air, it rushes in behind and pushes you; so you must have the car short in front and long behind. The seat is just a bicycle saddle on the rear axle. It will have four speeds and drive direct on the highest. What will it do? Oh! 32, 33, or 34 seconds to the mile."

In regard to the 1,600-kilometer (993.6 mile) Paris-Madrid race of next summer, Fournier stated that Mors machines are being built for W. K. Vanderbilt, Jr., and D. Wolf Bishop to drive in it. He gave it as his opinion that in all probability the International Cup race would be over the first day's stage of this race, i. e., from Paris to Bordeaux, a distance of 585 kilometers (362.28 miles). The German entries in the cup race consist of two 100 horse power Mercedes ma-



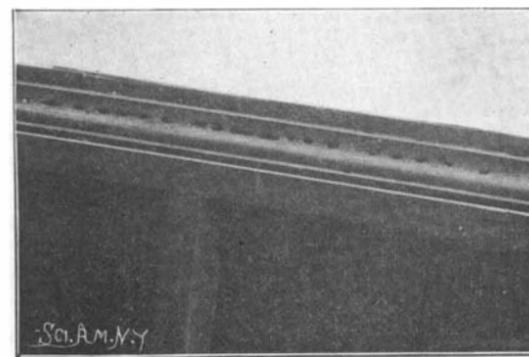
ACORNS REVEALED BY THE REMOVAL OF A CORNICE.

chines, to be driven by Baron de Caters and Camille Jenatzy; Fournier and the Farman brothers will represent the French, the latter driving Panhard machines; S. F. Edge and Charles Jarrott will mount English Napier cars; and Alexander Winton, with two other

of his countrymen, will run American machines. While on the subject of racing, Fournier said that he would like to have a track race with Mr. Winton or Barney Oldfield, who drives the Ford racer, for any distance they might name; and that if such a contest could be arranged, he would bring over his new cup racer for it.

The Daimler Company, of Cannstadt, Germany, have brought out a new 60 horse power model of their popular Mercedes car, in which the frame is hung lower than usual, and which has a novelty in the shape of an electrically-manipulated change-speed lever that enables the operator to effect a change of speed by merely pressing a button. This improvement is a great one, as the changing of gears is an operation that requires considerable skill to perform properly on most of the large gasoline cars.

The New York Automobile Show closes its doors on January 24. Some of the novelties that were exhibited there we shall describe in our next issue and in a special Automobile Number, to be published the middle of next month. Most of the manufacturers



HOLE DRILLED BY WOODPECKERS THROUGH A CROWN-MOLDING.

of steam and electric carriages have added gasoline automobiles to their list of cars, and the gasoline machines are becoming more widely used than ever. Those with air-cooled motors are more numerous than heretofore, and the tendency is to simplify all parts of motors and machines as much as possible. Several cars propelled by two-cycle gasoline engines were an example of simplicity aimed at in engine construction, while the planetary transmission gear mounted on the engine shaft, as used on many of the runabouts, is without doubt the simplest and most compact form of transmission gear. Three-speed transmissions are used on many of the heavy cars, sliding gears being used for the purpose in most cases, and individual clutches, with gears always in mesh, being employed in a few instances. Wood wheels with detachable double-tube tires have taken the place of wire wheels and single-tube tires; and almost all parts are made stronger, in order to stand hard use on bad roads.

The North-Eastern Railroad of Great Britain, a portion of which is to be converted to electric traction, proposes to carry out a series of experiments with petrol auto-cars to be used upon the 37 miles of track near the section to be electrified at Newcastle-on-Tyne. An order has been placed with a motor power company in London for the supply of a number of large four-cylinder petrol engines to develop 100 horse power each. It is intended to employ these engines for the haulage of light and frequent trains on local branches. The petrol cars which have been ordered for this purpose have done excellent work on common roads, and it is anticipated that they will achieve even better results on the specially constructed track of a railroad. The advantage of this innovation in railroad traffic is that it will not necessitate any alterations of the track, such as the laying of the third current rail with its complications at crossovers and junctions.

Chief Engineer Melville Retires.

On January 10 Rear-Admiral George W. Melville, Chief of the Bureau of Steam Engineering, was placed on the retired list of the navy, having reached the age limit of sixty-two years. By special authority of Congress, he is to continue his service at the head of the Bureau until August 9, 1903. Admiral Melville was appointed to the navy from New York in July, 1861.

New Use for Formaline.

At the last annual meeting of the Obstetrical Society, Dr. Charles C. Barrows read a paper in which he presented the results of his use of formaline as a cure for sepsis or blood poisoning. Formaline has been used as an antiseptic, but the use to which Dr. Barrows has put it is probably new. Further experiments will be watched with interest.

Motorman John G. Flynn, of Bridgeport, Conn., is the inventor of an insulated switch iron which will save the motorman from getting many shocks while working around his car.