by crashing into telegraph poles a few days prior to the race. Neither Walter Christie nor his mechanic was badly hurt, but Robertson and his man were seriously injured. Christie stripped his recently completed 50-horse-power touring car, fitted on a racing body, and started ninth in the race.

The result of the elimination race was as follows:

Tracy, on the 110-horse-power Locomobile, first in 5 hours, 27 minutes, and 45 seconds—an average speed of 54.38 miles an hour.

Le Blon, on the 115-horse-power Thomas, second in 5 hours, 51 minutes, 25 seconds, or an average speed of 50.72 miles an hour.

Harding, on the 60-horse-power Haynes, third in 6 hours, 25 minutes, 39 seconds, or an average speed of 46.22 miles an hour.

During the first few rounds the race was a close one between the Pope-Toledo, the Locomobile, and Le Blon's Thomas. The Locomobile had tire trouble in the first round, which caused it to assume sixth place, but it kept gaining on each subsequent lap till, at the end of the fourth (which was made in 29.48) it held first place. At the end of the fifth lap it had fallen back to third place, Le Blon's Thomas being first and Lytle's Pope-Toledo second. The remainder of the race was a battle between Tracy and Le Blon for first place. The former held it at the end of the sixth lap, and the latter regained it at the end of the seventh and eighth, only to lose it finally during the ninth round. From fourth place at the end of the fifth lap, the Haynes moved to third at the end of the sixth, and held this position to the end of the race. The Pope-Toledo was second at the completion of half the race, but an inordinate amount of tire trouble on the sixth round caused it to drop back to fourth place, in which position it was running (having completed nine rounds) when the race was called off. Walter Christie had finished his eighth lap and was on the ninth and holding fifth place when the race was stopped. Frayer-Miller No. 11 was sixth, and was the only remaining car running.

By obtaining third place the Haynes car gained new laurels for steady and consistent running. Its average speed was not quite as high as that made last year, but it was one place ahead of that obtained last year at the finish. None of the other stock cars made a favorable showing. Of the two teams of three cars each—the Thomas and the Frayer-Miller—but one car of each team succeeded in finishing or in keeping going till the race was called off.

The result of the eliminatory race seems to show that the American team will have but one racer that is in the same class with the foreign machines, and that can be depended upon to run steadily without breakdowns and yet have sufficient speed to make up time lost by tire trouble. That only a racer of this description will have any chance in the Vanderbilt race on October 6 seems to have been proven by the results of that race last year. It is to be hoped that the one representative American racer will finish the race proper in the same position in which it finished the elimination.

The Insulation of Insulators.

Commencing with the green bottle glass telegraph insulator, the size of a tea-cup, about ten years ago, the electric power-transmission engineers have been steadily increasing the size and cost of their high-tension insulators, until now they are using huge glass or porcelain insulators, the size of a cabbage. According to the Electrical World, there has been no help for this visible swelling of the insulator. The little ones simply would not stand the electric stress, as the electric pressure rose by leaps and bounds. Even now the manufacturers would be ready to risk constructing transformers for one hundred kilovolts if the line engineers would accept that pressure. Perhaps the line engineers may do so before long. The question is what will their insulators then be? Will they be as large as umbrellas? Is long-distance transmission to be limited by the cost of conductors, or by the cost of insulators? A new suggestion is offered from Italy. Instead of placing the high-tension conductor on the top of the insulator, and arranging a series of porcelain petticoats beneath, so that a beetle would have to walk some 60 centimeters in the shortest path over the surface from wire to pin, the new insulator hangs the wire underneath the topmost petticoat which is expanded into a relatively thin umbrella.

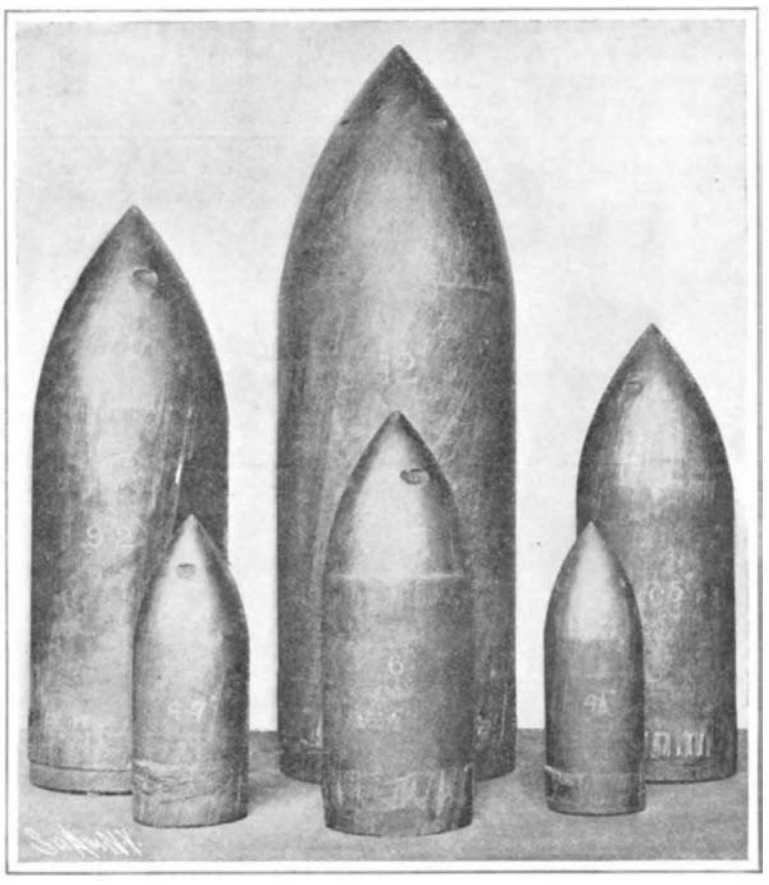
The purpose of the umbrella is only to shelter from rain and not to insulate; so that the umbrella can be made light and inexpensive. The actual insulator below the umbrella is stated to be considerably smaller than would be necessary in case the umbrella were removed.

SOME REMARKABLE RESULTS WITH ARMOR-PIERCING SHELLS.

During the past year some interesting experiments with a new type of armor-piercing shells have been carried out by the British government authorities. This new projectile, known as the "Heclon," is the product of the Hadfield Foundry, of Sheffield. They are of the "capped" type, and the results obtained therewith have exceeded anything previously accomplished. The projectiles of 2½ per cent bursting capacity range in caliber from 4⅛ inches to 12 inches, and have successfully pierced Krupp cemented armor plates ranging from 5 inches to 12 inches in thickness without breaking. The results achieved are as follows:

	Plate, Inches.	Striking Velocity, Foot-Seconds.
4⅛-inch projectile perforated	5	1990
4.7-inch projectile perforated	6	2100
6.0-inch projectile perforated	6	1990
7.5-inch projectile perforated	7	1980
9.2-inch projectile perforated	9	2033
12.0-inch projectile perforated	12	1981

In Spain equally successful results have been achieved, and the makers have completed the unit of large caliber capped shell for the Spanish navy. A supreme test was imposed upon one of these shells upon the proving grounds of another important European power. In this case the plate to be attacked consisted of a 12-inch Krupp cemented armor plate backed with 12-inch oak and three ½-inch skin plates. Instead of firing a 12-inch projectile, as is generally done, at such a plate, a 10-inch Heclon projectile was utilized, being fired at the low velocity of 1,877 foot-seconds. The shell perforated the plate and backing, and, despite the severity of the test, the projectile was found with only two small pieces of the shoulder broken, no less than 2,600 feet beyond the target. These projectiles have been adopted by the British authorities, since they have been found to excel other types in their penetrative capacity without breaking.



"HECLON" ARMOR-PIERCING CAPPED PROJECTILES RANGING FROM 4⅛ INCHES TO 12 INCHES.

The photograph shows the shells after they perforated armor plates varying in thickness from 5 inches to 12 inches.

It is reported by the Vienna journals that a party of Dalmatian fishers, when drawing up their nets from a depth of 100 feet or more, brought up an interesting object in the shape of a cutlass, coming no doubt from a long-sunk wreck. Judging by the crustaceous deposits which partly covered the blade, it must have lain at the bottom of the Adriatic for many years. The fishers in question brought their discovery to Spalato, and an army officer saw it and purchased it for a small sum. The officer then sent the cutlass, still covered with crustacea, to the Minister of Marine. After examining it carefully, it was found that the hilt was in a very good state of preservation. This arm apparently belonged to the navy, and it is thought by some authorities that it may have been used on board the frigate "Radetzky," which was sunk in 1869. At present the weapon is to be seen at the Imperial and Royal Marine Museum at Pola.

The Luscious Red of the French Cherry—Its Chemical Genesis.

Consul-General Robert P. Skinner, of Marseilles, was asked by a California correspondent to ascertain by what method French *glacé* or preserved cherries are dyed, as they command a higher price than California cherries in the American market "solely on account of color." The inquirer adds that French cherries possess "a beautiful deep-red color that is bright and clear, although they lack the flavor of the home-grown fruit. We could increase our sales many fold if we could color our cherries artificially as they do in France." Mr. Skinner replies:

French candied cherries are first bleached with sulphurous acid and then dyed in the course of manufacture with an aniline preparation known commercially as "rose nouveau." In former times carmine powders made of cochineal were used, and are still in use in a limited way for very superior products, but the aniline color is cheaper, and I am notified by four of the leading houses exporting to the United States that they use the cheaper material. One of these four houses writes as follows:

"The fruits invoiced by us are colored with 'rose nouveau,' a dye authorized in France after analysis by the Municipal Laboratory of Paris. All our labels bear the mention 'artificially colored,' to conform to the American custom-house regulation. The boxes of 'chinois verts,' plums, and angelicas, although containing no coloring matter, bear the mention 'colored with sulphate of copper,' in order to prevent any possible difficulty with the customs." The "rose nouveau" is a methylated and ethylated derivative of coal tar. "Rose nouveau" is likewise utilized in the manufacture of colored biscuits, sometimes alone and sometimes mixed with dry carmine.

The consul suggests that the future of California preserved fruit and every other natural product may be improved in the long run, if the packers will carefully refrain from the exercise of those merely decorative arts presumed to appeal to the public taste. It may be doubted if any great portion of the consuming public is either deceived or flattered by the artificial gorgeousness of fruits which have been boiled until their natural color has departed and then dipped in aniline dye. Though the preparation may be perfectly harmless, it certainly contributes nothing to the excellence of the finished article, and the knowledge of these facts tends to hold in check the public demand.

The use of sulphur bleach upon thin-shelled almonds has actually diminished the demand for these nuts in France, for the reason that the kernels are sooner or later affected, acquiring an acrid taste which nobody likes. As applied both to almonds and walnuts the sulphur bleaching process is, furthermore, frequently a species of mild fraud, as it enables the dealer to mix nuts of old and new crops and different countries, give them the same shade, and get the same price. It is presumed that public taste requires a nicely bleached nut, although no intelligent individual really objects to the honest color of a walnut or almond shell, especially when that color may be taken as a guarantee of the quality of the kernels.

Vice-Consul Brown sends from Lyon the following directions for coloring cherries:

The fruit is selected, washed, stemmed, and spread upon slat frames of wood underneath which at intervals basins of sulphur are placed; the cherries are subjected to the fumes of the ignited sulphur until they are of a uniform color, which is usually yellow. A quantity of the coloring matter (rose nouveau) is dissolved in a liter of cold water. Then the cherries are placed in an earthen pot with a little of the coloring liquid, dissolved sugar, and glucose, glucose being used only in sufficient quantity to prevent crystallization and souring and to keep the fruit soft. The mass, after mixing, is turned into copper kettles and boiled slowly for about ten minutes. It is then all turned back into the earthen vessel and allowed to cool for two or three days to permit the coloring matter to permeate the fruit. If the color is not as desired a very little more coloring matter is added and the above process is repeated sometimes fifteen or twenty times, or until the desired color is obtained and the *glacé* process finished.

One and one-half kilos (kilo = 2.20 pounds) of this coloring matter is sufficient to treat 10,000 kilos of cherries. The fresh cherries cost about 6 to 7 cents a kilo and after being treated by this process they are sold at 36 to 42 cents per kilo.

The Duke of the Abruzzi has named the three highest peaks of Mount Ruwenzori after Queen Margherita, Queen Alexandra, and King Leopold.