

## Correspondence.

**A Method of Cleaning Silver.**

To the Editor of the SCIENTIFIC AMERICAN:

Having read the article on "Method of Cleaning Silver," published in the issue of May 25, I would suggest that a very similar method has been frequently used by friends of mine, with the exception that they use sour milk. The milk which sours during the week is kept until Saturday morning, when it is poured into a large tin dishpan and the silver placed in it, so that the milk entirely covers the silver. The silver is left in this way for from fifteen minutes to half an hour, depending entirely on the amount of sediment or dirt on the silver. After the silver is clean, all that is necessary is to rinse it in hot water and rub dry. The sour milk does not act in anything but a tin vessel.

Valley Park, Mo. W. O. R.

**A Wireless Interpretation of Ball Lightning.**

To the Editor of the SCIENTIFIC AMERICAN:

In Prof. John Trowbridge's article on "Ball Lightning," published in the SCIENTIFIC AMERICAN of June 15, he points out that a great quantity of electricity is manifest in the phenomena of ball lightning. I believe, that in most cases, when the discharge comes to the earth, there is a great quantity of electricity manifest. The discharge breaks down the resistance of the lower atmosphere, thereby opening a path for the rush of a great quantity of positive electricity from the upper atmosphere or higher altitudes to the earth—a "coherer effect" on a grand scale.

I know of an instance where a thriving locust tree was struck by lightning and burned almost to the ground. There certainly was a great quantity of electricity manifest in that discharge.

Carlisle, Pa., June 29, 1907. J. HOLMES WILSON.

**Fire in Ships and Its Prevention.**

To the Editor of the SCIENTIFIC AMERICAN:

In supplement to the communication I addressed to you some time ago, and which was published in your number of the 8th of June, upon the subject of the salvage of vessels, I desire to direct attention to another danger that is imminent in all vessels, and perhaps the worst danger of all, namely, that of fire.

There are a good many chances in favor of a person being saved in the case of a collision or a shipwreck; but should a fire take place on a vessel 1,000 miles from land, which could not be overcome, and no other vessel happened to be in the vicinity, the chance is reduced to a minimum. Happily, there have not been any very serious results from accidents of this nature within recent years. The case of the Inman steamship "City of Boston," which was lost, I think, in 1873, and which has never been accounted for, might possibly have arisen from fire.

However, the question that I propose to deal with is the prevention of fires at sea.

Most people are familiar with the effect of carbonic acid gas on fire, and how quickly a fire can be extinguished by its use. There are many ways in which a fire may occur on a ship—spontaneous combustion in coal bunkers or in cargoes of sugar, hay, wheat, or grain of any kind, or by a lighted match being thrown among inflammable material by a careless smoker; breakage of packages containing chemicals, lucifer matches, etc.

I maintain, therefore, that every ship should be equipped with complete appliances for the generation of carbonic acid gas, with a system of piping that would reach every compartment in it, either collectively or separately. The generating apparatus itself to be placed in a fireproof room accessible only from the hurricane or weather deck of the vessel. As this gas is much denser than atmospheric air, it would be well that these pipes should be laid to points in the bottom of the hold near the keel; the air could thus be more effectively driven out through an escape or relief pipe, in the case of a closed compartment. No fire can exist for a moment in an atmosphere of this gas, and no damage of any kind could result to a cargo by its use. There is no place where a fire could be so successfully fought by these means as on a vessel of any description that has closed decks. When a fire has been extinguished, the gas could be exhausted from the hold by the same pipes. In the case of oil-tank vessels, or vessels of any kind carrying explosives, such as battleships, etc., where the compartments in which these materials are stored are airtight, it might be well to keep these filled with carbonic acid gas, as, being so much heavier than air, it would remain there indefinitely, and thus render a fire or explosion impossible.

The elements required for the generation of this gas—sulphuric acid and iron filings—are so inexpensive that no vessel should be without a complete equipment such as I have described. It would always be ready for action, and is infallible if supplied in sufficient quantities. The cost of piping even a very large vessel would be trifling compared with any efficient system of fire engines and hose, and the gas would reach points in a vessel that it might be impos-

sible to get at by means of a water system, and without flooding the ship's hold and thereby creating the danger of foundering.

This, perhaps, might be a useful equipment to install in the fire-fighting vessels in the harbor of New York, to be used, of course, only in cases where no human beings are accidentally imprisoned in the hold of a vessel, such as that which occurred in the case of a Hamburg-American steamship at Hoboken about two years ago.

I submit these suggestions for the consideration of ship-builders and shipowners, and I think that such a system combined with the one I referred to in my previous communication would render a vessel pretty safe under almost any contingency that might arise.

Ottawa, Canada, June 17, 1907. J. E. W. CURRIER.

**The Fourth Annual Automobile Touring Contest for the Glidden Trophy.**

On Wednesday, July 10, by the starting of 74 automobiles from the city of Cleveland, Ohio, the fourth annual touring competition of the American Automobile Association for the Glidden trophy was inaugurated. These machines are carrying nearly 300 passengers on a 1,570-mile journey through the several States in the central section of our country, at an average speed of about 18 miles an hour. The tour will consist of twelve daily runs averaging 130 miles in length, the longest day's run being 174.2 miles and the shortest 97.2 miles. The route extends from Cleveland to Chicago, via Toledo and South Bend; thence to Pittsburg via South Bend, Indianapolis, Columbus, and Canton, Ohio. From Pittsburg the tourists will return to New York city via Bedford Springs, Baltimore, and Philadelphia. The roads, as a rule, are ordinary country turnpikes, which, however, are likely to become heavy and slippery in case there is much rain. Owing to such conditions on the second day, the tourists found it very difficult to keep their cars from skidding in the run from Toledo, Ohio, to South Bend, Ind., and while attempting to pass a four-cylinder Pierce car, one gentleman, who was driving a six-cylinder machine of the same make, had his machine skid off the road and overturn. As a result of this accident, the driver and a lady passenger were severely injured from being pinned under the car. A similar mishap occurred to a Packard machine, which skidded while rounding a sharp curve and turned upside down. The owner and driver of this car was also badly cut and injured about his chest. As a result of these accidents, the tourists are using great caution and are hoping that the skies will remain clear. In the section from Pittsburg to Bedford Springs there are many water breaks across the road at frequent intervals, and some tourists who recently went over the course in a Peerless car report that a speed of more than 10 miles an hour will not be possible. Some contestants have threatened to abandon the tour if the officials do not make a slower schedule where bad roads are encountered.

This year the Glidden trophy for touring cars carrying four passengers will be awarded to a club, instead of to any one car; but the score of each car will be recorded daily and at the end of the tour each contestant will receive a certificate as to the performance of his car. Another trophy known as the Hower trophy has been offered by Mr. Frank D. Hower for the runabout which has the most points to its credit at the finish. All the cars are credited with 1,000 points apiece at the start. They are penalized 1 point per minute or fraction thereof in excess of two minutes which they are late at controls, and 1 point per dollar or fraction thereof of the value of parts which have to be renewed. Any car which drops out for any reason will be penalized the full 1,000 points in addition to any penalizations it may already have. If there are three or more cars in any one team, and one of these cars loses a number of points, the team will not lose the entire number of points, but merely this number divided by the number of cars that make up the team. Thus if one car of a three-machine team loses 12 points, the team will lose only 4.

The rules governing the tour this year are very strict. They require that the cars must at all times be fully equipped with mufflers, mud guards, etc., and that they shall carry four passengers of an average weight of 125 pounds, or the equivalent in ballast. No replacements, replenishments, adjustments, repairs, or inspection can be made on any car after it has been registered at a night control and before it is started the next morning. No replacements can be made with parts not inventoried and carried at the start. Each car can carry but one mechanic, and no one else save the operator of the machine is allowed to make repairs. There are no official observers, but at the end of each day's run the driver must make a statement as to the repairs and adjustments made during the day, and this statement must be attested by each occupant of the car. A pacemaker is provided and the cars are obliged to maintain a uniform speed as nearly as possible. They are given a certain time to make the run each day, and there is

but one control provided, which is at the end of the day's run.

Altogether, fifty-nine machines started in the competition for the Glidden and Hower trophies. Forty-six of these machines are touring cars, competing for the former, and thirteen of them are runabouts competing for the latter trophy. There are about .35 different makes of cars on the run. A partial list of these in alphabetical order follows: One Acme, one American Mors, two Aerocars, one Autocar, Apperson, Berliet, Cleveland, Columbia, Continental, Deere, three Dragons, one Gaeth, three Haynes, one Lozier, a Matheson, Mitchell, Meteor, Marion, three Maxwells, one Oldsmobile, seven Pierces, three Packards, two Premiers, two Peerlesses, one Pungs-Finch, one Pennsylvania, three Reos, one Ranier, two Royals, one Shoemaker, two Stoddard-Daytons, six Thomases, one Walter, two Welches, and two Whites.

Of the 46 Glidden contestants, 10 represent the New York Motor Club, while the remainder are divided between the automobile clubs as follows: Automobile Club of America, 4; Westchester, 3; Buffalo, 5; Cleveland, 9; Chicago, 7; Detroit, 4, and Pittsburg, 4. Owing to the overturning of two cars on the second day and the withdrawal of two others at the end of the third day at Chicago, as well as to the dropping out of several more from various causes, at the completion of one-quarter of the tour but two of the contesting clubs—the Buffalo and the Pittsburg—had perfect scores. Some of the other clubs were penalized as follows: Automobile Club of America, 253%; New York Motor Club, 131.5; Chicago, 343; Detroit, 304. The Westchester Club was also heavily penalized owing to the dropping out of a Maxwell car and the breakdown of several other cars.

After a two days' rest in Chicago the tourists resumed their journey on Monday, the 15th instant, with the expectation of reaching Pittsburg on Friday evening and Bedford Springs, Pa., the following night. Sunday, the 21st instant, will be spent there, and during the following three days they will tour to Baltimore, Philadelphia, and New York. Notable features of the present tour are the complete absence of foreign cars and also of air-cooled machines. A considerable number of new American makes of cars are receiving their initial public testing, and some of the cars (the 40 H. P. Berliet and the 30 H. P. Haynes are attempting to make the entire trip with sealed bonnets.

**The Daniel Comet.**

A new comet was discovered by Mr. Daniel at Princeton Observatory on June 9 and confirmed by Prof. W. R. Brooks on June 11 at Smith Observatory. It promises to be an interesting object, and is now quite rapidly increasing in brightness. An observation made on the morning of July 8 showed it to be three times brighter than at discovery. Its position was right ascension 1h. 29m. 50s.; declination north 7 deg. 0 m. This places it on the foreleg of Aries, from which place the comet is moving in a northeasterly course. On August 1 it will be in the head of Taurus, and from these two positions the course of the comet for the present can be easily marked out. The comet is now visible in a small telescope or field glass, and will soon be visible to the naked eye in the eastern morning sky.

On July 10, at 2 o'clock, the sky being very clear, the comet was detected with the naked eye as a misty star of the fifth magnitude. A tail one and a half degrees in length was easily seen in the 10-inch telescope. The tail was also visible in the 3-inch finder.

**The Current Supplement.**

The amateur experimenter will learn much from A. Frederick Collins's article on "How to Construct a Simple Wireless Telephone," which is published in the current SUPPLEMENT, No. 1646. Mr. Collins describes fully and accurately how a wireless telephone working on the principle of electro-magnetic induction can be made at home. Ernest Schneider contributes an instructive article on the autogenous welding of metals. The great work of building the Parisian underground roads is described and illustrated. Alfred Sang's interesting paper on the art of galvanizing is concluded. The wonders of the town of Knossos are picturesquely set forth in an article on the excavations in Crete, which is accompanied with excellent photographs. The chemistry of dynamite is examined in detail. The naval tactician will find of no little interest a paper on gun distribution aboard modern battleships.

The Krupp establishments employ at present some 53,000 workmen and 5,000 engineers and officials. Of this total of 58,000 persons, 40,000 persons are employed at the steel works and coal mines at Essen, 4,000 in the iron mines, 4,000 at Rheinhausen, 4,000 at Magdeburg, 5,000 at the Germania shipyard at Kiel, and 1,000 at the steel works at Armen. Among the leading specialties of the firm are guns, armor plates, rifles, shells, boilers, rails, axles, tires, propellers, tubes, etc.—Mechanical World.