Correspondence.

A Home-Made Gramophone.

To the Editor of the Scientific American:

I sent a drawing, clipped from your paper last summer, of a home-made gramophone, to my brother in Warrensburg State Normal School, Warrensburg, Mo., and he has just completed a machine in the manual training room which he says is a perfect success. It is on exhibition at the Normal (1,000 students). Many thanks to the Scientific American.

J. A. Thomas.

Oklahoma City, Okla., February 18, 1902.

Electrocuting a Snake.

To the Editor of the Scientific American:

Mr. E. W. Kelly's story of the bird tragedy in your issue of the 8th instant recalls an incident which I witnessed a few years ago at Council Bluffs, Iowa.

While waiting for a bridge car I was attracted by a commotion among the employés at the barns. Upon investigating matters I learned that an ordinary garter snake about 20 inches long had been discovered in one of the repair pits, and the men proposed to electrocute it, the snake having been stunned sufficiently by a blow to enable them to get it up on the track. One end of a loose wire was connected with the trolley wire overhead, the lower end being coiled about a long stick for convenience of handling.

The snake was then laid out with its tail held firmly on the track, its body being so arranged as to quickly demonstrate whether or no snakes are good conductors. That particular snake certainly was not, as it was impossible to produce the slightest quiver in any part of its body, no matter how the contact was made, whether externally or by jamming the wire into its mouth.

The result was as surprising as it was disappointing, so much so that the men believed the "power was off." That was quickly tested, however, and the fusing of a foot or two of the wire the instant it touched the rail showed very conclusively that the 550-volt current was all there, ready for the proper conductor.

It is sufficient to state the snake was forthwith dispatched in the old-fashioned way.

William T. Bonner.

12 West 31st Street, New York.

Merchant Marine Subsidies.

To the Editor of the Scientific American:

Your issue of March 8 contained an article entitled "How Various Countries Subsidize Their Mercantile Marine," and I beg leave to call your attention to a serious error contained therein. The assertion is made that "German lines are the most heavily state-subsidized steamship lines in the world, and but for this government assistance it is very doubtful if Germany would have attained its present position in the mercantile marine among the maritime nations of the world. Certainly no fast steamships, such as the 'Deutschland,' 'Kronprinz Wilhelm,' and the 'Kaiser Wilhelm der Grosse,' would have come into existence." I wish to call your attention to the fact that the Hamburg-American Line, which was founded in 1847, has never received a cent of subsidy for its transatlantic service, and has grown and prospered without the aid of any government or state whatsoever.

About two years ago the Hamburg-American Line was admitted to a share of the subsidy hitherto paid to the North German Lloyd Steamship Company for its East Asiatic service, and receives this subsidy only for two steamers, the "Hamburg" and "Kiautschou," running in connection with similar steamers of the North German Lloyd from Hamburg and Bremen to East Asia.

The construction of our steamer "Deutschland" has, therefore, nothing to do with subsidy whatsoever.

Our line has a total tonnage of 668,000 tons, and of this total tonnage only 21,511 tons, representing the two steamers "Hamburg" and "Kiautschou," are subsidized, while, as I stated before, the rest have been constructed without any state aid whatsoever.

Emil L. Boas,
General Manager Hamburg-American Line.

New York, March 8, 1902.

Strength of Torpedo-Boat Destroyers.

To the Editor of the Scientific American:

In your issue of February 8 we notice an article on "The Frailty of Torpedo-Boat Destroyers." We are quite aware that many accidents have occurred of late with destroyers, but that only proves that certain destroyers are weak; it does not prove that destroyers cannot be built of ample strength without sacrificing speed, or that the scantlings are not sufficient if the workmanship and details of construction are correct.

We have built eight destroyers for the Japanese government, six of which long since steamed safely out to Japan, and have been engaged during the Eastern crisis in navigating between Japan and China, and in no case, we are officially informed, has there been any sign of weakness, except such as may be purely local; and during all these journeys it is reasonable to assume that very bad weather was encountered; in fact, we know that was so at times.

There is one point that seems not to be sufficiently appreciated, and that is that the safety of lightly-constructed vessels, such as destroyers, is dependent to a very large extent upon elasticity when encountering rough weather, and this elasticity must be as uniform throughout the structure as it is possible to make it, otherwise the bending which takes place will be concentrated at certain parts, and the metal of those parts, after a certain time, gets fatigued and ultimately gives way. To study how to secure uniformity of elasticity throughout the structure in vessels of the destroyer class we are sure deserves more attention on the part of constructors than has hitherto been devoted to it.

Yarrow & Co., Ltd.,
A. F. Y.

Poplar, London, E., February 22, 1902.

Insect-Proof Timber.

To the Editor of the Scientific American:

Your issue of November 17, 1901, contains an illustration of a cross-section of a pile riddled by *Teredo navalis* (called in this country cobra), together with letterpress description of this pest and the various devices for guarding against it, such as sheathing piles with Muntz metal, dressing with chemical compositions, etc., but you do not mention any timber naturally proof against cobra and other wood-eating worms and insects. A large area of this country—always sandy tracts of almost barren soil—produces a variety of pine locally known as cypress pine. *No insect or borer on earth* will touch this timber. It is largely used for wharf and bridge piles and other under-water structures. Some of the wharves in this port have been built forty years. All the beacons, leading lights and marks in the ports and coast channels are carried on piles of cypress. Floating plants of such a type as punts, barges, lighters, etc., are sheathed to waterline with cypress one inch thick, it being far cheaper than Muntz metal and quite as effective.

Sawn up and worked into furniture such as wardrobes, chests of drawers, bookcases, cabinets, etc., it is not only a very handsome material, owing to its fine-figured grain in shade of light and dark brown—very like walnut—but there again its insect-proof qualities are of great value. Books, papers, linen or anything of that sort kept in it are never touched by silver fish or cockroaches, which are a common pest in this country. The wood has a very strong scent, highly agreeable to human olfactory nerves, but evidently disagreeable, perhaps poisonous, to insect life both on land and water; even our all-devouring white ants won't touch it.

It grows straight as a rule, not very tall; piles from 40 to 50 feet long, 2 feet diameter at butt end tapering off to 1 foot or less at top end are about as long as they usually grow, though I have seen some over 70 feet. On the outer surface is a thin skin of white sapwood ½ inch to ¾ inch thick. This sapwood has little or no protective power; in piles it is usually eaten off by the cobra (*teredo*) within a few months, but they always stop short at the dark wood. I do not write this with any idea of suggesting export for sale, but merely to let you know there is such a timber growing. You might like to get some seed sent over to plant in your own go-ahead country; it does best on sandy barrens.

Edward Armitage.

Kent Street, Maryborough, Queensland, Australia.

Sven Hedin's Return from Thibet.

Sven Hedin, who started out some time ago to explore Central Asia, has returned to Cashmere, after stirring adventures in Thibet. At present no definite information can be obtained; for Hedin merely sent a telegraphic despatch to the King of Sweden giving a bare outline of his adventures. Like many another explorer before him, he could not resist the temptation of trying to enter the forbidden city of Lhasa. Disguised as a pilgrim, he succeeded in approaching within a few miles of his goal. The sudden discovery that a stranger was near threw the town into consternation. Hedin was at once captured and imprisoned. It seems that his captors were more merciful than they were to Landor; for he was in no way injured. By the express command of the Dallai Lama, Hedin was well treated.

Not content with the failure of his first atempt, Hedin tried a second time to enter the town. Without any warning 500 soldiers attacked him, and destroyed a large part of his caravan. His ardor was then so far cooled that he determined to return, after rescuing his notebooks and the data which he had collected.

Dr. Albert R. Leeds, for thirty-one years professor of chemistry at Stevens Institute, in Hoboken, died at his home, in Germantown, Pa., recently from liver disease. He was about fifty-five years old.

Chamonix Electric Line.

The Bulletin of the Société des Ingenieurs Civils contains an account of the new Fayet-St. Gervais-Chamonix electric line, which is now in operation. It has been installed under the direction of Messrs. Baudry and Maréchal. This line is one of the most interesting applications of electric traction in Europe. It contains some heavy grades, one of which is 9 per cent over 6,000 feet distance and another of 8 per cent for 4,500 feet. The traction is carried out by simple adherence, using cars carrying electric motors. The cars are equipped so as to be operated independently if desired, but in general several cars are coupled together to form a train. A great many difficulties were encountered in the construction and successful operation of the road, but it may be said that these have all been overcome. The third-rail contact system is used to take the current, and besides, on the steep grades, there is a fourth rail laid along the center of the track which serves for the grip-brake. The vehicles have a central passage and contain 32 or 36 places according to class. Each ascending train comprises four passenger cars and a front car which contains the baggage, and the engineer's cab. Each car has two motors which drive the axles by a bevel gearing mechanism. Another feature of the system is that each car is equipped with controlling apparatus which allows it to be operated as an independent unit, but when coupled together all the controlling devices are capable of being operated from the engineer's cab in front. Each car has a set of brake shoes as well as the jaw-brake which grips the rail. The brakes can be worked either by hand on each car or simultaneously from the engineer's cab by compressed air. A complete train of five cars with its ten motors can make an average speed of 7 or 8 miles an hour when going up a 9 per cent grade, with an absorption of energy represented by 800 amperes at 550 volts. The total length of the line is 11.4 miles and the journey, stops included, takes about an hour. In the descent, the speed is limited to 6 miles an hour on the grades. The line is fed by two central stations, one situated beside the track and near the hamlet of Chatelard, and the other at Chavants. Continuous current is used in the two stations. Both are hydraulic plants, and each has a derivation canal from the Arve, a rapid mountain stream. Each station has four direct-connected dynamos and turbine sets, of 325 horse power each (one of which is used as a reserve), and two smaller groups for local use. All the dynamos are of the Gramme type and are connected to the turbine by elastic coupling. At the Chatelard station the fall is 114 feet and at Chavants it is 282 feet.

The Scientific American Supplement Catalogue.

A new edition of the Catalogue of Papers in the Scientific American Supplement has been in preparation for nearly a year and has now just been issued. Those who are familiar with the old catalogue will welcome the new one as embodying all the good features of the earlier editions, but bringing it absolutely up to date. The value of the catalogue is, of course, enhanced by the fact that all the papers listed are in print and can be supplied at once. The Supplement occupies a unique position in American technical literature, as it carries no advertisements. Every page is filled with valuable matter of interest, and much of the information never filters into books at all.

In the preparation of the new catalogue the same general lines have been adopted as in the old catalogue. Every entry was supervised by a member of the staff, and over 12,000 papers are now listed. The new catalogue fills sixty pages. While, of course, the catalogue is issued by the publishers primarily to call attention to the individual papers in the Supplement with a view to possible sale, it is, after all, a valuable book of reference, and most libraries have it bound. It is mailed to any address on request.

The Current Supplement.

Among the most important articles published in the current Supplement, No. 1368, may be mentioned an illustrated description by Frederic Moore of "Gold Mining in North Carolina;" an exhaustive discussion of "Range-Finders" by Prof. George Forbes, and an essay on "Ignition Devices of Gas and Petrol Motors" by S. R. Bottone. Other articles of interest are entitled "Early Forms of Electric Motors," "Science in the Theater," and "German Drilling Machines." The Consular Notes and like brief information will be found in their usual places.

In our description of the Lorillard houseboat, given in the recent Automobile and Outing number of the Scientific American, credit for the design was inadvertently given to Messrs Tams, Lemoine & Crane, of this city, to whose courtesy we were indebted for the plan, etc., from which our description was drawn up. We are now informed by this firm that Mr. Lorillard employed Mr. M. Hubbe, of New York city, to put his ideas into shape and that he should rightly be considered the designer.