Correspondence.

An Idea for Inventors.

To the Editor of the SCIENTIFIC AMERICAN:

Please ask inventors to get up a "short-stop" for electric cars. Pressure by the motorman's foot ought to simultaneously set the air-brakes on the wheels of one truck, send a reversing current into the motor on the other truck, sand the tracks, and pull back the lever of the controller to "off." Raising the foot ought to cut off the reverse; lifting a lever ought to release brakes. This leaves the car ready to start again.

SPENCER CONE WYCKOFF.

Brooklyn, N. Y.

Milk Diet.

To the Editor of the SCIENTIFIC AMERICAN:

The letters published in the SCIENTIFIC AMERICAN *pro* and *contra* a milk diet were very interesting. They show a very general mistake made by the majority of people, laymen and professional. To any intelligent observer it must be clear that the same article of food taken under the same conditions may be very beneficial to one person and very harmful to another person. It may even be easily digested and tolerated by, or disagree with, one and the same individual at various times. For many years I digested milk and eggs without difficulty; now they disagree with me.

This is one of the greatest mistakes made by enthusiasts in a certain form of diet. They sincerely believe that what is good for one man must be good for every man. The average physician is apt to commit the same error and not give as much consideration as is necessary to the peculiarities and idiosyncrasies of each individual patient.

There is one thing, however, to be said against cow's milk. While it undoubtedly possesses wonderful nutritive properties, it was never destined for human beings, but for calves. The digestive apparatus of a human being and of a calf are entirely different, and while some persons have the necessary power to assimilate and thrive on milk, many have not. Then, of course, there is the danger of infection through milk and probably the greater danger of adulteration or impurity.

MAURICE MOSCOVITZ.

New York.

Home-Made Barometers.

To the Editor of the SCIENTIEIC AMERICAN:

I note your commendable instructions for making home-made mercurial barometers. Thirty years ago I wrote your paper that, in filling the tubes, a little tuft of absorbent cotton, tied to a long thread, should be thrust to the bottom of the tube before filling. When the tube is full, pull the tuft out, and all bubbles in the mercury will condense into the cotton. A clean tube—next to that resulting in boiling—will result.

My experience is that barometers so made should have extra long tubes so that the small amount of air that necessarily remains may have room at the top to be rarefied greatly, and thus affect the sensitiveness of the mercury less.

With regard to the general shape and special projections on the tree-hoppers, so recently illustrated in your journal, it had always occurred to me that these were largely protective. The excrescences enable the insect to resemble a greenish bud or new thorn on a twig of the year on many trees, and it is probable that those of extravagant length in other countries mimic a branch or leaf-stem.

It has always seemed to me that in hopping these creatures were projected by means of a downward stroke of the wing as well as by use of the special saltatorial legs. These latter appear too weak for the very sudden propulsion, and besides this there is always a very audible snap on the surface from which the hopper springs, as if it were suddenly struck by something. I could never, however, perceive any such wing action with the eye.

Any information on this subject from those experienced in the study of these creatures might be of interest.

JAMES NEWTON BASKETT.

Mexico, Mo., June 8, 1907.

Marine Turbines as Gyrostats.

To the Editor of the SCIENTIFIC AMERICAN:

In reading the account in your number of June 15 of the practical tests of the Schlick gyrostat for ships, there occurs to my mind a suggestion which I offer for your consideration and that of your readers.

Experience with a Curtis steam turbine combined with electric generator, as supplied to the trade by the General Electric Company, convinces me that this is the means of converting the energy of coal into effective work, combining more advantages of economy and flexibility than any other.

Now, the steam turbine as a propelling agent for vessels seems to be the favorite device of modern engineering. Most of the models so far tried have been of horizontally placed turbines, operating directly upon the shafts of the propellers of the ships.

Would it not be economical both of space in the ship, of weight, and of torsional strain, to substitute the vertical type of turbine such as the Curtis? Equip the vessels with the usual form of Curtis turbine and generator, have a short shaft for each propeller and to each attach an electric motor receiving its power by wire from the generator. This shaft could be propelled in either direction by changing the direction of the current through switches, each shaft and propeller being entirely independent in its action.

Then to steady the vessel, preventing rolling, a heavy plate revolving in the same plane as the turbine could be placed above the turbine itself, and actuated by the power the turbine generates.

Would not this combination produce a condition of stability, the turbine itself acting in some sort as a gyroscope, which would be a desirable and economical arrangement of forces?

SPENCER BORDEN.

Fall River, Mass., June 22, 1907.

[The proposal to use a turbo-electric drive for steamships has been made by one of the large electrical companies. It would have many advantages. The proposal to use the Curtis type of turbine in such a way as to secure gyrostatic effects is impracticable, because of its slow speed of rotation, to say nothing of many mechanical difficulties.—ED.]

Progress of the Glidden Tour.

After a two days' rest in Chicago, 69 of the original 74 cars started on Monday, the 15th instant, on the remainder of the journey to Pittsburg and New York. Thirty-one contestants still had perfect scores. Nine had received penalizations, and seven had dropped out. Among these were the Apperson car No. 1, which had a broken magneto, the Pierce and Packard cars of K. R. Otis and T. J. Clark (both of which overturned on the third day's run to Chicago), the 24-horse-power Maxwell (which broke its rear axle on the third day), a Dragon runabout (which stripped its differential), a Cleveland runabout, and a Royal touring car equipped with ordinary pneumatic tires with a gelatinous filling known as "Newmastic." The non-contestants consisted of 14 touring cars and 4 runabouts. Five of the non-contestants had perfect scores. Two cars—a Wayne and a Maxwell—joined the tour at Chicago.

The fourth day's run, from Chicago to South Bend, Ind., was made over a very muddy and rutty road, owing to heavy rain in the night. As a result, a number of cars were stuck in the mud and had to be pulled out by horses. A 45-horse-power Matheson runabout had a connecting rod break loose and make a hole in the crank case, which put this car out of the Hower trophy competition. A Reo machine (Car No. 34) was penalized and withdrew, as did its mate (No. 35) at Chicago. An Aerocar broke a water pipe, and an Autocar seriously strained its frame. The distance this day was 101.2 miles. The cars were provided with a pace maker, and were numbered according to their place in line. If any car was held up on account of a breakdown or for other cause, the cars behind it could pass by exchanging numbers. This new arrangement worked well, and stopped racing to a large extent.

The fifth day's run of 147½ miles, from South Bend to Indianapolis, was begun in a heavy rainstorm, and ended in stifling heat. The roads were fairly good though muddy. An average speed of about 18 miles an hour was maintained. Among the events of the run was a collision between a Thomas 4-cylinder runabout and a Maxwell 2-cylinder touring car, which resulted in a broken front spring hanger for the latter. A Marion 4-cylinder runabout (Car No. 107, competing for the Hower trophy) was ditched and broke its left rear wheel, which effectually put it out of the competition. The 40-horse-power Lozier touring car made very slow progress on account of a broken front spring. About half a dozen of the cars took the wrong road and made a detour of 22 miles, but despite this they all arrived on time. Another Haynes car—a 4-cylinder runabout—joined the tour at Indianapolis.

At the completion of the sixth day's run, which completed half of the tour, 27 contestants for the Glidden trophy and 4 non-contestants still had perfect scores. while in the competition for the Hower trophy, 6 of the 13 runabouts that started remained perfect. The run of 174.2 miles from Indianapolis to Columbus consumed nine hours' time, and was made at an average speed of 19½ miles an hour. Like the run of the previous day, it began in a driving rain and ended in hot sunshine. The roads were good nearly all the way, most of the distance being covered over the National highway. The Mitchell car was the only Glidden contestant to lose points in this day's run. Eight points were lost on account of delay due to tire trouble. The car had four blow-outs and two punctures during the day. A Maxwell runabout, despite delay due to faulty wiring and three punctures, managed to arrive on time. One of the contestants was arrested for exceeding the speed limit.

The seventh day's run of 151.4 miles, from Columbus to Canton, Ohio, was made at an average speed of 17½ miles an hour. The roads were somewhat rougher and more hilly than those traversed before. The 35-horse-power Deere car broke its steering gear and skidded off the road into a canal, but was subsequently pulled out and towed into Canton by a Packard non-contestant. A Walter and a White car also skidded off the road into the ditch. The former was got back into the road, and was able to make up the time lost, so that it received no penalization. The confetti car took the wrong road, and made a considerable detour over some extremely mountainous roads. It was followed by about half a dozen cars before the mistake was noticed by the contestants. The road was mostly of clay, and had many deep mudholes and water breaks in some sections. A 40-horse-power Aerocar collided with a wagon and dropped out of the tour, while a 30-horse-power Packard car received 91 points penalization, thus doing away with the perfect score of the Buffalo Club, and leaving only the Pittsburg Club remaining with a perfect score.

The eighth day's run of 92.2 miles from Canton, ●., to Pittsburg, Pa., was covered at an average speed of about 15 miles an hour, which was none too slow for the extremely poor roads encountered. The first part of the run from Canton to New Brighton consisted of frequent steep hills and water breaks, which, however, was as nothing compared with the wretched clay roads and high hills encountered nearer Pittsburg. On account of the bad state of the road, the route was changed, a detour being made at Freedom. Owing to extremely bad roads, four more cars which had perfect scores received penalizations. These were the Lozier, Gaeth, Maxwell and Haynes. In the Hower trophy competition the 40-horse-power Thomas runabout received 77 points penalization.

With the tour about three-quarters finished, 20 contestants for the Glidden trophy and two non-contestants still had perfect scores upon their arrival at Pittsburg, while but 5 of the Hower trophy contestants remained in the perfect score class. As the very worst roads are yet to be encountered, it is probable that not more than a dozen cars will finish at New York with a perfect score in this, the most strenuous touring competition that has ever been held in America.

The Current Supplement.

One of the most brilliant and successful races of the season was the Grand Prix of the Automobile Club of France, which brought together the leading racing cars of different countries mounted by the most experienced pilots. The high average speed of 70 miles an hour, made by the winner, is unprecedented. The Paris correspondent of the SCIENTIFIC AMERICAN describes the race in detail, and presents pictures of the leading cars. Roquefort cheese, which derives its name from a little village in the south of France, is known throughout the civilized world, and is the most celebrated of French exports with the exception of champagne. E. Marre tells exactly how the cheese is made. The splendid paper on gun distribution aboard modern battleships is concluded. That plants marry and are given in marriage becomes evident from the simply-worded but interesting article of Percy Collins, entitled "The Nuptials of the Flowers." In an article entitled "The Passing of the Animals," Edwin Vivian gives an account of some creatures that are now known only by their names. The cymometer, or wave-measuring device, is an instrument designed by Dr. J. A. Fleming, F.R.S., to determine not only the frequency of electric oscillations and the length of electric waves, but also to measure small capacities and inductances of circuits employed in wireless telegraphy. The new Lumière tricolor photographic process is described in detail, the exact formulas for development, inversion, oxidation, intensification, clearing, fixing, and varnishing being given.

A party of scientists have sailed from Seattle, Wash., to cruise for several months in northern waters. The little vessel "Lydia," of 400 tons has been chartered, and fitted out for the expedition. The principal purpose of this cruise is to study the geological formation of the Aleutian group of islands, and other scientific features connected with that archipelago. The party will make particular investigation of Perry Island, which suddenly rose from the sea more than a year ago. This party is headed by Dr. T. A. Jaggar, Jr., head of the department of geology, Massachusetts Institute of Technology, and includes Dr. H. S. Eakle, University of California; Prof. H. V. Gummery, professor of mathematics, Drexel Institute, Philadelphia, who will have charge of the magnetic observations; Dr. Van Dyke, who will study the botany and entomology of these islands, and Prof. F. T. Colby, who will look into the natural history of the region. The party will begin working westward from Attu Island, and will devote several months' time to their researches.