

Correspondence.

Hop Picker Wanted in England.

To the Editor of the SCIENTIFIC AMERICAN :

As you from time to time publish lists of various inventions wanted, I thought you might like to know that in this county, Kent, a great many people are employed in the hop picking season to pick hops; and in a year such as the present, when hops are very abundant, there is a great difficulty in getting enough hands to do the work, and as a consequence, the crop often drops off before it can be picked, and is wasted. It seems to me that there is an opening here for a machine to do the hop-picking, and it may be that American ingenuity might be able to supply this.

WALTER WINANS.

Surrenden Park, Pluckley, Ashford, Kent.

Public Interest in the Navy.

To the Editor of the SCIENTIFIC AMERICAN :

Please accept my thanks for the trouble you have taken to give me the information I desired regarding the use of Krupp or Harvey armor on the battleships of the "Maine" and "New Jersey" classes.

I have followed with keen interest and appreciation the efforts you have made toward the improvement of our navy, both by stimulating popular interest in the matter and by well timed criticism of departmental plans, e. g., in the cruisers of the "Denver" class, and the new monitors, and feel that you are accomplishing much toward securing the general adoption in these matters of the standard of excellence which should obtain, viz., that the very best may suffice for us, but that nothing less will.

Hoping that you will consider that the data which you have kindly procured for me contributed to the furtherance of your own wishes in these respects, believe me,

Faithfully yours,

EDMUND M. PARKER.

Boston, December 7, 1899.

Automobiles at the Paris Exposition.

It has been virtually decided that the administration of the Paris Exposition of 1900 will intrust to the Automobile Club of France the arrangements to be made for the automobile part of the Exposition. This will occupy the annex which is to be formed in the Vincennes Park. The sum of 100,000 francs has been allotted to the section of automobiles, and it is expected that a brilliant display will be the result, with a series of races and other competitive tests between the different types of automobiles. The sum mentioned will be expended under the direction of the club, and will be devoted to the establishment of race tracks and stands and for the distribution of prizes. To these prizes will probably be added the distribution of medals and diplomas by the administration of the Exposition. The principal events will be four competitive tests for automobiles of all types. These will be classed as follows : 1. Private automobiles of all descriptions, such as coupes, phaetons, etc. 2. Cabs and similar vehicles, whose limit of weight is 500 kilogrammes. 3. Heavy automobiles, such as transportation and delivery wagons, weighing up to 1,200 kilogrammes. 4. Light vehicles of all kinds. For the use of the electric automobiles, a special generating station will be erected near the Park, where all facilities for charging the accumulators will be provided. Besides the tests above mentioned, a series of long distance races will be organized, starting at the Park and making a series of circular routes near the city. A unique feature of these races will be the establishment of an electric indicator, consisting of a large board upon which the route is traced, over which will be moved electrically a series of minute automobiles, reproducing exactly the position of the vehicles. Besides this, news will be brought by optical and by wireless telegraphy.

THE total production of tin in 1898 has been estimated at 77,300 tons; in 1890 it was but 55,100 tons. The greater part of the tin comes from the Malay Peninsula, which furnishes 60.6 per cent, not counting the Dutch East Indies, which give 19 per cent. Following this come Australia, with 7.9 per cent; Cornwall, 6.1; and Bolivia, 7.9 per cent. It may be remarked that forty years ago Cornwall furnished 50 per cent of the total. The most productive region is that part of the Malay Peninsula extending from Burma and Siam to Sumatra. A considerable proportion of the tin which is taken from this region is carried into China, and thus escapes the control of statistics. In the Australian region the chief center of production is Tasmania. The principal consumers for 1898 have been the United States, 25,000 tons; Great Britain, 13,000; Germany, 14,500; and France, 8,500 tons. The exportation of tin plate from Great Britain has been 251,769 tons, and that country consumes 150,000 tons. The production of America for the year is estimated at 327,000 tons. The total production of tin plate is estimated at 750,000 tons, and the tin required for its manufacture reaches 20,000 to 25,000 tons.

Science Notes.

A famous Italian faster has been unmasked at Rio de Janeiro. A physician found that he used fibrous meat compressed into the smallest size, and this, in connection with a small quantity of mineral water, was enough to prevent starvation.

The new Victoria and Albert Museum, as the old South Kensington Museum is now called, is having a new building constructed. The frontage on Cromwell Road is 700 feet. The area of the new buildings will be equal to the whole of that covered by the existing museums, including temporary sheds on the west side of the Exhibition Road.

It is an extraordinary fact that up to the present time dead animals were left to decompose on the Paris streets, as there were no facilities for removing them. The Prefect of Police has at last taken steps to have such nuisances removed on application. The cost is not to exceed \$1. This is to be paid by the applicant. This seems a rather extraordinary sanitary regulation.

Excavations carried on at Beneventum, under the direction of Prof. Baccelli, have revealed in perfect preservation a theater as large as that of Pompey or Marcellus at Rome. This is, says The British Architect, quite the most important discovery of the official searches in recent years, though in Rome and at Pompeii something noteworthy is unearthed almost every day. The theater is built of great blocks of travertine.

The necessity of mechanical ventilation in the case of crowded rooms and the importance of natural ventilation was shown at a recent Sanitary Congress. The gain by introducing good ventilation in offices where clerks are crowded together would doubtless be even more marked than in the case of the theater. It is usually considered that 1,000 cubic feet of air an hour is what is required by a single person, but at the Opera House at Vienna the figure was 1600 cubic feet.

An unerring index of prosperity in the West is found in the returns of the smaller colleges, whose clientele is drawn for the most part from the farming communities. The tuition fees and cost of living at these institutions are small, which, when coupled with the increased prosperity of the West, accounts in part for the long lists of students. Ohio has 39 of these institutions; Illinois, 31; Iowa, 23; Indiana, 14; and Michigan, 11. They all do valuable work, and do not compete to any great extent with the great universities.

The shape of Porto Rico on our maps is aggressively square, unnaturally mathematical, and is an exception among islands, which are apt to be of most irregular shape; and our new possession is now being charted anew, and the appearance of it on the new maps will be something of a surprise. The appearance of the east coast line will be profoundly modified. Before a twelvemonth will have elapsed, the shape of the queer parallelogram will be changed. The straight up and down east boundary will prove to slope off gradually to the northeast. It is considered that this error in the shape of the island was due partly to lack of scientific knowledge on the part of the Spaniards and partly to a desire to keep commercial rivals at a distance.

The coming performance of the "Passion Play," which should be begun on May, 23, 1900, is now beginning to attract public attention. Those who had the great pleasure of attending the play in 1880 or 1890 were surprised by the artless simplicity of the native inhabitants of this little Bavarian village. If they should visit the town to-day, however, they would find that all is changed. The old stage is all that remains of the theater. A gigantic steel framework is now being erected to shelter the audience. It reminds one of the camp meeting tabernacles and convention halls in America. Instead of billeting strangers upon the inhabitants, as was formerly the custom, extensive preparations are being made to entertain them, and the talk of the town is how many foreigners will be induced to visit Ober-Ammergau during the period of the play. The names of the actors have not been announced as yet.

The London Lancet has sounded a note of warning against the dangers of high altitudes for elderly people. If at a height of more than 4,000 feet to 5,000 feet above the sea level a certain amount of strain is put on a normal heart, and by a rise of pressure indirectly also on the large peripheral arteries, must not this action be multiplied in the cases of heart troubles or in the cases of arteries with thickened or hardened walls? It is specially the rapidity of the change from one altitude to another which must be considered as a call made upon the contractibility of the small arteries on the one hand, and on the amount of muscular force of the heart on the other hand, and if the structures in question did not respond to this call, rupture of an artery or dilation of the heart may ensue. In the case of people totally unaccustomed to high altitudes, it is desirable to take them by degrees, in two or three stages, with a stay of one or two days at the intermediate places.

Engineering Notes.

There are 2,000 miles of railway open for traffic in New Zealand.

There are 10,000 miles of railway now in operation or under construction in Africa. According to The Engineer, already 1,400 miles of line northwest from Cape Colony and 1,100 miles southwest from Cairo are complete, the intermediate distance being about 3,000 miles.

One of the old Stockton & Darlington engine drivers has just retired from active service. He has been an engine driver since 1853, and in the forty-six years has traveled nearly 2,000,000 miles on the footplate of his engine.

Metal never rusts in the waters of Lake Titicaca. A chain or an anchor can be left in it two weeks, and will be as clean and bright as when it came from the foundry, which is probably owing to the action of some of the chemical salts in the water.

An amusing story comes from the Cape and is told by The Engineer. The station master at a junction on the way to De Aar was notified of a "goods train" arriving. It came and disgorged, not goods, but armed marines. Later on steamed up an armored train with bluejackets and having guns covered with a tarpaulin and ironically labeled "Fruit."

The French military authorities are planning the creation of six railway regiments. The war in the Transvaal has shown what an important part railway operations will play in all future conflicts. According to The Railway Review, the regiments will be recruited among railway employes, and they will be drilled in running trains, repairing and destroying tracks, telegraphing, etc.

An acetylene gas plant has been erected at Assam, which shows that the ease with which this gas can be generated from calcium carbide should gain for it wide favor in parts of the world where it would be impossible to have a gas or electric light plant. The lack of a good illuminant is often felt severely by colonists and others in far-away parts of the world, and acetylene is a welcome relief from kerosene oil and candles.

In most dining cars the kitchen is situated at one end of the car, opening into a passageway inside of the car, and the fumes of cooking and occasionally smoke are wafted into the car while passengers are at the table, but all of the dining cars of the New York Central are being constructed so that there will be no opening from the kitchen to the interior of the car. The only approach to and exit from the kitchen is by way of the platform vestibule, about half of which is made part of the kitchen.

A simple method of getting rid of superfluous obsolete railway rolling stock has been adopted at a foundry in Michigan where a large number of cars were received from a railway company. The only part of the cars worth saving was the metal, and the problem was to separate it from the timber at small cost. Two inclines were built, and two trains of cars were released at the top of the incline and allowed to collide at the bottom. The wreck was then burned and the iron collected.

At the new Boston Terminal Station a test was recently made with the air pumps of locomotives to operate the electro-pneumatic interlocking system of switches and signals. As The Railway Review says, any stoppage of the signaling system in the new station would cripple the enormous traffic, and would probably affect 100,000 suburban passengers, so that the utility of the test is evident. Pumps were used on three locomotives for the test. The pressure was carried to 90 pounds per square inch, and 122 cylinders, 148 semaphores and 283 switches were thrown. As the air compressor plant is in duplicate, it is not probable that there will ever be occasion to resort to the use of locomotives.

Dr. Ludwig Mach has successfully alloyed aluminium with magnesium and thereby obtained a compound which can be worked like brass, and which is lighter still than aluminium, says The Iron Age. The densities of the two metals are: Magnesium, 1.75; aluminium, 2.75; they both melt at 800° C., and their dilations amount to 0.023 and 0.027 mm. per meter and per degree Centigrade. The metallurgical properties depend upon the composition of the alloy. A 10 per cent magnesium alloy resembles zinc, a 15 per cent alloy is like brass and a 25 per cent like a compound bronze. The alloys can be soldered, it is stated, though that point does not appear to be fully settled, keep well in dry and damp air and give good castings. The alloy is almost as white as silver and so hard that it is possible to cut aluminium with a sharp-edged piece of magnalium. It can be turned, bored, etc., quite as well as brass, and clean and neat threads of ¼ mm. pitch can be cut with ease. It does not file so readily as brass, but is superior in this respect to copper, zinc and aluminium. Magnalium is suitable for lens mountings, and would make good divided circles and arcs for instruments in which light weight is a consideration. If bought by volume, it is a little less expensive than brass.