

## Correspondence.

## American Officers for American Ships.

To the Editor of the SCIENTIFIC AMERICAN:

In your issue of January 25 I see an article upon "Scarcity of Officers in the Mercantile Marine," liable to occur by the increase of our navy, and a plea to facilitate the admittance and passing of candidates for officers' licenses. I beg leave to differ with the writer of your article in two regards, and at the same time note a protest against the facilities with which in some ports officers are "fabricated."

First: In the United States mercantile marine you have now many good and able men who would gladly pass and become officers if the cause of my protest did not exist.

Second: One or two years more in age demanded will not debar the young men of our country from adopting the profession, and will besides adapt them better to command subordinate sailors who have been following the profession for ten to thirty years. Also the risk of shipowners to place persons in charge of their valuable properties, not to mention the lives of passengers, will be lessened by having officers of the age of men.

Now my protest: There are firms on the west coast of the United States (mostly British), and principally in Seattle and Tacoma, who prefer officers of their own nationality on their ships, which happen also to be the larger and better ones.

They or their British captains have imported and still import British subjects from Hong Kong, have them made United States citizens "to order," or have them swear to be born somewhere in the East and carried "home" to Great Britain at a tender age by their parents.

The next move is to have these men make an application for a *master's license on any ocean, unlimited*, and get it signed by two shipmasters; this they take to the local inspectors with a letter of recommendation, and although they can show no license of any inferior rank nor any proof that they sailed previously on any American vessel, are examined and receive illegally such superior master's license, and get forthwith employment from these English shipowners. Consequently the young men of the country and other good and capable American officers are debarred from positions which otherwise they might occupy.

The Great Northern Railroad is building some very large boats now, and the writer knows of several officers (British) of the N. Y. R., a Japanese line, who have been fabricated United States mercantile marine officers in Seattle, who have never sailed under the United States flag nor were born in the East and carried home when young, and who have applications in for positions on these steamers. If well recommended, they will perhaps take the places which United States citizens should occupy.

The "Harbor," an association of United States licensed masters and pilots of steam vessels, 318-9 Globe Block in Seattle, and the one in the Ferries Building, San Francisco, have for some time been fighting this nefarious business, but so far without apparent result; perhaps because not enough publicity has been given to the cases.

Both harbors can give anyone much more information if desired.

JOHN DOORN.

Yokohama, Japan, March 20, 1902.

## The Extermination of Mosquitoes and Prevention of Malaria.

BY HENRY CLAY WEEKS.

The following are a few conclusions reached concerning the mosquito plague:

I. Every mosquito found in a district is an indictment against the public spirit, the progressiveness, the intelligence or the persistence of the people of the district, except in instances so rare as not to affect the statement.

II. Every case of malaria, not a relapse or an importation into a district, is evidence of an avoidable crime against humanity in some or all of its interests and against the fair fame of some of the most beautiful sections of the land.

III. That in greater degree than smallpox is malaria a crime, for the latter reaches more persons and its effects are more pervasive. Some high authorities are urging the imprisonment of smallpox patients as criminals.

IV. Mosquitoes are the intermediaries in spreading malaria between malarials and healthy persons.

(The most recent of the now numerous confirmations of this thoroughly established conclusion comes from the progressive Japanese: a battalion of soldiers in Formosa was completely protected from mosquitoes for 161 days during the malarial season. It entirely escaped the disease. An unprotected battalion at the same place had 259 cases of malaria. The New York Times, commenting on the case, emphasizes the necessity of beginning energetic campaigns against mosquitoes in every place where malaria is prevalent. Indeed, to do so is a duty rather than a need. Malaria

is a most insidious disease, even in its milder forms, and the annual toll which it has exacted from humanity has been enormous. To conquer it would be to increase several times the habitable portion of the earth's surface.)

V. That to improve a section by banishing malaria and in many other ways, mosquitoes must be exterminated.

These conclusions, it is considered, are deducible by all minds open to conviction who have the opportunity of reading a book just issued by the North Shore Improvement Association, whose membership at present extends from Lloyds Neck to Sands Point, L. I., New York. At great expense, for the last six months, a committee of this association has been working indefatigably upon the subject of exterminating mosquitoes from their territory, following out the purposes of the association, as shown in its name. Several specialists have been engaged and have prepared exhaustive reports on the conditions and the methods and cost of relief. A map 41 x 58 inches, showing the danger points of the territory and the kinds and extent of mosquitoes found, has been made from actual surveys and from latest government authority; Prof. N. S. Shaler, of Harvard University, has reported on the marine marshes and related subjects; Prof. Davenport and Mr. Lutz (biologist), of the University of Chicago, each with an assistant have made an entomological survey, and an engineer in economics has made a complete examination of the 75 square miles to determine methods, etc. The results, together with a brief account of the successful Center Island (Oyster Bay Harbor) work, are now in the shape of a printed report of 125 pages, with accompanying maps, which it is the intention of the committee to shortly place in the hands of the representative persons and societies of the district.

Dr. L. O. Howard, the Chief Entomologist of the Department of Agriculture, has read and endorsed the plans, and his letter to the committee is inserted as an introduction.

It is the firm belief of the writer, gained from actual experience, that this most charming section of Long Island can be freed from mosquitoes within a year and that—what is even more important—malarial diseases can be successfully driven out as a result, together with other material benefits as explained in the reports.

As the time, however, for beginning action for this season's relief is at hand, a few practical suggestions for domestic situations, not fully covered by the book, are given here:

1. Each season's crop of mosquitoes comes from a very comparatively few gravid females which hibernate in cellars, under the covers of cisterns and cesspools and like warm places. Every single one of these destroyed means a proportionate reduction in the output. If all could be destroyed in a given section in the early spring it would be practically free. The suggestion is for each householder to give an hour, at once, to this work. The fumes of petroleum are destructive. Place some in a cup and hold it beneath them and they will fall into it stupefied. If they are at the ceiling fasten the cup on a stick. In cesspools and cisterns spray a cupful along the sides and ceiling of each. If difficult to get at the cesspool pour a larger quantity down the waste pipes, enough to create destructive fumes. Spray all sheltered places where any pests are seen or suspected. Kill every one that is seen early in the season.

2. By or before May 1 there should be thrown into the cesspools and cisterns (or rain barrels) about a half pint of kerosene (for the largest surfaces). It is safe to declare that the mosquito seeking water wherein to lay eggs will find an entrance into 99 out of every 100 such places claimed to be tight. This should be repeated until September 15, and later if warm, at least every two weeks. Thus at a cost of a little attention and an outlay of less than ten cents for oil, each householder may do his or her share to reduce the pest. The report emphasizes the fact that each house is responsible for the mosquitoes that infest it and its neighborhood, also that oil need do no damage to the water of cisterns and rain barrels.

3. The splendid work that has been done by the authorities in the eastern hemisphere and to a limited extent on this, in eliminating mosquitoes and with them malaria, contemplates the destruction by officers of the law of all useless receptacles of water, as old cans, pans, open bottles and the like on private and public grounds. And this work is what is necessary at once to be done by the town boards of health or other officers in this or any district.

4. Other work pertaining to individuals or officials, as clearing drains, etc., is indicated which could be deferred to May 15 if the season keeps cool.

5. The larger work of abolishing breeding places in marshes, of draining ponds, pools, streams, roadsides and the like are all thoroughly treated.

It is hoped that the philanthropic publication of the North Shore Improvement Association will lead many

communities to take up this work and carry it forward until public interest demands that this shall become a public work as much as the extirpation of any other plague.

## Automobile News.

Out of the twenty-seven entries received by the Long Island Automobile Club for its 100-mile endurance run on the 26th, fourteen are for gasoline carriages, twelve for steam, and one for electric. It is expected that many more entries will be made, and it is probable there will be altogether some fifty automobiles in the run. From present indications, it would appear that the gasoline and steam types are to be about evenly represented, while the electric vehicle will only be upheld by two or three pioneers in long-distance work.

The inhabitants of Porto Rico seem well inclined to the automobile, a machine which, until recently, was almost unknown there. An agent of an automobile company states that he has been able to sell some \$20,000 worth of vehicles to Porto Ricans. According to the Automobile Magazine, the vehicle in the Philippines promises to play an exceedingly prominent part in the development and cultivation of our recent possessions.

An automobile made in Paris, which serves a mine in Peru 11,166 feet above sea level, had to be subdivided into parts not weighing more than about 66 pounds each, so that they could be carried on mules' backs. Three times a week the vehicle makes a run of 12 miles between the mine and Tarica, on gradients frequently attaining 1 in 8, states the Auto-Velo; and at first some difficulty was experienced through water boiling at 185 deg. Fah., on account of the altitude.

A new type of pneumatic tire for automobiles called the "Martin" has been undergoing severe tests in England. A car with its wheels equipped with it has been running between London and Brighton. Even upon light vehicles, the strain upon the tires is very severe, causing incessant trouble. One salient feature of the Martin pneumatic tire is that the inventor dispenses with the inner tube, which is responsible for the majority of tire mishaps. The Martin tire consists of a band built up of a road surface of thick rubber, with inner layers of fabric and thin coatings of rubber, the whole vulcanized together. This band is moulded to an arch shape and becomes a tire in conjunction with the felly of the wheel, to which it is fastened by flanges on either side gripped together by bolts passing through the wooden felly. When these bolts are tightened the cover is gripped on each side between the flanges and the felly, establishing an air seal, the security of which is increased by the fact that the flanges and fellies are both serrated. By this means the tire is held very firmly to the rim, and it cannot creep. It will be immediately realized therefore that it is not a handy tire to remove for repairs, but the severe trials to which the tire has been subjected during the runs between London and Brighton prove that a genuine puncture is very unusual, and as there is no inner tube, internal troubles cannot arise. Another strong recommendation is that it does not roll, and it is resilient.

A motor omnibus service is to be inaugurated in Birmingham, England. Experiments with a self-propelled vehicle of this character were made a short time ago to ascertain the specific points which should be incorporated to render a motor omnibus satisfactory and reliable with, at the same time, a minimum weight. The result of these trials has been the designing of an entirely new car and motor, the only outside mechanism being the Hans-Renold driving chain. The vehicle will be capable of seating sixteen passengers inside and six out, with seats for the driver and the conductor. It will be fitted with an adjustable cover, which may be removed in fine, summer weather. The seats will be set obliquely across the car, a gangway being left down the center, and each seat will be armed off. The engines, of 20 horse power, are suited for petrol, heavy petroleum, or compressed gas, or a combination of these fuels, but the projectors intend to burn heavy oil in conjunction with coal gas, as heavy oil is of great calorific power, is considerably cheaper than petrol, and has a high flash point. The machinery is thoroughly protected from mud and dust, and the four-cylinder engine is so arranged that the reciprocating parts are balanced and vibration avoided. Each of the four cylinders is under separate control, and the gearing allows for about ten combinations. The engine is water-cooled, and the exhaust from it may be optionally used for heating the interior of the vehicle in cold weather. The car is supported on the driving wheels by means of a balanced beam spring, with a view to lessening vibration, thus enhancing the comfort of the passengers and diminishing the wear and tear. Solid rubber tires are provided to the wheels, and the omnibus, which has a total weight when fully loaded of about three and a half tons, is designed to travel at twelve miles an hour.