

and that he would, therefore, remain off that port with his squadron." On the 27th Sampson again directed Schley to "proceed with all possible dispatch to Santiago." At this time two telegrams reached Sampson from Schley dated Cienfuegos, May 24, saying that he had ascertained that Cervera was not at Cienfuegos and that he would go eastward the next day, the 25th, but that being short of coal he "could not blockade if the squadron was in Santiago, but would proceed to Nicholas Mole and communicate."

Thereupon Sampson decided to go to Key West for coal and go in person, if authorized by the department, to Santiago. The "New Orleans" was sent with all haste to Schley, "with orders to Commodore Schley to remain on the blockade at Santiago at all hazards." Sampson reached Key West May 28 and cabled Schley that the "New Orleans" would meet him at Santiago May 29 with important dispatches. Schley left Cienfuegos May 24 and was 20 miles southeast of Santiago at 5:30 P. M. May 26. Here he signaled to his fleet, "Destination Key West via south side of Cuba and Yucatan Channel as soon as colliers are repaired." On the morning of the 27th the "Harvard" showed Schley a dispatch from the department, ordering him to "ascertain facts" and "if the enemy is 'in Santiago' not to leave without decisive action." Schley then signaled to his fleet, "Can you fetch into Key West with the coal remaining?" and sent a dispatch by the "Harvard" saying he "could not remain off Santiago, present state of squadron, on account of shortness of coal." The squadron moved to the westward until it was 40 miles southwest of Santiago, where it remained until 1:12 P. M. of the following day, May 28, when it returned to within 10 miles of Santiago Harbor. On May 29 part of the Spanish fleet was seen at the mouth of the harbor. "On July 1," says the report, "Admiral Sampson arrived off Santiago and found Commodore Schley's squadron in column to the westward of the mouth of the harbor." The forces were now concentrated and a close blockade established.

The report throws considerable light upon the combined naval and military operations at Santiago. On the arrival of the convoy Sampson explained to Shafter that in order to enable the vessels of the navy to enter it was necessary that the positions occupied by the eastern and western batteries should be carried, in order to insure the destruction of the mines. "To this plan General Shafter gave cordial assent." On July 1 and 2 the forts at Aguadores and at the mouth of the harbor were heavily bombarded and a report of this bombardment was sent to Shafter, in which Sampson stated again the impossibility of entering the harbor until the forts were taken and the mines removed. Shafter replied that "it was not possible to say when he could take the batteries and urged that an effort be immediately made by the navy to force an entrance," to which Sampson answered by saying that such an attempt would result in sinking one or more of his vessels and closing the harbor entrance.

The controversy was cut short by Cervera himself, who came out to be destroyed piecemeal by our fleet. Sampson at the time was on his way, in the "New York," to a personal interview with Shafter. The losses on the Spanish side were 1,600 prisoners, 350 killed or drowned and 160 wounded. On our side only one man was killed.

On July 5, the President issued the following order: "General Shafter and Admiral Sampson should confer at once for co-operation in taking Santiago;" as the result of which it was arranged for the fleet to bombard Santiago on the 9th, and if this was not sufficient, an assault was to be made by the marines and Cubans on the batteries and some of the smaller ships were to force the harbor. A bombardment was carried on on the 10th and 11th, and Shafter signaled that the fire was very accurate and that unconditional surrender had been demanded. Sampson then signaled that he expected to be represented in the conference to arrange surrender, which was agreed to. On July 16, Shafter telegraphed, "Enemy has surrendered. Will you send some one to represent navy in the matter?" Admiral Sampson's chief of staff went to the front and stated that it was Sampson's expectation that, in view of the fact that Santiago had surrendered in face of the joint operations of the army and navy, he be one of the signatories to the agreement of capitulation. This General Shafter declined to permit.

A high tribute is paid to the auxiliary naval force, "the personnel of which was almost entirely contributed by the naval militia organizations of the various States." We shall take up the work of the auxiliary navy at fuller length in the following issue of this journal.

THE REPORT OF THE SECRETARY OF AGRICULTURE.

The Hon. James Wilson, Secretary of Agriculture, has just made public his Annual Report, in which, in addition to the discussion of domestic problems, he reviews agricultural relations in foreign fields. He asks for an emergency appropriation of a lump sum for future requirements which cannot be specifically

anticipated, such as the exploration by scientists of new territorial acquisitions and the sudden appearance of pests.

In discussing the agricultural resources of our new island acquisitions, Mr. Wilson says: "In the territories recently brought under the control of the United States government, the agricultural interests urgently call for attention by this department. Hawaii and the West India islands depend almost exclusively for their prosperity upon their agricultural productions. It behooves this department, therefore, to place itself at the earliest possible moment in a position to extend to the agriculturists of those territories which have or may come under the United States flag the services and benefits which it renders to the farmers of the United States. The increased trade relations which may be looked for between the United States and its insular dependencies, moreover, render the conditions of agriculture in the latter and the character and extent of their productions matters of benefit to the people of the United States."

The trade in the China seas in American farm products is growing, and in order that markets may be obtained in Japan, China, and other foreign countries, an agent is now in that region establishing agencies to which the department will make shipments and gather all information possible for the American producer.

The Secretary recommends the extension and adoption of the provisions of the law regarding inspection and certification of meat and all meat products for export, so as to make them apply to butter and cheese. The Secretary enlarges on the need of nature teaching in the common schools. He says there is a growing interest in education that relates to production and all classes of intelligent people favor it. More knowledge by the farmer would enable him to control conditions, produce more from an acre and contribute more to the general welfare. He also describes the good work which the Bureau of Animal Industry has been doing in the way of perfecting dips for cattle, experimenting on anti-toxine serum, etc.

Good work has been done by hybridizing the orange and other citrus plants and in the crossing of pineapples, increasing the size and vigor and greatly improving the flavor. Observation and forecast weather stations have been extended around the Caribbean Sea and increased through the interior of this country, especially in the mountain States. The natural life zones of the United States are being surveyed and the areas best adapted to various crops determined. Four scientific explorers of the department are abroad getting seeds and plants in Russia, the Mediterranean, the China Sea, and South America. Great attention is being paid to perfect crop statistics. The Alaskan interior will be explored next summer to learn of its capacity to support population. Steel rails are said to be the coming material for good roads if hard rock is not convenient. Forest species adapted to wild regions are now being introduced. Better methods of handling forest fires are advocated and private ownership is being introduced by government agents and fire prevention and fire fighting are being studied.

The report also refers to the value and popularity of the official farmers' bulletins and to soil and tobacco researches. The Department of Agriculture carries on some of the most useful work of any branch of the government service and it is very satisfactory to know that each year the untiring efforts of the various bureaus and divisions included in the department are better appreciated.

A SCHOOL OF HOUSEKEEPING.

A school of housekeeping has been established in Boston, and its aim is to provide a school where employers and employes may together learn the business of housekeeping. An institution of this kind will certainly tend to do away with a large part of one of the most serious problems which confront us. The ordinary cooking school takes up the subject in a greater or lesser degree, but it does not provide for the study of the subject in detail. Lectures will be given on "How to Build a House," by C. F. Wingate, the sanitary engineer, and C. Howard Walker, an architect of marked ability. The "Equipment of a House" is described by Miss Mary Ware and by a practical housekeeper, Maria Parloa. Among other lectures will be "Food in the Relation of True Economics," "Economic Buying," and "Domestic Housekeeping;" "The House as a Unit of Health," "Division of Income in Household Expenditure," "Domestic Service: Its Past, Present, and Future," and "Domestic Service as a Trade."

In addition to this there will be demonstrations on "Dust and its Dangers," "Practical Study of the Cellar and Yard," "Heating and Lighting," "Ventilation, Drainage, and Plumbing," "The Laundry," "The Kitchen," "The Storeroom," "Interior Woodwork: Its Preparation and Preservation," "The Hygiene of the Bedroom," etc. From what has already been said it will be seen that the school is a radical departure from the ordinary methods in vogue. It is an acknowledgment that housekeeping is a science and housework a trade—an important distinction.

The plan proposed for the development of this idea comprises a home, a family, and classes in theory and practice for housekeeping, for employers, and a course of practical training in housework for employes. The school is carried on in two connecting houses, well arranged for this experiment. One house is occupied by boarders constituting the "family." The other is used for classes and demonstration work for employers and employes. These employes receive the training; they carry on the work of the house under the direction of a skilled housekeeper and a cooking teacher. A special course of training and housekeeping has been arranged, so that a limited number of employers may, during a six weeks' residence in the school, learn "to keep house" by practice and observation. This seems the only Utopian phase of the school, but it is an interesting problem to see what this section of the work will amount to. On the whole, the school will tend to assist in the solution of the domestic problem. The use of the laboratory method in this connection is a very interesting one, and it has succeeded elsewhere, so many times, we see no reason why the school of housekeeping should not be a success.

HINTS FOR EXPORTERS TO CHINA.

The following is a copy of a letter written by Consul-General Goodnow, at Shanghai, July 16, 1898, in answer to an inquiry from a cotton firm in New Orleans:

American firms handling cotton goods (I speak from memory) here are the American Trading Company, Frazar & Company, China and Japan Trading Company, Cary & Sandford, and Fobes & Company. Most of the business with Shanghai from the United States is carried on by drawing on the purchasers in China, with documents attached. The principal banks doing business with the United States here are the Hong-Kong and Shanghai Banking Corporation and the Charter Bank of India, Australia, and China. The rate of exchange is always the rate on the day on which the draft is presented for payment.

I find there are two great obstacles in the way of business with America. In the first place, American firms do not take care to fill the orders exactly. There is somewhat of a feeling at home, "Oh, anything will do for the Chinese." As a matter of fact, there are no people more particular than the Chinese. Their customs and their superstitions must be considered, as well as the things which come into account in other countries. It is a great thing to have a lucky trademark. It is above all necessary to handle the goods through a man on the ground, in whom the Chinese have confidence. They do not think anything about the firm at home; they think of the man directly with whom they deal. This man, if he is wise, knows the demand of the trade and caters to it; and, however eccentric some of his directions may seem in ordering, they should be followed to the letter. In the next place, almost all English and German firms have an arrangement by which all claims for damages through faulty packing, etc., are settled very promptly through the arbitration of their consul at the place where the goods are delivered. Most American shipments are made without any such agreement, and the consequence is that should the goods be damaged through faulty packing, etc., the parties interested are so far apart that the local dealer here is forced to stand the loss, rather than to go to the expense of suit or arbitration in America; and the consequence is that on even terms or at some difference in price he buys his goods from England or Germany. He is willing to pay the higher price for a certainty of a speedy, just, and inexpensive settlement of any damage there may be.

THE LATE JOSHUA ROSE.

We regret to learn of the death of Joshua Rose, who was for many years a contributor to the SCIENTIFIC AMERICAN. He was a well known mechanical engineer and had lived in England for a number of years. He was an Englishman by birth and obtained an extensive knowledge of mechanics in England. He came to this country and worked at his trade, obtaining valuable information regarding American practice. He was an accomplished writer and contributed many articles to technical papers. He was one of the editors of Appleton's "Cyclopedia of Applied Mechanics," and was the author of "Complete Practical Machinist," "The Slide Valve Practically Explained," "Modern Steam Engines," "Steam Boilers," "The Pattern Maker's Assistant" and "Modern Machine Shop Practice," besides other less important works. He will undoubtedly be best remembered by the last book we have mentioned, as it was an encyclopedic work of great value. An extensive series of articles by Mr. Rose appeared in the SCIENTIFIC AMERICAN in 1875 and in the SUPPLEMENT in 1876 and 1877.

The Swiss Society Rambertia has laid out an Alpine garden at Montreux, at an elevation of 6,000 feet, where the characteristic trees and flowers of the country are to be cultivated.