wintergreen is produced artificially, and the bitter almond oil is even better than the natural product, as it contains no prussic acid. Artificial sugar, not saccharin, has been produced in the laboratory, but not on a commercial scale, and artificial alcohol has also been made. There are great possibilities in the utilization of by-products and waste products of all kinds. One chemist has recently discovered the means for utilizing the spent yeast of breweries in the making of a meat extract substitute.

Let us hope the day will never come when the older methods of eating with which we are familiar will be superseded by artificial foods, though this would please our vegetarian friends. If we had fifty articles of diet like artificial albumen, there is no reason to believe that we should be any better off than we are at present. Indeed, we would probably require almost as much food as we do now for the waste material which the human economy requires. Artificial foods have never been very popular, and are not considered very healthy. It is very probable that if the time ever comes when a considerable portion of our food is produced in the laboratory, the world will be attacked by such an epidemic of dyspepsia as it has never before seen.

Food is both an index of the civilization attained and a factor in the attainment, and as eating and drinking became a finer art, life became more refined and manners more attractive. There is, indeed, a sentimental side to it, and while living would be immensely simplified, the great institution of society, the dinner, would soon become a thing of the past and Brillat-Savarin would become as antiquated as Lycurgus. We would indeed "return to nature" with a vengeance, but not in the way of which Rousseau dreamed. The subtle delights connected with all our favorite dishes would soon evaporate, and we doubt if we could endure very long to have our food produced in the laboratory of some great syndicate instead of in our own private laboratory—the kitchen.

THE ARMAMENT OF OUR NEW WARSHIPS.

On another page we publish the official drawings and a digest of the findings of the Naval Board which examined the wrecks of Cervera's fleet. We wish to draw particular attention to the tabular analysis of the gun-fire of our fleet, showing the number of hits made by each caliber of gun, and the ratio of the number of hits to the number of guns engaged for each caliber. The data contained in the table is among the most valuable of all that has been gathered during the war, and it is to be hoped that it will exercise a powerful influence upon the designs for newer and more up-to-date ordnance which we presume are being prepared by the Bureau of Ordnance for the armament of our future warships.

In the comparison of the relative efficiency of each caliber and type of gun, as shown by the ratio of hits scored to number of guns employed, it must be borne in mind that the table takes no account of the number of shots each gun fired—it is based merely upon the hits actually scored and the number of guns that could be brought into action. However, as the Spanish cruisers were at all times within range, at least of the large guns, it is reasonable to suppose that all of the guns that could be brought to bear were actively engaged throughout the whole of the engagement, and that the number of hits for each gun is a test of its relative efficiency.

The figures in the table are a powerful indorsement of the rapid-fire type of gun. Commencing with the "no hit" record of the 13-inch gun, and $\frac{33}{100}$ hit per gun for the 12-inch, there is an increase as the caliber diminishes, the 5-inch rapid-firer scoring 2½ hits and the 4-inch rapid-firer 4 hits per gun. The low figure for the 1-pounder is due to the range being too great, and in a less degree the 6-pounder was similarly affected.

Evidently then we ought to aim at reducing the weight and increasing the rapidity of the heavier armament of our warships. As we recently pointed out, 10-inch 30-ton guns are being built of equal penetrating power to our 13-inch 60-ton guns, and there are 8-inch 18-ton guns whose penetration is equal to that of our 10-inch 27-ton guns. The smaller modern guns are not only more rapid in their fire, but their trajectory is much flatter and the chances of scoring a hit are that much better. If only a few out of every hundred shots fired reach the mark, it is an obvious advantage to fire the largest number of shots in the shortest space of time, and for this kind of work a gun that weighs over 30 tons is altogether too slow. In view of the terrific destruction worked by such 8-inch shells as did land on the cruisers, it would seem desirable to retain this caliber on our future ships, especially as an 8-inch rapid-firer can now be built that will deliver 4 or 5 shots per minute.

LANGUAGES OF THE PHILIPPINES.

According to a Spanish missionary, who resided eighteen years in the Philippines, there is no language that is common to all the islands, but each canton has a dialect peculiar to itself. All these dialects, however, have some affinity, somewhat like that which exists between the Italian dialects of Lombardy, Sicily, and Tuscany. On the island of Luzon there are six dialects, some of which are current in the other islands. The most universal are the Tagala and Bisaya. The latter is very coarse, while the former is more polished and peculiar, and to such a degree that a Roman Catholic missionary who had a thorough knowledge of everything pertaining to the islands was accustomed to say that the Tagala language had the advantages of four of the principal tongues of the world: that it was mysterious, like Hebrew; that it had the articles of the Greek, as well for appellations as for proper nouns; that it was as elegant and copious as Latin; and that it was as well adapted as Italian for compliments and negotiation.

The natives make use of but three vowels, and have but twelve consonants, which they express differently by placing a dot above or below them. They have learned from Europeans to write from left to right, instead of from top to bottom, as they formerly wrote.

Palm leaves were formerly used for paper, and an iron style for a pen. They use writing for correspondence only, as they have no books of science or history. The missionaries have had religious works printed in the various dialects of the islands.

The natives of the Moluccas have a very pleasing way of corresponding with their friends. They arrange flowers of different colors in a bouquet in such a way that the receiver understands, by examining the varieties and their shades (which represent so many characters), what his friend intended to say to him.

THE UNDEVELOPED RESOURCES OF CUBA.

Whether Cuba becomes permanently a part of the United States or not, American brains and capital will largely contribute toward the development of many hitherto unsuspected resources, and the island that has so long suffered from misrule may be expected to blossom as the rose. Probably no more promising field for making money through legitimate and wisely directed toil has presented itself to the American youth in this century than does the "Pearl of the Antilles," now that the last vestiges of Spanish oppression have disappeared.

While sugar and tobacco have been the principal commercial products of Cuba, their importance may soon be equaled by others less generally known. The soil and climate of Cuba are eminently adapted to all tropical fruit and vegetable culture. In fact, these products grow so luxuriantly and naturally there that the natives raise all they need for home consumption without any effort. Bananas grow wild in the most extravagant manner, but the variety is poor and needs only a little scientific culture to make it equal to any imported into the United States. We import some 15,000,000 bunches of bananas into this country every year, and Cuba could produce every one at a nominal cost. Probably the banana, next to the cocoanut, is the best poor man's fruit. It grows without much cultivation, and hence it is the lazy man's fruit as well. But when we come to oranges and pineapples, it is quite a different matter. These two fruits require cultivation and the most careful handling from the time the plants are started until the fruits reach market.

The Cubans and Spaniards were never willing to pay the price of labor and attention required to make the raising of pineapples and oranges profitable. Long before the war the industry, such as it was, had drifted into the hands of Americans, who systematically cultivated a few plantations, and shipped their products to the United States. The native owners of an orange grove would gather their fruit by shaking the trees or rapping the limbs with poles. Fruit thus harvested and shipped to this country was naturally in poor condition, and half the cargo would decay on board the steamers. The oranges were packed in barrels with th same utter disregard for their tender qualities, and less system was employed in this work than an American would give to potatoes.

It was only natural that shipping oranges to the United States under such conditions should prove unprofitable, and that in time energetic Americans should go into the business and raise and ship oranges at a good profit. Oranges grow as easily in Cuba as they do in Florida or California. There are thousands of semi-wild groves scattered throughout the island which produce fruit so inferior that they are of little value for market purposes. These trees, however, can be budded and grafted with fine Florida oranges, and in two years they can be made to yield large crops of exquisitely flavored fruits. There is an opportunity for making a fortune in securing these neglected trees such as the early growers found in Florida when they first realized the value of the wild Indian orange trees.

The pineapples of Cuba can be raised to perfection. The famous Porto Rico "sugar loaf" pines can be duplicated in Cuba. People never realized what enormous and delicious "pines" could be produced under good cultivation until the London gardeners raised them in hothouses. Two years ago these magnificent pineapples from London hothouses were imported into this country, and sold as high as $3 and $4 apiece. They were as superior to the ordinary pineapple as a modern Florida orange is to the semi-wild product of the old Indian groves. It is believed that fully as fine pineapples can be raised in Cuba as ever came out of an English hothouse. The soil, the climate, and all other conditions are favorable to the perfect development of the fruits, provided the owner is willing to give the necessary labor and intelligence required for the production of all fancy fruits. It is this knowledge and skilled labor that Americans can and will supply.

Other fruits of great commercial value flourish in Cuba like the proverbial green bay tree. Lemon trees reach a superb size there, and the fruits are equal to the famous imported La France lemon of the Mediterranean shores. But no effort has been made to raise lemon groves systematically. Cocoanuts are native products of the island, and they thrive without apparent effort in the rich soil. The grape fruit, shaddock, lime, and similar semi-tropical fruits, which have obtained a small foothold in Florida, grow wild in Cuba. Many little known fruits, such as the guavas, sapotas, sapodillas, and kumquarts, are commonly found in all parts of the island. Many of these have peculiar flavors, and it requires a residence in the island to make one acquire a taste for them. On the other hand, there are many tropical fruits raised in Cuba that only need to be tasted by Americans to be appreciated. These can be cultivated with every prospect of success.

But if fruits are important products of the Cuban soil, what must one say of the vegetables? These grow and yield crops about every month in the year. Tomatoes are as plentiful as sands on the seashore. Vines never cease to produce fine tomatoes. In midwinter it is possible to purchase in Cuba corn, celery, lettuce, tomatoes, and artichokes cheaper than in our American cities in midsummer. The plants simply revel in the warm, moist climate.

Winter market gardening must, therefore, figure prominently in the future Cuban industries. Good market land is cheap and plentiful. With ten to twenty acres, an enterprising American farmer could raise all the vegetables he could use, and ship enough to the United States to pay him a moderate income. The truck gardening of Cuba has been even less developed than its fruit industries. The vegetables need not come in competition with those from our Southern States, for the time of shipping them north would naturally be in the early part of our winter. Then consignments of fresh vegetables direct from Cuba, in fast steamers, would find ready purchasers in many of our principal cities. We may soon expect to have watermelons in March and April, green pease in December and January, and tomatoes all the year round.

Market gardening in Cuba would be the easiest sort of work that a farmer could undertake. With considerably less cultivation than we give to our gardens and farms in the United States, fruits and vegetables produce remarkable crops, and, without fertilizers, the same land continues to raise plants and their fruits with prodigal luxuriance.

Onions and potatoes raised in Cuba are equal to any imported from Bermuda, and they could be shipped to the United States at less cost than from the latter place. In a very few years American brains and industry could monopolize most of the trade in tropical fruits and winter vegetables, which is now controlled largely by alien West Indian planters.

The effect that all of this development of latent Cuban industries would have upon our coast trade can readily be imagined. Already several new steamship lines are in the course of preparation for what is expected to be an active trade with Cuba when the war ends. It is the opinion of shippers that the trade with the island, when once begun, will develop quickly, and new industries will spring up with such marvelous rapidity that the "booming" of our own Western States in the past will be completely cast into the shade.

Besides the fruit industry, it is expected that Cuban mines will show unusual resources, and that much of our machinery will be needed to develop these. Iron ore is so plentiful in various parts of the island that American steel manufacturers have established mills there in the past, and one American firm has nearly $3,000,000 invested in iron mines near Santiago. The copper mines of Cuba are also known to be rich, but the real extent of their contents is not definitely realized. In the great mountain chains that rib the center of the island gold and silver have also been discovered, but so far no mining for the precious metals has been attempted. Under the Spanish rule the mineral resources of Cuba have never been thoroughly examined, and no one has ever attempted to mine systematically for such products.

Thus, the outlook for hardheaded capitalists and energetic business men from the United States is promising in Cuba, whether the United States extends a protectorate over the island or merely shows a fatherly interest in helping the home government to maintain peace and order. All that is required for Americans to develop the industries of the island is a stable government, which will guarantee to protect their rights and make a peaceful existence on the island certain.

G. E. W.