

These creeks are crossed by innumerable bridges, and canoes thread their way through these narrow waterways, which somewhat resemble a tropical Venice. Around the walls and the edge of the bay is a fashionable drive lined with almond trees. It is here that the well-to-do inhabitants walk, drive and meet their friends. Of nearly 300,000 people in the province there are not more than 5,000 Spaniards. One of the most curious sights to the traveler who comes from China are the large two-wheel drays drawn by so-called water buffaloes. They are guided by a ring through their nose to which is attached a cord leading back to the driver, who either mounts on his back or rides on the shafts. The weight of the load is borne on the neck by means of a yoke. The beasts are docile and their chief delight seems to be to wallow in the mud and to submerge themselves so that only the nose is out of the water. The water buffalo is particularly valuable to the inhabitants as a beast of burden, as it can drag a plow and can walk while knee deep in mud. The milk of the female is very generally used instead of cow's milk, but its meat is unfit for food.

In the two best streets of Manila there are excellent stores in which goods of all kinds can be purchased at moderate prices, many of the merchants being Chinese. The churches must have been imposing buildings years ago before they were shaken and in some cases wrecked by earthquakes. They contain no works of art of any value. The inhabitants are very faithful to their church and the archbishop possesses almost unlimited influence with the inhabitants. It has often been said, if the priests were taken away, the natives would be ungovernable. The dwelling houses in Manila are constructed with a view of shutting out the intense heat of the summer. The houses are rarely more than two stories in height, owing to the ravages of earthquakes. Glass is of course unknown, as the earthquakes would shiver every pane. There is coal in abundance in the Philippine Islands, as already stated, and the streets of Manila would undoubtedly be lighted with coal gas if it were not for the fact that gas pipes would be destroyed in the unstable soil. Of course, accidents are of frequent occurrence with kerosene, but as the natives' houses are very inexpensive, their loss by fire is easily made good.

Strange to say, life in the old city does not present many points of interest to the traveler, for the streets are narrow and the houses solid and gloomy. It is a marked contrast to the businesslike cities of South America. The Spaniards born in the Iberian Peninsula look down upon those born in the islands, so that class distinctions are very closely drawn. This has resulted in the failure to make political combinations. Hatred and jealousy of the foreigner are carried to extreme limits, the Chinese coming in for a large share of their disfavor. The theaters are poor, concerts are rare and there is no library and their amusements are mostly limited to hearing the band play, attending balls on Sundays and cock fights. The cockpits are licensed by the government, and, though the betting is limited by law, the citizens will not hold to it. The revenues of the islands are furnished by direct taxes on every Indian, half-breed and Chinese, and the export and import duties have already been referred to.

The dress of the natives is exceedingly picturesque and is never adopted by the Spanish. Cigar makers in and around the city of Manila number 22,000 and they are all girls and women with the exception of 1,500 men. They present a picturesque appearance with their native costume and huge hats intended to protect them from the rays of the sun. They make their cigars squatting on their heels or sitting on bamboo stools two inches high. They frequently come from considerable distances, going back and forth in boats. Tobacco has always been and probably will continue to be the most important product of the Philippines; and, according to the old laws, the Indians were compelled to raise tobacco in certain regions which were not adapted to growing it, even to the exclusion of other crops, but in 1883 the laws were repealed and the result was the securing of finer tobacco and better cigars, for they are now made at a higher rate. The wants of the natives are few and are easily supplied. They live along the banks of the rivers in huts made of bamboo and cane thatched with palm leaves. Some of the views in the suburbs of Manila are enchanting.

**AMERICAN TRADE WITH CENTRAL AND SOUTH AMERICAN COUNTRIES.**

It is thought by many that our war with Spain will interfere seriously with our trade with the countries of Central and South America and Mexico, but this is not the case. The fact is, that, barring contraband of war, goods may be sent to all of the countries in Central and South America, but, unfortunately, they are preferably carried in foreign bottoms. It is a satisfaction to know our splendid export trade with these countries will not be crippled. No gunpowder, blasting powder, cartridges, firearms, guns or gun carriages, or any article liable to be considered contraband of war will be received by any of the steamship lines trading between the United States and these countries.

With Mexico we have railway communication, and

the steamers of the Ward Line, which sail under the British flag, will carry goods to these ports. Goods for Guatemala, Honduras, San Salvador, Nicaragua and Costa Rica, may be sent by the Atlas Line, which also sails under the English flag. Venezuela is reached by the Royal Dutch West India Mail Service, which, of course, sails under the Dutch flag. Colombia may be reached by the Atlas Line, which sails under the English flag. Goods for Ecuador, Peru, Bolivia and Chile may be sent by the steamers of the Merchants' Line, which sail under the English flag. The vessels of this line are owned by the New York and Pacific Steamship Company, Limited, Messrs. W. R. Grace & Company being the agents. Goods for Argentine Republic, Uruguay and Paraguay may be sent by either the Prince Line or the Norton Line, both of which sail under the protection of the British flag. San Domingo may be reached by American lines, as there is little danger, as the Gulf will be protected by our war fleet. Hayti may be reached by the French Line and the Atlas Line, which, as already stated, is under the protection of the English flag. It is not likely that trade will be interfered with in the slightest degree except as regards goods sent on consignment, for in a circular of one of the lines we find the following: "No cargo can be received which belongs either in whole or in part to any citizen of the United States or to any subject of the Queen of Spain," but this does not interfere with legitimate trade transactions. We do not always realize the enormous importance of our trade with our southern neighbors. We give below the population of the various countries we have mentioned:

Mexico.....	12,578,861
Guatemala.....	1,470,000
Honduras.....	450,000
San Salvador.....	516,000
Nicaragua.....	400,000
Costa Rica.....	265,000
Venezuela.....	2,323,988
Colombia.....	4,600,000
Ecuador.....	1,300,000
Peru.....	2,800,000
Bolivia.....	2,300,000
Chile.....	3,500,000
Argentine Republic.....	4,042,990
Uruguay.....	850,000
Paraguay.....	476,000
San Domingo.....	610,000
Hayti.....	950,000
Total.....	39,732,839

**An Explosion Injures an Inventor.**

Julius Chien, a Russian inventor, who manufactures a pyrotechnic toy called "How the 'Maine' was Blown Up," was badly injured by an explosion, a few days ago, in his laboratory in New York City, of several pounds of giant powder. The concussion wrecked the top floor, blew out the windows and set the place on fire. The flames were extinguished and the injured man was removed to the hospital. He was experimenting with some giant powder in connection with a toy relative to a naval engagement when in some way a cap fell into some six or seven pounds of giant powder, which was placed in the middle of the floor, resulting in an explosion. This accident is important as a warning to some of the readers of the SCIENTIFIC AMERICAN. We have received many inquiries regarding the trick match which explodes when the flame has proceeded half way down the splint. The manufacture and use of such matches is, in our estimation, extremely dangerous, and our readers are specially cautioned against experimenting in any way with even a small quantity of powerful detonating explosive, as the fulminates, giant powder, etc. The trick "How the 'Maine' was Blown Up" consisted of a piece of tissue paper with a view of the war vessel printed on it, and the shore, where a Spaniard is touching off a mine electrically. The paper was treated with some substance, probably niter, so that when the paper was lighted with a piece of burning string, the combustion followed only the line which had been stamped on the paper by the chemical. When, at last, the warship is reached, a cap of giant powder on the back is exploded, tearing the tissue paper. The toy was not particularly dangerous, but there is always danger in the manufacture of anything of this nature.

D. R. DOM strongly recommends absorbent cotton as a filtering medium, the chief advantage claimed for it being its rapidity of action, which renders it of special value in filtering preparations containing volatile or readily oxidizable constituents, such as medicated waters, spirits and ferrous preparations. The difference in viscosity of preparations requiring filtration must be allowed for by greater or less compression of the cotton plug. As a general rule, however, the cotton should be rolled into a cone-shaped plug, which is then to be pressed down carefully into the neck of the funnel in such a manner that the bulk of the cotton remains in the body of the funnel. A glass rod is then pressed gently on the cotton and the liquid poured down the rod. In the case of fluid extracts and other preparations containing much suspended or sedimentary matter, cotton is not suitable for filtering purposes.—Bulletin of Pharmacy.

**Science Notes.**

Mr. Charles Janet, whose work on the social Hymenoptera has been often mentioned in Natural Science, has published (Mém. Soc. Zool. France, x., 1897, pp. 302-323, pl. x.) full descriptions with figures of the artificial nests which he has used for his observations on the habits of ant colonies. He obtained the best results with blocks of plaster provided with suitable hollows covered with a sheet of glass. No earth is needed with this form of nest, and a proper degree of moisture is insured by pouring water into a tube sunk in one side of the plaster block.

T. Schloesing has devised an ingenious method of measuring the density of gases, which is based upon the balancing of two columns in an apparatus consisting of two vertical tubes, each one meter long, communicating at their lower ends by a three-way tap. Carbon dioxide or some other easily absorbed gas of known density is passed into one tube and the gas to be examined in the other; after allowing time to communicate by opening the tap, a state of equilibrium between the two gases and the air is set up in about four minutes, and the level of the invisible surfaces of separation is then determined by absorbing the carbon dioxide with potash.—Comp. Rend., cxxvi., 476.

Weighings made of the brains of negroes have given between 44 ounces and 45 ounces, a weight that corresponds with European women; while in the negress the mean weight is less than in the female sex in Europeans. From the weighings which have been published of the brains of the orang and chimpanzee it would seem that the brain weight in these apes ranges from 11 ounces to 15 ounces, and the brain weight appears to be much about the same in the gorilla. These figures are greatly below those of the human brain, even in so degraded a people as the dwarf Bush race of South Africa. They closely approximate to the weight of newly born male infants, in whom the average weight is 11.6 ounces.

There can be no doubt that the most perfect method of sterilization, where it can be applied, is by heat. Baking, however, is a more or less uncertain process, while boiling is destructive to many substances. Moreover, the boiling temperature is so little above that which is fatal to microbial life that a considerable length of exposure to such a temperature is necessary, if one is to be sure that the process has been effectually carried out. Frying, however, is another matter. Olive oil at a temperature of 160° to 180° C. acts very quickly and with great power. Professor Wright, of Netley, says that to obtain complete sterilization of an instrument it suffices to dip it for an instant into the hot oil, and that in the case of syringes it is sufficient to fill them twice with oil at the temperature mentioned. The temperature of the heated oil may be determined by a thermometer; but it is often more convenient to adopt the rough and ready methods of the cook by the aid of a bit of bread crumb. "It will be found that the bread crumb will become brown and crisp as soon as a temperature of 160° to 180° is reached." For the sterilization of syringes all that is necessary is to heat a little oil in a spoon over a spirit lamp, testing it from time to time by bits of bread crumbs, and, when the proper temperature has been attained, to fill the syringe twice with hot oil. All microbial infection will then have been destroyed.—Hospital.

In the course of his lecture at the London Institution on "Insects at Work," Mr. F. Enock, after referring to the trapdoor and the garden spiders, spoke at some length on the leaf-cutting bee, probably the most remarkable of all bees. The leaf-cutter, he said, had three eyes in the center of its head (a very thick one) and two compound eyes, occupying, respectively, positions on each side of the others. In each of these compound eyes there were 11,000 reflectors, making a total of 22,000. That appeared strange; but he had proved it to be a fact by placing a locust in the lens, and then taking a photograph of the head, which showed a locust in every reflector. The photograph referred to was shown on the screen. Another peculiarity of this bee was that the tongue of the male was longer than that of the female; but this was counterbalanced, perhaps, by the fact that the jaw of the latter was very much stronger than that of the former. In explanation of the title given to this bee, it was explained that its habit was first to burrow in a sand-bank, making a sort of tube for its nest. Next the intelligent creature—which was really a capital architect—would proceed to a rose tree. It would there alight upon one of the leaves, and, with the tools with which it worked, would cut a round piece out of it. This it would carry to its nest, and ram it to against the extreme top end. Then it would take an oblong piece, which it used to commence the side of a cell with; and so it would go on until it had constructed twelve cells, in each of which it would deposit its collections from the Canterbury bell, of which it was very fond, and other flowers. An egg was laid in each of these cells, and in due time young bees appeared, and in their turn escaped from the cells and flew about, to carry on the same kind of work.