

polarity, are connected with the gasometer for oxygen or hydrogen.

Water is contaminated by lead pipes, says Herr Liebrich, a German chemist, through the joint action of the oxygen of the air and carbonic acid, but this action is greatly retarded if the water contains bicarbonate of lime. This, however, does not entirely prevent the dissolving of lead. The quantity of lead taken up while the water is in active circulation is extremely small, but it is liable to become very noticeable in water that has stood in pipes all night, and to ensure complete freedom from lead it is recommended that carbonate of soda be used, in quantity sufficient to fix the carbonic acid without rendering the water alkaline.

The thrilling discovery of a survivor of an earlier geological epoch must arouse active search for others, to be captured or preserved living. The four modern specimens known of New Zealand's flightless rail, the *Nobornis*, were killed in the years 1849, 1851, 1879 and 1898.

The flashes of bluish-white light seen in the dark when pieces of sugar are rubbed to gether have been studied by Mr. John Burke, an English physicist. By rotating a loaf of sugar on a lathe against a hammer, he has obtained almost continuous luminosity, enabling him to observe and photograph the spectrum. The light appears to be a result of some change in the crystals, and not to be due to heating or to chemical action between sugar and air.

A remarkable dwarf pine from Green Mountain, near Boulder, Colo., is reported by Prof. Bessey to be only five inches high and a fifth of an inch through, with a single tuft of leaves, yet to show 25 annual rings.

The possible extent of the spread of disease by the animals about us is still a matter of conjecture only. While it is more than probable that consumption and other diseases are distributed by domestic animals, good reason has been found for believing that the plague was introduced into Calcutta by rats, and while mosquitoes probably inculcate the blood with disease germs, it now appears that flies may carry death in other ways. The last named suggestion comes from Mid-Surrey. Two deaths from ptomine poisoning were attributed by the coroner's jury to eating lamb which was apparently sound and good but which had been placed in a larder containing putrid tongue, and, as the two were not in close proximity, the analyst believes that flies brought the poison from the tongue to the lamb. The obvious moral is that flies should be kept from larders and meat stores.

The success in preserving dead bodies that has been achieved by a Naples surgeon, Dr. E. Manini, has excited the wonder of European physicians. He uses a series of special baths, without incisions or injunction. The first of the three stages is provisional dissipation which keeps the body in a condition for ready dissection by the anatomist; the second is petrification, giving the hardness of marble in a few hours; and the third is the restoration of natural color, flexibility and freshness, so that the subject appears to be simply sleeping.

A hairless adult rat, of a brownish color, is a new marvel in a museum at Plymouth, Eng.

A recent distribution of a half-ton of fish to the soldiers at Camp Wikoff possessed greater significance than the casual observer would suspect. This

incident possibly marked the opening of an important new industry, one that Prof. Baird believed would date from 1881, but which for fifteen years has been abandoned. The fish were newly discovered specimens of a lost species. This species was the tile-fish, which was first described from specimens taken in 1879 off the southern coast of Nantucket, in 1881 was found to exist in great numbers, and early in 1882 seemed to have disappeared as a result of some strange fatality that strewed the sea over an area of 170 by 25 miles with millions and millions of its dead, a conservative estimate placing the number at more than 1,438,600,000. At 10 pounds per fish this would have given 288 pounds of fish to every man, woman and child in the United States. For ten years thereafter no trace of the tile-fish was found, and the singular story of its extermination was often told, but in 1892 a search of two months yielded eight specimens. In 1893 and 1897 a few others were obtained, and in August of this year the *Grampus*, the scientific vessel from Wood's Holl, succeeded in capturing a considerable number about 60 miles south of Block Island, according to Prof. Bumpus, and in a trip in September it took more than 200, weighing over 3,000 pounds. The hope is again justified, therefore, that the tile-fish will become an important source of our food supply. The range of the species seems very limited, present determinations showing it to cover only a tract of sea bottom about 175 miles long by 10 to 15 wide in water near the 100-fathom line.

While progress in civilization has brought greater care of human life, there is yet a prodigious waste. Dr. A. Hill, vice chancellor of Cambridge university, states that one-fourth of all the diseases that destroy life are absolutely preventable, and that if the practice of hygiene were only on a level with its theory, the average longevity would be raised at once from 50 to 65 years. The greater number of diseases over which the individual has control, are due to mistakes in eating and drinking. One purpose yet to attain is a more exact knowledge by every citizen of the causes and properties of preventable diseases, but it is hardly surprising that the knowledge is still so slight when even medical men hardly realized the contagious character of consumption twenty years ago, although one-third of the cows in England are tuberculous and half the milk sold distributes the bacillus of tuberculosis.

OUR FLAG AT SANTIAGO.

There was an uneasy and restless air of expectancy along the city's streets. Many stores were closed, and people wandered about looking for the signs of disorder among the lower classes that had been predicted for this day. There have been people to assure you that the oppressed islander would rise in his wrath and smite the departing Spaniard, that long pent-up vengeance would finally be wreaked, that property of Spaniards would be destroyed, that Spanish lives were not safe, and that the United States little knew the passions of this long-suffering population. But nothing happened. The people who toward eleven o'clock crowded into Fortaleza street, which leads to the palace, and who lined balconies and housetops, were quiet and expectant. At 11:30 two battalions of the Eleventh, preceded by their band, marched down this street and formed facing the palace in the small square in front of that building. Company H of the Sixth cavalry was formed behind the infantry, and the band stood at the palace

door. At twenty minutes of eleven a group of about forty American army and navy officers, including General Brooke, Admiral Schley and General Gordan came out of the palace and took places in the shade at the right of the stone-paved square. All foreign consuls and municipal and insular officials had been previously invited by the commission to attend the ceremony, and these guests were present with our officers.

On the palace roof Major Dean and Lieutenant Castle of General Brooke's staff were ready to raise the new flag. The signal was to be a gun from Morro. Above the palace the tropical sky was intense and glaring; against its bright light the active and soldierly figure of Lieutenant Castle was sharply outlined. He watched for the signal that would mark the change. Major Dean held the flag line. Then over the expectant crowd rang out the first tones of a midday bell, and in a silence of deserted streets men counted. From its niche on the top of a church another bell began its cadenced dirge for the masters who had gone. Men counted and hearts beat fast. Down the wind from Morro came an echoing boom; the gun had spoken. The tension of the figure on the roof relaxed and the American flag was drawn to the height of the staff. The music of the American national anthem drowned the last notes of Spanish bells. There was cheering, not resounding and vociferous, for Latin races do not cheer as we do; but the cheering, such as it was, was general, and heads were uncovered while the band played. That was all. A simple, dignified and impressive ceremony to mark the final and conclusive surrender of Puerto Rico to the United States. Within two minutes from the time set for the flag-raising at San Juan to begin, the troops participating were marching to their newly acquired quarters and all was over. The United States had become possessed, at San Juan, of the government machinery of Puerto Rico; of two fortresses, Morro and San Cristobal; the governor general's palace; the castles Bel Viedo and San Cristobal; the marine barracks and the navy yard; a magazine; fifty-six guns, twenty-eight of which were modern 6-inch breech-loaders; a large quantity of ammunition, including a cargo for the six-inch guns, which has not yet been discharged; the postoffice; the Intendencia and the Municipal building.

PROTECTORS.

New York, Nov. 17.—A dispatch to the Herald from Havana says:

With the departure of the greater number of the Orden Publico for Spain, one of the principal elements of disorder is removed from the city. This body of picked men, better trained and more intelligent than the ordinary Spanish soldiers and with the bitterest feeling against the government fell naturally into the place of the leaders of the movement which for the last week has kept the city in a state of constant anxiety. From them have come the directions to be followed in attempting to force the government to accede in the soldiers wishes and while the other corps implicated have been equally anxious as the Orden Publico to bring matters to a crisis, the initiative has been left entirely to the latter.

Their prompt removal from the island was a step hardly contemplated by the mutineers, and has checked for the moment any immediate action on the part of the other regiments. The government apparently believes that the trouble has been averted in the meantime and that the danger of an uprising at any moment has passed.

Streets which for weeks had present-