day at Morro Castle, for the reason that Hobson and his hero comrades were imprisoned there, and it was feared, at that time, that the throwing of shot and shell against the old castle might imperil if not destroy their lives.

The Thirteenth camped one day at Siboney, then marched inland to do duty on the roads to be traversed in the campaign against Santiagu. On the evening of the 13th, they again struck camp, and that night lay in the open air without tent or covering of any kind. Ther was no rain, but the dew fell in such quantities as to thoroughly saturate the clothing and bodies of all the troops. At daybreak they commenced their memorable march against the city of Santiago, and for more than three miles wer under a terrific fire of Spanish sharpshooters, who had located themselves in the trees overlooking the route the American troops were to travel. The Thirteenth, says Mr. Garland, was in the same brigade as the Twenty-fourth, and crossed the river just ahead of that gallant band of colored fighters.

When the stream had been crossed, the two regiments formed side by side and started up the hill together. It was on this perilous ascent that they encountered the badly frightened—and for the time being, paralyzed—Seventy-first of New York. In that regiment, he says, are very many brave men and officers, probably as brave as any in the army; but for some reason unexplained, they were so overcome with fear, caused by the bursting shells and terrific fire of the Spanish, as to be absolutely unable to proceed. They were requested to either step aside or be "marched over" by the regiments that were willing to go on and face what seemed certain death. The fact is they were "marched over" by those who were willing to face the assaults and resistance of the enemy.

Mr. Garland says that the Thirteenth suffered more than any other regiment in the loss of officers. Colonel Worth, its commander, was wounded at the outset and, unable to stand, laid down behind a tree while the fight went on. Major Fornance was killed outright, and Captain John Guthrie of company A, Mr. Maynard's company, was shot through the heart. Lieutenant Sater was also killed. He, too, fell the victim of a sharp-shooter's bullet, while standing on an eminence, encouraging his men to go forward.

After passing through the Spanish trochas, or wire fences, there was a reforming of columns and the companies, very much mixed, marched up the hill together. The Spanish, he says, were completely overawed at the approach of the Americans up that hill, under so terrific, galling and destroying a fire. To think that they were driven from their trenches and fortifications by men so exposed, was something to which they were not accustomed. In the past, they had fought the Cubans who, after a few hours' engagement, would invariably retreat. And to see soldiers go forth as did the Americans, was something they were altogether unprepared for. They were compelled, of course, to retreat; but their retreat was orderly and brave and their resistance stubborn. Mr. Garland says there has been a great deal of question and dispute with reference to the removal of the Spanish colors from the Spanish block-house. Whatever disputants may say with reference to this, he declares that to Private Andrew Agnew of company H, belongs the honor of tearing down the enemy's flag. The first American to successfully scale San Juan hill was Lieutenant Anderson of company H, Thirteenth regiment.

The conduct of the Twenty-fourth, he says, was most courageous throughout. It is composed of, as brave men as can be found in the American service It takes, he says, the colored man a little longer, perhaps to get into good fighting trim than it does his white brother; but when his blood is up, he fights like a demon and knows not what fear is. After the battle was over he did not know what became of the Twenty-fourth, but the Thirteenth was put on the right of the road leading to Santiago. During the afternoon and night that followed, the time was spent in digging substantial trenches and the throwing up of breastworks. The next day was spent in walking over the battle field and looking up and burying the dead, and collecting such mementoes as might prove interesting to be sent home to relatives and friends. Then the peace parleying followed for a period of ten days or so. During that time fifteen to twenty thousand Spanish citizens left Santiago for El Caney, four miles distant. Nearly all were hungry and in a pitiable condition. In the whole city of Santiago there was but one place where famine had not begun its work. That was in a large, antiquated structure in which aristocracy was assembled. Here the ocupants seemed to be supplied with everything except soap and sugar.

The Thirteenth was one of the two regiments chosen to first enter the city of Santiago. The Ninth was the other. The latter did duty on public buildings, and the former escorted the Spanish troops from the municipality to a distance some miles beyond. It did not take the soldiers of the two countries long to get acquainted with each other, so far as they were able, not understanding each other's language; but fortunately, there were interpreters oneach side. The Spanish gave the American soldiers wines and cigars, and extended other courtesies for hard tack and something more substantial.

Four days after the battle, Mr. Garland was stricken with fever and remained in the regimental hospital from July 18th to August 8th, when he was sent to New York on a transport. He entered the government hospital at Montauk, where the noble women of the Red Cross ministered to the wants of thousands. From there his sick furlough was extended, and he went to Los Angeles to recuperate his health. While there he was confined to his bed for something more than a week. On arising, however, he improved rapidly, and is now in a fair condition for complete recovery.

SCIENTIFIC MISCELLANY.

The Genus Filaria, that of the thread-worms, has been credited at different times, according to Dr. G. Archie Stockwell, with more than a score of species, many of which are due to error and about all of the others there is much to learn. The most notable, are the Filaria sanguinis hominis, the F. Guinense, and the F. lota or conjunctiva. The first-named, comparatively common in the Orient, reaches a length of three-fourths of an inch or more, and infests the circulation, being often unnoticed, but in numbers checking the flow of lymph and producing painful plandular enlargements, abscesses, etc. The Guinea worm, found not only in Africa but in the Philippines and even in the West Indies, resembles a horse-hair, often three or four feet long, penetrating the muscles and sometimes causing dangerous ulcerations. The F. lota is found only under the conjunctiva of the eye, is about an inch long, and, while an African worm, is not confined to negroes, as was formerly supposed. A white victim, an English woman, discovered a filaria in one eye through a pricking sensation, and afterward would notice it wandering over the eye beneath the conjunctiva, raising a ridge as it passed, and even crossing the nose to the other eye, remaining always invisible during cold weather after the lady's return to England. It was finally removed from the left eye.

An electric reading apparatus has been devised for the blind by a French electrician. It consists of a comb just covering the height of the letters, and having five small points or teeth, which emit momentary sounds of different pitch as they cross the lines forming a letter. The succession of the sounds is thus made characteristic of the letter. If the teeth were made of selenium, the electric current would vary a sthe intensity of the light varies and any one of several devices could be used to transform the variations into sounds.

The dwarfing of plants on mountains and in cold regions is not due to the low temperature. M. Gaston Bonnier has shown experimentally that it results from successive exposure to extreme cold at night and to sunshine by day.

The "electric log" of M. Le Roy is not an improved device for showing a ship's speed, but is a new kind of heating stick. It consists of a rod of graphitoid or crystallized silicium about 4 inches long and one-fifth of an inch through, which is provided with copper connections at the ends and enclosed in a glass tube form which the air is exhausted. Graphitoid silicium is especially adapted to the purpose on account of its high specific resistance, which is, roughly, a thousand times that of carbon. It is only necessary to arrange several of these tubes between special current collectors—to pile on the logs—to form an electric heater, either for warming or cooking, and the great advantage of the apparatus is the readiness with which one's heater may be adapted to new requirements by simply changing the number of elements. Special sets may be easily arranged for temporary use in the openings of a range. Comparing the heating ersults from electric energy and gas at Paris prices, M. Le Bon finds the cost with the former to be something like three times that with the latter, but special conditions may greatly change the relative expense in practice.

A singular fact and one that has long held up to the chemist the possibility of winning fortune and the gratitude of the human race, is that one of the world's greatest needs is fixed nitrogen, although each square yard of the earth's surface is pressed down by about seven tons of free nitrogen. Only in the fixed form of ammonia or nitric acid does the nitrogen serve as food for plants. In this form, Sir Wm. Crookes pointed out at the recent British association meeting, our need is felt more and more each year, as the consumption of the nitrogenous grains—especially wheat—is increasing at an alarming rate, while the land is becoming exhausted, the fixed nitrogen lost in the sewage carried to the ocean being valued at $80,000,000 a year, and the chief source of new supply, the nitrate of soda beds of Chile, is wholly inadequate. Electric fixation is the remedy proposed. Crookes showed in 1892 that at a high temperature nitrogen is a combustible gas, burning in a strong induction current with a powerful flame and the formation of nitric and nitrous acids, and from later experiments he concludes that the 12,000,000 tons of nitrate of soda soon to be required annually can be supplied electrically, and, with such cheap sources of electricity