وجسره والمرابعة والمراجع والمتحاد والمحاج والمحاج والمحاج والمحاج والمحاج والمحاج والمحاج والمحاج والمحاج والمح HUNTING THE BACTERIA Remarkable Growth of the New Science of Bacteriology. ORGANISMS WHICH CAUSE DISEASE Discoveries Made in the Last Thirty Years by Pasteur, Koch, Behr-

ing, and Other Explorers.

The world's mightiest hunters in the last thirty years have been those who have pursued infinitesimal game-who have found, caught, killed, or held captive those curious little organisms called microbes or bacilli. The greatest and most beneficent discoverers in the century now drawing to a close have been those who revealed the existence of these infinitesimal organisms, before unknown, and their successors who have ascertained the character of many of them, beneficent or harmful, cultivated them. shown their relation to infectious diseases, and now, by laborious experiment, have compelled one of them to serve as an agent in producing a remedy for the dire malady of which it is the cause. The discovery that the deadly poison manufactured or excreted by the bacillus of diphtheria can be used to bring about the production of a fluid substance which will neutralize or overcome that poison in the human body, or make a human being proof against diphtheritic attack, opens a new chapter in the marvelous history of bacteriological science, the development of which has been swift and astounding in the last two decades. What is a bacillus, or, we should say, what is a bacterium? There are three varieties of bacteria-the bacilli, the micrococci, and the spirilla. These names are suggested by peculiarities of form rather than by any other characteristic. The bacterium is the **Bimplest**, the elemental, form of life—a single cell containing the fluid called protoplasm. It is not an animal, but a vegetable, a plant, the lowliest and simplest of all plant forms, consisting of a cell membrane inclosing a transparent substance which is apparently structureless. It is living, it is nourished by the absorption of substances through its inclosing membrane, it excretes matter which in some cases is harmless and in others is very poisonous, and it multiplies or reproduces itself in a curious fashion, and at a most extraordinary rate. Those bacteria which are shaped like a little rod, sometimes curved a little, are called bacilli; those which are spheroidal or ovoid are called micrococci; and the spirilla are bacteria in spiral or curved forms. The germ of Asiatic cholera is a spirillum; that of the disease commonly called consumption is a bacillus; and the germ of croupous pneumonia is a micrococcus. When we say that these bacteria are invisible to the naked eye this does not show how small they are. In dealing with these minute organisms we are at the bottom round of the ladder of life, not only as to simplicity of organic construction, but also with respect to the size of living things. If 1,500 of one of the common varieties of bacteria should be placed in line, end to end, the line would just about cross from one side of the head of a pin to the other. Certain very important bacteria are much smaller than other kinds. There are micrococci of which 250,000 could be laid side by side in the width of an inch. There are bacteria of which \$,000,000,000 could be packed in a very small drop of fluid. These organisms multiply or are reproduced by binary division. The little rod breaks in two, each part becomes a complete bacterium, and the process is repeated indefinitely when the environment and conditions are favorable. Some va-/ rieties thus divide once in twenty minutes in favorable media, and bacteriologists have seen a colony of millions spring from one organism in the laboratory in a day. Certain Bacteria Harmless. Some are fatal to certain animals and harmless to others; some thrive or do their work outside the living body; some find a congenial home only in the body of an animal; some work either in or out of the living organism; some must have oxygen and others avoid it. A great number of varieties are not only harmless to mankind, but extremely useful and beneficent agents in the world's work. The number of those varieties which cause infectious diseases is comparatively small. It is very difficult to distinguish certain very harmful bacteria from other varieties which are beneficent by form and appearance alone, but there are sure methods of differentiating them. It may be the work of one bacillus to excrete deadly poison, and the work of another by the side of it to excrete a harmless substance, and the two may be identical in appearance-little, pale, translucent cells. There are varieties which cannot live in association with certain other varieties, probably because the product of one is poisonous to the other. On the other hand, there are bacteria which thrive only in association with certain other bacteria and die if deprived of their companionship. When certain bacilli are in adversity, exposed to unfavorable conditions, and threatened with death, their vital forces seem to be drawn up and concentrated in a spot the situation of which can be distinguished, and which is called a spore. This has greator resisting power than could be exerted by the bacillus in its ordinary condition, and a higher degree of heat is required for its destruction than would suffice for bacilli without spores. But a temperature of 233° is too hot even for these little citadels. In the world of the bacteria there is continually going on the struggle for existence, which restrains the great multiplying power of the organisms. It has been estimated that, if the proper conditions of temperature, nutrition, &c., could be maintained-that is, if everything needed for the unrestrained process of reproduction could be suppliedone little bacillus would have in five days a progeny sufficient in number to fill the space occupied by the waters of the oceans. The bacteria are at work everywhere—in the soil, in our food, in the lakes and streams. They tear apart and work over dead vegetable and animal matter, producing the condition which we call decay or putrefaction, and preparing the dead material for the use of living organisms. Their lives are prolonged in moisture, and some of the most harmful of them care very little for cold weather. Tubercle bacilli have survived four months of freezing, although two or three hours of direct sunlight will kill them. The typhoid germ can live for weeks in ice, and for that reason ice cut from the surface of streams contaminated with sewage should be avoided. Without the help of the microscope mankind could not have seen, caught, and studied these minute plant forms. It is believed that Leeuwenhoeck, the father of microscopy, did see through his glass, in 1675, some of the larger bacteria, but for **u**hundred years afterward scarcely anything was known about them. Ehrenberg described sixteen species in 1838, and gave to some of them the names "bacterium," and "spirillum," which are now used. But Davaine was the first to give a great impulse to bacteriological research. It was in 1859 that he began to insist that the bacteria were vegetable organisms. We shall see that Davaine took a long step in advance a few years later.

والانتهام والمراورة والمتعالية المرتجع والمتالية ومعاد مستوجات والمراجع والمراجع والمحاص والمحسر والمعتان والمستوجا والمتشاري to be started anew in a sterilized liquid from which the air was excluded? Many worthy persons thought that creation did take place under these conditions, because bacteria appeared in the confined and sterilized liquids where there had been none, as they supposed. This controversy had a religious phase, for obvious reasons. The question was settled long ago by the clearest evidence that spontaneous generation does not take place, but while it continued it was the cause of many very valuable experiments with bacteria. Pasteur showed the final and convincing proofs in 1860. Before that time, however, it had been discovered that a loose cotton plug in the neck of a flask or tube excludes all bacteria that may be in the air, while it permits the pure air to enter. This discovery was of great value, and it is now regarded as the first of four very important improvements in method, the second having been the perfection of sterilizing processes by Pasteur and Koch, while the third was the use of aniline dyes for staining the bacteria so that they could be seen clearly. The fourth was the use by Koch of the plate method of procuring separate colonies of bacteria for inspection.

It was the French physician Davaine who first showed that a certain disease was caused by one of these minute organisms. The disease was anthrax, which prevails among cattle and sheep in various parts of the world, and the date was 1863. As early as 1850 he perceived the anthrax bacillusone of the larger varieties—in the blood of infected cattle, but not until 1863 was he prepared to assert that the disease was due to the presence of the organism. This country is free from anthrax, or splenic fever, but Europe and parts of the East have suffered severely from it. It may be communicated to man. In 1863 experimenters were not making "pure cultures" of a bacillus, and Davaine produced the disease in a healthy animal by inoculating with the blood of an infected one. This method left room for doubt, because the injected blood contained other matter from the diseased animal as well as the bacillus and its poisonous excretion or product. But Davaine was right, nevertheless, and the correctness of his assertion was clearly proved in later years, when Pasteur, Koch, and others repeated his pioneer experiment with " pure cultures " of the bacillus of anthrax. It was by experiments with this bacillus that Pasteur afterward took another long step forward in the direction of "attenuation" and protective inoculation. A very important chapter in the history of bacteriological progress would be omitted if no reference should be made to the notable discoveries and achievements of Pasteur in the field of fermentation. The importance of his researches in this field will be seen when it is recalled that they preceded Davaine's discovery by some years, as he began to publish his conclusions in 1857. Pasteur's study of the ferments related directly to the defense of certain agricultural and commercial products against injurious invasion by parasitic organisms, but, indirectly, they were of great service in developing that branch of bacteriology which deals with the pathogenic or diseaseproducing bacteria. The ferments are also minute vegetable organisms, each consisting of a single cell, but they are not classed with the bacteria. Like the bacteria, but in fields of their own, they tear to pieces, work over, and build up, and are commonly very useful. The researches of Pasteur cleared up their history, pointed out their functions, and were of great commercial value. We shall not describe them here. But by Pasteur was made the next demonstration that a certain disease was caused by a parasitic organism always associated with it. The disease was one which threatened to destroy the silkworms of France. and after years of study he found and pointed out the cause. The little organism in question, however, is not classed with the bacteria,

the bacteriologist can ascertain what is acceptable to them, how much heat or cold they can stand, what is the best germicide or disinfectant to be used in killing them or restraining their growth, and can even separate from them and examine the chemical products, poisonous or otherwise, which by them are excreted or manufactured.

The story of the experiments designed to perfect methods of making animals immune or proof against certain diseases and to test the possibility of transmitting this immunity from one animal to another, or from an animal to man, is a long one, and it exhibits the latest and most important development of this comparatively new science. Up to the time when, as the result of four years' labor, it became possible to use for the benefit of mankind the serum of a horse which had been made immune against diphtheria, the most important experiments in this field had been those depending upon inoculations of the bacillus of tetanus, or lockjaw, made chiefly by Behring, the discoverer of the diphtheria antitoxine, and Kitasato, the Japanese pupil of Koch, who found the bacillus of the Chinese plague last year.

Record of Discoveries.

Taking up again the historical record, we see that in 1880 Dr. Sternberg in this country found the micrococcus of croupous pneumonia, and that in 1882 Koch's greatest achievement, the discovery of the tubercle bacillus, was made known to the world. In the same year the German physicians Loeffler and Schütz pointed out the bacillus of glanders, a culture of which has since come into use as a diagnostic agent of much value. It was in 1882, also, that Pasteur began his work with the attenuated virus of hydrophobia, but no bacillus of this malady has been found. The year 1884 saw three important bacilli added to the list of known and tested pathogenic bacteria-the bacillus (or spirillum) of Asiatic cholera, found by Koch; the bacillus of diphtheria, discovered by Loeffler, and, also, independently, by Klebs, for which reason it is called the Klebs-Loeffler bacillus, and the bacillus of lockjaw, pointed out by Nicolaier.

Eight years passed, and no discovery of any importance was added to the list until the specific bacterium which is believed to be the cause of influenza was found in 1892 by Pfeiffer and Canon in Berlin. Kitasato, who returned from Berlin to Japan, where he became an officer of the Imperial Board of Health, studied "the plague" in Canton last year, and there found the characteristic bacillus of that ancient malady. In the latter part of the year the reports of Roux in Paris, and of Behring, Aronson, Ehrlich, and others in Berlin, concerning the bene-ficial effect of the use of antitoxine serum for preventing or curing diphtheria, drew the attention of the world to this remedy, which was found by Behring, first applied by Roux, and had then been tested for several months in the hospitals of Berlin and Paris. We have said that it is possible to obtain from "pure cultures" of disease-producing bacteria an extract containing only the poisonous substance which the little organisms manufacture or excrete as a product of their life processes, and the presence and influence of which in the human system are believed to be the immediate cause of the disease associated with the bacilli in question. The toxic products of several specific organisms have been thus separated and tested. The tuberculin of Prof. Koch is a preparation of the poison manufactured or excreted by the bacillus of tuberculosis, or consumption, and it was at first supposed that injections of it would improve the condition of consumptive persons. This was a grave error. It is now generally held that the addition by injection of tubercle poison to the tubercle poison already in the body accelerates the progress of the disease by hastening the development of tubercular masses. In the case of certain varieties of tuberculosis, where the tubercular masses are on the external surface, as in lupus, this acceleration may be beneficial, but where the tubercular growth is confined, as in consumption, the acceleration is injurious | and tends to hasten a fatal termination. Nevertheless, tuberculin has great value, because by the use of it the existence of tuberculosis in cows or other cattle can be detected with practically unerring certainty, and it is now generally employed for this purpose. In a great number of cases the existence of the disease in cattle can be detected in no other way. It is by the use of this diagnostic agent that the authorities of Massachusetts are now inspecting all the cattle in that State. It was used in this State upon thousands of cows by the Board of Health in 1893, and it will be used here again when the State shall undertake the work of purifying the milk and meat supply. Sound cattle are not infected by the inoculations or injeccartridges should have been ample to guard: any headquarters under the circumstances, and in some few regiments this is all there was. "A crowd has a far greater respect for half a dozen men, showing discipline and firmness," remarked an old veteran, " than it has for twenty or thirty men in a bunch like a flock of sheep." The new rubber ponchos were found to be of great value, as were the personal mess kits, grates for cooking, &c., contracted for under Gov. Flower's Administration. The official returns show that over 80 per cent. of the organizations of the two brigades reported for duty. Another point worthy of note was the number of men found among the different companies who were adepts at cooking, and after the first twenty-four hours there was hardly an instance where any command in the field was not amply loaded with many varieties of choice commissary stores, which were readily cooked.

Troop A, Capt. C. F. Roe, had 99 per cent. of its membership present, and the only man absent from the entire membership was seriously ill.

The Seventh Regiment, Col. Appleton, made an especially fine showing in the number of men present, and out of its large membership but forty men were absent. Company D, Capt. Fisk, and Company F, Capt. Rand, are the two banner companies. Each had 102 men present and only 1 absent. The following table shows the number of present and absent in detail:

Pres. Ab- gre-

ent. sent.gate.

Field staff and non-commis-24 99 sioned staff..... 21 Company A, Capt. Conover.... 94 103 Company B, Capt. Nesbitt.....100 -3 Company C, Capt. Pollard..... 95 8 103 103 Company D. Capt. Fisk.....102 91 Company E, Capt. Rhodes..... 85 6 Company F, Capt. Rand.....102 103 Company G, Capt. Dewson.... 98 100 Company H, Capt. Lydecker. 98 103 5 103 Company I, Capt. Harper.....100 3 Company K, Capt. Kirkland...100 3 103

and the second terms of the many courtesies extended them by Col. Austen and members of the Thirteenth while at the armory of the latter.

There is a movement on foot at General Headquarters to provide for disabled National Guardsmen by an act similar to that giving preference to veterans. Assistant Adjt. Gen. Phisterer in commenting on the matter said that he did not know why all the clerkships in the several departments of the National Guard should not be filled by old National Guardsmen. "There are times when the Ordnance Department employs as high as forty persons. Under the present law a man who was disabled while in the service of the State as a National Guardsman stands no better chance than the politician. In the Adjutant General's office but two of the clerks were ever connected with the guard. The State should look after her National Guardsmen as well as after her veterans. These men give the best years of their lives to military duty, and, if injured in the service, are incapacitated for certain kinds of work, and should be given the preference when qualified to fill a position."

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The old Seventy-first Regiment boys, who did duty under Col. Abram S. Vosburgh, are active in their preparations for their military and civic reception to be held at the Up-Town Assembly Rooms on Friday evening, Feb. 22, and the demand for invitations is increasing every day. The invitations may be obtained of Capt. G. I. Tyson, theatre ticket office, Fifth Avenue Hotel; Capt. A. M. Copeland, 50 Ann Street; Capt. A. F. Miller, 697 East One Hundred and Thirtyfifth Street; Lieut. H. J. Moore, Register's Office, City Hall Park; Sergt. C. E. Pearsall, 19 Fulton Street; J. H. Sleaman, Coal and Iron Exchange, 21 Cortlandt Street; L. S. De Vies, 522 East Eighty-sixth Street; G. W. Beckwith, Consolidated Gas Company, 360 Fourth Avenue; R. H. Shultis, 3231/2 Eighth Street, Jersey City; W. A. Brickell, Belleville, N. J.; W. H. Trahon, 117 Union Street, Elizabeth, N. J.; David Harned, 574 Franklin Avenue, Brooklyn; John Moorehead, 313 Madison Street, Brooklyn; C. A. Hogrefe, 307 Willis Avenue, New-York City; G. K. Ackerman, United States Internal Revenue Office, Fourth Avenue and Fourteenth Street; F. M. Ball, New-York Post Office, City Hall Park; F. D. Holbrook, Engineer's Office, Department of Street Improvement, Twenty-third and Twentyfourth Wards, and Col. Henry F. Liebenau, 625 East One Hundred and Fortieth Street.

Proof that a disease of the human body was caused by a bacillus appears to have been shown first by a German physician named Obermeier, who ascertained, in 1873, that there was in the blood of patients suffering from relapsing fever an active spirillum. This is generally recognized as the characteristic micro-organism of this fever. It is longer than a majority of the bacteria, and at each end h.s a tiny "flagella," or hairlike whip. By inoculation with this organism the disease has been produced in certain animals. The bacillus of leprosy was found in 1879 by Hansen. The virulence of this organism was demonstrated by Pn experiment of exceptional character. In the Hawaiian Islands a condemned crimi-al was inoculated with it subcutaneously, and Le remained under observation until he died of leprosy, five years later.

tions, for the fluid introduced contains no bacilli, but only the sterilized product of. the infecting organisms. The antitoxine used for the cure or prevention of diphtheria is, in an important sense, the opposite of this tuberculin. It is

Commissary Sergt. Myers, who was acting Commissary of Subsistence, has received any amount of praise for his efficient work in looking after the rations.

As an example of how sumptuous some of the men lived in the field, the following bill of fare of Company C. Seventy-first Regiment, will be found of interest: Entrée, Française aux tomatoes, East New-York lamb, Boston beans, potatoes, green corn, fruit, peaches, apple sauce, milk, cheese, coffee, pipes, and tobacco. The chief chef was Quartermaster Sergt. Sands, and his assistant was Private Ives. The regiment had present in Brooklyn 505 men out of 551 on the roll. The review and reception of the Second Battalion, which is commanded by Major C. H. Smith, which was to have been held next Tuesday, will now be held on Tuesday evening, Feb.•12.

The Twelfth Regiment, Col. Dowd, in percentage of attendance during the Brooklyn troubles practically ties the Seventy-first, each having a fraction over 91 per cent. The Twelfth had 592 men present out of 647 on its roll. **

It was noted some time ago in this column that quite a number of men in the Seventy-first Regiment had failed to provide themselves with the distinctive uniform of the regiment, and the present plan of buying the uniforms is not considered fair or successful. Referring to this matter, The Regimental Gazette says:

On its face the plan seems to be devised rather to secure the contractors against loss than to aid the men in procuring uniforms. A change of plan seems needed, and is in many quarters demanded. In many organizations throughout the country the distinctive uniforms are the property of the organization, loaned to or hired by the men when needed and after use returned to store, where they are kept in good order continually. This plan has proved highly successful, the hire of the uniforms not only paying for them, but producing a handsome profit on the investment. Let us calculate a little. A distinctive uniform costs \$32, and, if taken care of, will readily last five years, as in that time it will be worn about fifty times, equal to two months' wear of citizen's dress. Repaired and cleaned, it will last eight or more years. Putting cost of renovating at \$5, it will cost in eight years \$37. If hired at \$6 per year, in eight years it will produce \$48, or pay for itself and produce \$11, or 29 per cent. profit. If 19 per cent. were spent in taking care of the uniforms in store, the regiment would still have 10 per cert profits—on 100 uniforms \$320 per year, on 200 uniforms \$640 per year-which should be paid to the Quartermaster Sergeant for attending to the business conected with issue of the uniforms. Fifty cents a month any man could easily pay for use of uniform.

TO INVESTIGATE THE "MARRIAGE BUREAU"

An Aldermanic Committee Will Try to Determine Its Status.

The Aldermen's Committee on County Affairs will meet to-morrow to investigate the so-called "Marriage Bureau" in the City Hall. This bureau has no official status. For years, Harry Van Pelt and Richard Fitzgerald have been transacting the necessary formalities, such as the filling out of blanks and securing an Alderman to perform the ceremony for whatever donation the groom was willing to make.

The Republican Aldermen have already put William Carter of the Twenty-third District into Fitzgerald's place, but Fitzgerald does not propose to get out, and there seems to be no law compelling him to do so. Both Carter and Fitzgerald were on hand yesterday looking out for couples in scarch of matrimony, but none appeared.

It is proposed to frame some sort of an ordinance that will put the bureau on some kind of a tangible basis, but the Aldermen do not know whether they have the power to do this without securing legislation at Albany.

Alderman Ware, who has made a hobby of this matter, is in favor of charging a fifty-cent fee for these marriages, and turning the money into the City Treasury.

Bacillus of Typhoid Fever.

The bacillus of typhoid fever was first distinguished in 1880 by Eberth, and at about the same time by Koch. At last accounts there had been no successful attempt to produce this disease in the lower animals by inoculation with a culture of this organism. But, while animals do not appear to be subject to the malady, there is no disease concerning which the proof is more conclusive that infection is conveyed from one human being to another by means of the organism, sometimes in polluted water, sometimes in milk, or in contaminated food preparations. It is a very hardy bacillus and its chemical products or toxines are most virulent.

It was in 1880 that the experiments of Pasteur with the bacillus of chicken cholera opened the way for the practice of that method of protective or curative inoculation, the use of which, in cases of diphtheria, is now exciting the interest of the civilized world. It was then shown by Pasteur that a mild attack of chicken cholera followed by immunity could be induced by inoculation with attenuated virus-in other words, by inoculation with a culture of the characteristic bacillus, the virulence of which had been reduced. The strength can be reduced by exposing the cultures to the action of atmospheric oxygen, or to a temperature slightly below the heat which would destroy the life of the organism, or to the action of certain chemicals. The truth of his assertion has since been proved by experiments with the bacillus of anthrax. It has also been shown that an immune condition may be caused in certain animals by inoculation with the poisonous products of the bacilli, apart from the bacilli themselves. It is by repeated inoculations, beginning with a small injection and gradually increasing the quantity, that horses are made immune against diphtheria. and that there is developed in the serum of their blood the substance hostile to that disease, which is now commonly called diphtheria antitoxine. Here it may be useful to describe briefly the method of getting hold of the bacilli. separating them from other bacteria, and cultivating them for use and observation. It is not a very difficult proceeding to obtain a quantity of matter containing the disease-producing bacteria which the bacteriologist desires to cultivate. A very little of it is introduced into the soft contents of a test tube which has been filled with a solution of gelatin, mixed with beef tea, pepton, a little salt, and a little car-bonate of soda. This mixture has been carefully sterilized—that is to say, it has been heated until any bacteria in it have been killed-and the mouth of the tube is closed with a cotton plug to keep out bacteria which may be floating in the air. This jelly mixture is one in which bacteria thrive and multiply. It is transparent, and as the number of the organisms increases they can be seen through the side of the glass tube. There is another gelatinous substance, derived from seaweed, which is used when a higher temperature is desired. By the "plate-culture" method of Koch the particular bacillus that is wanted is surely separated from all others. 'The matter containing this bacillus-and others with it, in all probability-is mixed with the gelatin preparation and spread out in a thin layer on a sterilized glass plate. This plate is carefully protected, and in due time, after the nutrient layer has solidified, the bacilli multiply and can be seen in little colonies or bunches. Commonly, each colony is composed of the descendants of a single bacterium. Then it is not difficult. under the microscope, to pick up with the point of a sterilized wire little particles composed of a few bacilli of the variety desired for cultivation and to transfer these to separate tubes, where various experiments can be made with them. These are "pure cultures." Having got hold of them,

not the poison produced by the bacillus of diphtheria, but a substance hostile to that poison, a defensive and protective substance which is developed in the serum of a horse's blood to fight for the horse against the invasion of diphtheria caused by injections of diphtheria poison. When it becomes so powerful that very large injections of diphtheria poison cause no disturbance in the horse, it is a remedy for diphtheria in a human being, and after it has been introduced into the human patient's blood it continues there the good fight which it had been making for the horse. There seems to be overwhelming proof not only that it is a remedy of very great value, but also that when properly prepared and administered it is absolutely harmless. F. D. R.

NATIONAL GUARD NOTES.

The experience in suppressing disorder in Brooklyn is now the sole topic among military men, and much has been learned that should be of value.

"In the execution of such duty as the First and Second Brigades were called upon to perform recently," said an officer of many years' experience, both in war and peace, "the greatest discretion is necessary. It must be remembered that there was no organized riot in Brooklyn, with mobs bent on murder and pillage, but only a comparatively small portion of its population-of the tougher element-lending its aid in assaults on so-called scab workmen in the interests of the strikers. For this reason the greatest judgment was necessary, and I am pleased to know that, with very few exceptions, it was used. Those who wanted to stir up a muss had ample opportunity, but the universal experience was that even in the toughest places the butts of the guns were really all that was needed to disperse an obstinate crowd, which, in almost all cases, was largely composed of sightseers. Speaking of my own regiment, I can say that I think we met about as tough a gang as any other command did, yet we did not kill any one, and we dispersed all crowds with comparative ease. If we had been anxious to stir up trouble we should have had no difficulty. You can catch more flies with molasses than you can with vinegar and day, and I think you will find this the experience of the average officer. Without intending to reflect on a sister organization. I must say, however, that had my regiment been on duty in Halsey Street there would not have been two innocent men shot, but we should, under the circumstances, have taken two prisoners, especially as one man shot was known to have been drunk; and, with the large number of the guard present. knocking the men down or taking them prisoners should have been a very easy task," concluded the officer. This opinion was also shared by many officers of experience, particularly some of the United States Army, who are by no means novices in riot duty. Much has been learned in the handling of men, and the permanent-squad formation as prescribed in the drill regulations has proved very valuable. The necessity of a good strong shoe to be worn in active service was very apparent, and many of the men who responded to the hasty call in thin-soled shoes, illy adapted to military service, have resolved to have a good strong pair in their lockers for future emergencies or out-door duty. Not a few officers have expressed the opinion that, in some respects, the services of the guardsmen are being demanded for duty that is not strictly within their sphere. "When we are called upon to disperse mobs and prevent riot," said an officer, speaking on the subject. "I do not think sending out details of men to guard laborers of a railroad company, repairing wires, &c., is part of our work, and I think it properly belongs to the police force." In the first hours of the strike, after the military were on the scene. the number of men on guard at one particular place was at least double, and in some cases treble, what it should have been, and later this fact became apparent. There was no armed mob to face, and half a dozen men across a street with rifles and ball

Company B, Twelfth Regiment, Capt. Smylie, will on Monday night next give a dramatic entertainment in the Central Opera House, Sixty-seventh Street and Third Avenue. The production, which has been carefully rehearsed under the capable direction of Corp. Conboy and Private Harry C. Baker, is entitled "Enlisted for the War." The cast includes the fair sex, as will be seen: Robert Trueworth, Corp. John E. Conboy; Wilder Rowell, C. F. Orben, M. D.; Hosea Jinks, H. F. Murray; Crimp, H. C. Kennedy; Gen. Great, Serg. I. Dunn; Lieut. Col. Boxer, D. M. O'Connell; Hiram Jinks, H. W. Seckel; Gaylie Gifford, Miss Walkley; Mattie Trueworth, Miss S. Seckel; Mrs. Trueworth, Miss I. R. Conboy. A large number of tickets have been sold, and a large number of guests are expected to be present.

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As exclusively announced in this column several weeks ago, a trolley line is to be constructed from the railroad station at Peekskill direct to the camp. In this connection the new railroad company has already made application to the Legislature for permission to construct a bridge across Annsville Creek. It will be a great boon to the families and friends of national guardsmen, and it is hoped permission to construct the bridge will be granted. The fare to camp is to be only 10 cents.

The Twenty-second Regiment, out of a membership of 677, had 603 on duty in Brooklyn. Company E, Capt. Thurston, was the banner company with 102 men present all the week out of 103 on its roll.

Development of the Science.

The development of modern bacteriological science was greatly stimulated and assisted by the memorable and long controversy as to spontaneous generation. Was **It possible for life**, in the form of bacteria,

The regiment, like others, performed excellent service, and yet never loaded a rifle during its entire tour of duty, a fact which reflects great credit on the ability of the regiment to handle crowds without shooting.

The Eighth Battalion will hold its customary review and reception at its armory on Feb. 22, (Washington's Birthday.)

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The Sixty-ninth Battalion having now become acquainted with Lieut. Col. George Moore Smith of the Seventh Regiment, who commanded the battalion in Brooklyn, it is rumored that the Lieutenant Colonel will shortly be detailed to command the battalion for an indefinite period.

The exhibition drill and reception of the Ninth Regiment Drum and Fife Corps will positively take place on the evening of Feb. 14 at the armory. One of the features of the evening will be the rendering of all the original and revised army and camp calls under the direction of Drum Major George W. Hill. There will be representatives of all the drum corps of the First and Second Brigades present.

Just before the Seventy-first Regiment left the armory of the Thirteenth Regiment, where it was quartered part of the time it was on duty in Brooklyn, a brigade review was arranged between the two commands, which proved a very interesting coremony. Col. Austen and staff took the review, Col. Greene of the Seventy-first Regiment acted as Brigade Commander, Lieut. Col. Watson commanded the Thirteenth Regiment, and Major Francis the Seventy-first. Adjt. Bates of the latter command acted as Assitant Adjutant General. The members of the Seventy-first speak in the pleasantest

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