

Fundamental Principles of Health

By ALBERT S. GRAY, M. D.

times and certain other events at other times. We know, for example, that sunbeams are the ultimate cause of the revolving of a windmill, but no man can state the origin of the particular puff of air that causes a wheel to revolve at a certain speed at a certain time.

CHANGES IN BACTERIA AND DISEASE.

The universal property of irritability, which is simply the power to respond to stimuli, makes all organisms the result of the interaction of two sets of factors—the factors of inheritance and the factors of environment.

The factors of inheritance cover all the complex association of properties or capacities transmitted from the parents which make up the specific inheritance characteristic of each individual; the factor of environment on the other hand covers all those conditions which are capable of influencing the differentiation, growth and behavior, or in other words, the general metabolism, of the organism.

Efficient mastication is, of course, impossible; hence not only is food bolted partly chewed and more or less mixed with pus, but the tissues in and around the teeth are deprived of exercise necessary to give them an adequate blood supply and they are thereby rendered less resistant to attack.

Pyorrhoea is not a new disease; it was recognized by the early investigators, but it has become more prevalent during the last 50 years and it is the rule rather than the exception to find patients with more or less periodontitis. The disease is not confined to man, but is also extremely prevalent among domestic animals.

A class of serious disorders has long been known in which failure of nutrition could be named as the immediate antecedent in the case and in which it has vaguely been assumed that the diet must be at fault. Probably the most generally familiar of these diseases is scurvy.

The micro-organism, bacterium-anthrax, gives rise to an infectious and usually fatal bacterial disease in animals, especially in cattle and sheep, characterized by ulcerations of the skin, enlargement of the spleen and general collapse.

The normal bacterium is a long rod shaped micro-organism having marked and characteristic reactions. Mme. Henri has modified the organism with the ultra-violet light. The method employed was to expose an aqueous (water) suspension of anthrax spores in a quartz tube to ultra violet radiations for times varying from one to forty minutes and afterward growing cultures from these mixtures.

The majority of the organisms were killed by this treatment because the ultra-violet rays were markedly bactericidal, but a few survived and according to the conditions and the length of the exposure the bacillus underwent modifications and showed characteristics decidedly different from the typical anthrax bacillus.

The normal anthrax microbe liquefies gelatin, curdles milk and takes definite stains. The filamentous form does not liquefy gelatin, curdle milk or take the same stains, and it produces an infection different from the anthrax on inoculation. This form remained absolutely fixed and stable after a daily subculture for more than eighty days; but though stable in the incubator after passage through an animal, coccoid forms taking a stain similar to normal anthrax bacteria appeared and, after subculture in broth, a certain number of bacillary forms approximating the typical anthrax were obtained.

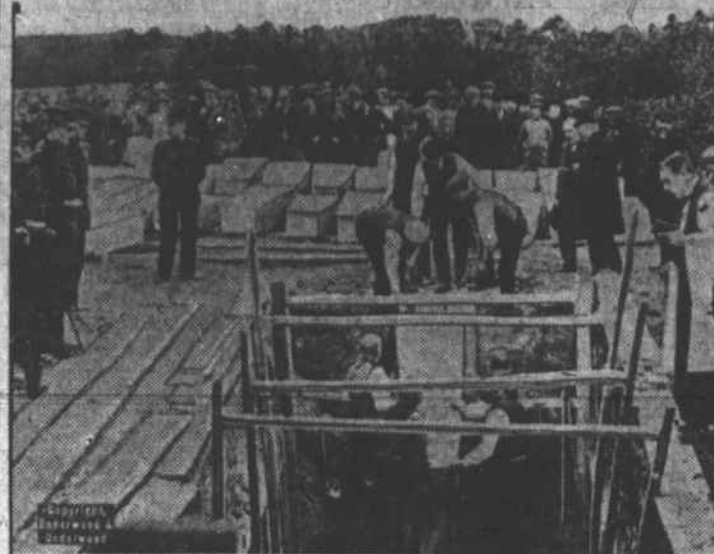
Inasmuch as all the above points clearly to the fact that diseases are only relative conditions, we should carefully refrain from dogmatism. The humming and buzzing become more distinct. It sounds as if a gigantic bird were rapidly moving forward on his wings. Now they see something—or do they only believe they see it?—floating through the air like a torpedo. The French mayor would like to shout for joy, "Vive la Republique!"

Now the buzzing has turned into rattling and crackling. It seems to the mayor as if he saw small lights, flickering, extinguishing and starting up again. Now all has disappeared again in the darkness; only the buzzing still is heard—the heavy stroke of the wings of the gigantic bird.

JOKE, THEN KILL EACH OTHER French and Germans Engage in Pleasantry in Trenches During Lull in Fighting.

Paris.—Despite the horrors and discomforts of the situation the French and German soldiers who have been facing each other for many weeks in the trenches on the banks of the Aisne occasionally indulge in a little pleasantry. Germans, sheltered in concrete lined quarries, chased toward

BURIAL OF ENGLISH SAILORS



Scene at the burial of forty-three English sailors whose bodies drifted ashore at Gravenzande (Hook of Holland). The men were members of the crews of the Cressy and other British vessels sunk by the Germans.

PHANTOM BATTLE IN AIR MARKS DIRIGIBLE'S END

How "Republique" Went to Her End Graphically Described by Writer.

BOMBS DROP FROM CLOUDS

Terror-Stricken Citizens See French Machine Burst into Flames After Spectacular Flight, Then Go Out in Darkness and Night.

The following word picture, portraying a phantom night battle between airships, and the terror of a municipality under an aerial bomb attack, comes from Berlin, although it was written on the scene described herein. Owing to the strict European censorship, however, the correspondent was not permitted to give the name of the town about which he writes so graphically.

Berlin.—The little French town is lying asleep. It can do so in safety, because the patrols are awake. But on the other side of the mountain there is no sleep. The place is humming like a beehive. But there is perfect order. Every one is at his place. They are preparing for the march.

Patrols have returned with the report that the plain is free from the enemy. The little town is the place they mean to march to. They think the town is empty. The fact that the French had come in had not been made known. They came out of the forest, through which they marched during the night; and early in the morning they marched in, hidden by the vineyards.

Now the town is a small camp. Every house a fortress. The superior officers have taken up their quarters in the city hall. All lights are out. The mayor asks: "Why?"

"Because the Germans have airships." The mayor makes the sign of the cross. He has heard of the Zeppelin. "But we also have airships," the mayor says.

The French captain nods: "One of them will go up this night. It will fly over the hills to visit them over there."

At night the officers are entertained by the town. All townfolks of distinction are present. The notary makes a passionate speech about the brave army. The colonel thanks him in the name of his comrades. He speaks highly of the town and its hospitality.

Two hours later, only the men on guard are still on their legs. But the mayor did not go to bed; also, the clergymen and notary are waiting. "What for?" For the Republique.

This is the famous aeroplane of which the captain spoke. Night Dark and Windy. The sky is dark and overcast with thick clouds. Only from time to time he dim light of the moon steals through these dense masses. But quickly it grows dark again. The wind whistles through the forest and through the vineyards into the town, banging shutters and doors.

Where is the Republique? The townsfolk have been waiting now for an hour, with their eyes fixed on the dark sky—but nothing—nothing.

Now they hear a peculiar noise resounding through the darkness from above. They stretch their necks. But their eyes are unable to penetrate the darkness. They listen intently.

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The French lines a horse around whose neck hung a large placard and several well-thumbed German newspapers. The placard bore this inscription: "Good-day to the Frenchmen. Do you know Russia is beaten all along the line, and Antwerp is taken?"

The Frenchmen smiled. A French junior officer says that in the enemy's trenches not more than thirty or forty yards away from his own the Germans try to prove which of them can sing the loudest. "We can often hear quite clearly commands given in the

HER SON FIGHTS FOR BRITAIN

German Woman Encounters Lad by Chance in Railway Station in London.

London.—A well-known German woman, who is married to an Englishman, had a curious experience in London. Her son, fifteen years old, is a cadet in a British naval school, and it was her intention to get her son and take him to France to study French.

She reached England in the first days of the mobilization. As she got out of her train at Victoria station she saw a procession of naval cadets pass along the platform. She stopped one of the youngsters.

"Are you not from the school?" she asked him. Upon his replying affirmatively, she asked what the cadets were doing in London.

"Why, we are being mobilized," was the reply. "Mobilized? You are not going to the warships?" she demanded.

"That's what they say." "Tell me, is Cadet X with you?" "I believe he is on the other side of the station."

The mother rushed over there and soon found her son. He and his fellows were about to board an outgoing train, and she had only a few minutes to be with him. Then he left for a seaport, and was put on a warship and commissioned a midshipman.

GANGRENE MICROBE IS FOUND

American Ambulance Service Surgeons in France Make Discovery of Greatest Importance.

Paris.—A microbe causing gangrene in bullet and shrapnel wounds has been discovered by Drs. James Scarlett and Georges Desjardins of the American ambulance service.

Previously initial cultures all were impure, leading to the belief of scientists that the disease was caused not by a single germ, but by a combination of germs. After much research and experimentation on horses and guinea pigs, a single bacillus has been discovered and isolated and the serum is being prepared by Dr. Henri Weisberg of the Pasteur Institute.

The discovery is expected in medical circles to have world-wide importance. The serum is being injected into patients on the battlefield in the early stages of infection, obviating amputations, and preventing a great loss of life.

GERMANY IS ALWAYS READY

Chicago Man Relates an Incident Illustrating Germany's Preparedness for War.

Chicago.—Much has been said about the preparedness of the Germans for war. A Chicago man related this incident:

More than two years ago a subordinate German officer of the army was showing an American some things about the German way of being always ready to mobilize. They came upon an army wagon fully loaded. Horseshoes were dangling from beneath the wagon.

"Where are your horses?" asked the American. "For this particular wagon," replied the German, "one of the horses is at John Smith's farm, the other at the farm of John Jones. The shoes that you see here have been fitted to those two horses."

GERMAN OFFICERS FEW NOW

Rules for Promotion From Ranks Are Modified to Make Up the Shortage.

Bordeaux.—O dispatch from Geneva to the Temps says that owing to the enormous losses in officers the German military authorities are now permitting the promotion of non-commissioned officers and even private soldiers who distinguish themselves in the face of the enemy to the rank of officer on the simple recommendation of a colonel and without the previous submission of the nomination, as heretofore, for the approbation of other officers of the regiment.

This is supposed to be a concession of a democratic nature and is certain to be greatly disliked by the aristocratic caste officers.

SAVES SEVEN OF THE ENEMY

Wounded German Rescues Frenchmen and Becomes a Hero in the Hospital.

Paris.—Among the wounded men from the fighting on the Yser was a young German with a bloodless, intellectual face. His head was a mass of bandages. He had just been taken from a Red Cross train and placed tenderly in a bed in an improvised hospital. The nurses gathered around him, some of them in tears.

"He saved the lives of seven French soldiers." This, written on a blood-stained sheet of packing paper pinned upon a blanket, told that the young German was a hero. That was all the French ambulance men found time to tell us.

MAN OF THE HOUR IN TURKEY

Ever Pasha, minister of war, leader of the Young Turk party and son-in-law of the sultan, stands forth just now as the most prominent figure in the Ottoman empire. He is one of the four actual directors of the destinies of Turkey, and the most powerful of the three. He is said to be consumed by ambition and to believe himself to be a man of destiny. He affects the genius of Napoleon, and dreams in secret of converting the actual Ottoman directory into a consulate. In the role of first consul he would then change the consulate into an empire, following the example of Bonaparte.

Ever, who was born in Roumelia only thirty-five years ago, is the hero of the Tripolitan war. Also he was the assassin of Nazim Pasha, the generalissimo of the Turkish army. Nazim belonged to the Old Turk party. Honest, patriotic and brave, he represented the very best in the Turk. His atrocious assassination doubtless was designed to open the way of empire to the members of the directory. They have spilled the blood of their adversaries ruthlessly and many shocking murders are laid at their doors. The people hate them bitterly and the sultan fears them intensely, so the news that they have been slain would cause no surprise at any time. The friends and relatives of Nazim are many.

PROMINENT PEOPLE

BERTHA KRUPP, GUNMAKER



It is a strange thing that in the great European war one side personifies its destroying force as a charming young woman and the other as a venerable old gentleman.

It is "Bertha Krupp" who fights for the Germans and "Papa Creusot" who fights for the French. The German soldiers often say "Bertha is talking again" when they hear the shriek of the terrible Krupp guns and the French soldiers say "Papa Creusot is giving the Germans a lesson."

Of course, everybody knows that Bertha Krupp is the principal heiress of the great Krupp gun works at Essen, probably the greatest establishment of its kind in the world. The name "Papa Creusot" is really taken from the place—Le Creusot—where the French guns are made.

The Baroness Bertha Krupp von Bohlen, or, as she will always be known, Bertha Krupp, is unassuming, charitable and beloved by all those who have the fortune to know her. Bertha is one of two sisters, the only children of the late Alfred Krupp, the gunmaker of Essen. Because of the fact that the kaiser, recognizing the gunmaker was an important factor in the empire, acted as godfather to Bertha, she has received more attention and is better known than her sister. The young matron is noted for the charities that she supports with her immense fortune. From the income from the manufacture of the big guns which breathe destruction a fraction is set aside by Bertha Krupp to help some of her 50,000 pensioners. A large orphan asylum is supported by the Krupp money. When Bertha Krupp was to be married she was so important a personage that the kaiser took upon himself the role of Cupid and arranged her marriage to Baron Gustav von Bohlen and Halbach, in whom he was interested.

The present war must be regarded as the crowning achievement of "Bertha Krupp." Not only have the Krupp works furnished a vast amount of efficient field artillery to the Germans, but they have supplied the enormous siege guns that only could have enabled the Germans to smash the French forts opposed to them.

Whichever side wins it seems that both "Bertha Krupp" and "Papa Creusot" will profit enormously. It was shown some time ago that the Krupp works were spending \$200,000 a year to popularize the idea of war among politicians and writers. They are now reaping the benefit of this expenditure.

PLANS EXPLORING EXPEDITION

Capt. J. Foster Stackhouse, F. R. G. S., F. R. Z. S., F. R. S. G. S., etc., is now organizing an expedition that stirs the blood of every real adventurer. For six years he and his companions will forget civilization and its luxuries and sail away into virtually unknown parts of the world. Their reward will be a trip to all the seven seas, visits to islands and territories still untrod by the feet of white men, discovery and adventure in every latitude from the equatorial Pacific to the Sea of Okhotsk and then back again to the Antarctic—and glory. They will have a chance to study the oceans as they were never observed before, and they will be participants in the principal object of the voyage, the discovery and mapping of 3,500 unknown islands, rocks and reefs in the Pacific, reported from time to time by skippers and never officially charted.

The expedition is known as the British-American Oceanographic expedition, and it will make its voyage in the Discovery, the ship in which Captain Scott made his last and fatal trip to the Antarctic regions. The vessel is now sitting in London. Next May it will sail from New York, down to the Panama canal and out into the Pacific, where trade routes will be explored for about three years.



In the early and rough days of Nome, Alaska, Key Pittman, who now is the junior senator from Nevada, served a term as prosecuting attorney. Naturally he acquired a large acquaintance among the lawless element and its members, in turn, gained high respect for the legal abilities of the man who sent so many of them to jail. The quite natural result was that after his term as prosecuting attorney closed he found himself in command of a large criminal practice. Among his clients were a number of the leaders of the rough and morally irresponsible crowd who turned to him to extricate them from the troubles in which they frequently found themselves. Too often, however, they failed to pay the lawyer for his services, and finally Mr. Pittman grew tired of working for them for nothing.

In those days in Nome coal was sold largely by the sack and was very valuable. Shortly after the arrest of one of the accused man's pals came to Pittman to retain his services. "Look here, Jack," replied Pittman. "I'm tired of working for you crooks for nothing. I'm neither a millionaire nor a philanthropist. You get some one else to defend Chick."

"We'll pay you for this," replied Jack. "We've got the stuff to do it." "Is Chick innocent?" queried Pittman. "Sure, he's as innocent as a babe," came the encouraging reply. "Well, how much do I get for defending him?" "Mr. Pittman, if you get Chick off we'll give you half the coal."



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