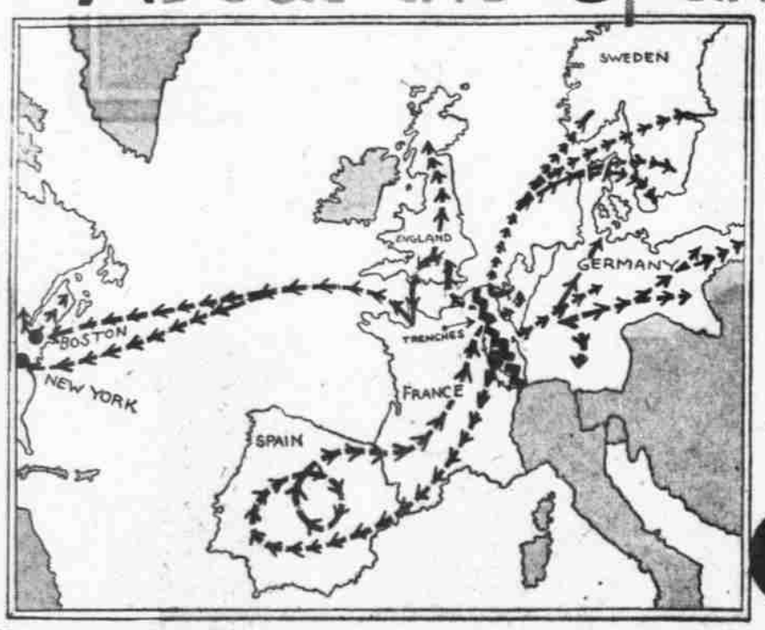
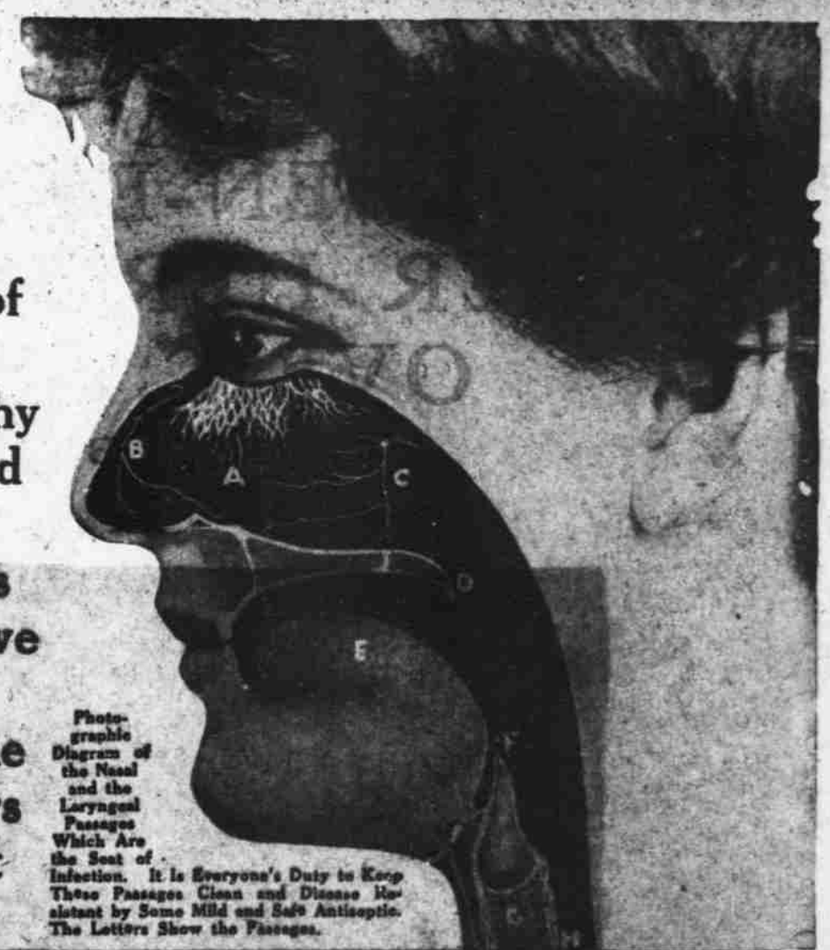
Medical Science's Newest Discoveries About the "Spanish Influenza"

How the First Real Epidemic of the World War Spread from the German Trenches — and Why Science Believes It Has Averted All Danger of Catastrophic Pestilences Such as Have Followed Many of the Great Wars of the Past



Map showing the Course Taken by the Miscalled "Spanish Influenza" from the Trenches to the United States. Originating Within the German Lines it First Spread Through Germany, Having Been Communicated by Soldiers on Leave or Returning Wounded. Making Its Way Through Prisoners Into France, It Followed, Through Causes Not Yet Known, a Well-Marked Line Into Spain, Where It Increased in Virulency and Gained Its Name. From Spain It Returned Again to France, from Whence It Was Carried by Infected Persons on Ships Both to England and to America. Its Transmission Into the Scandinavian Neutral Countries, Where It Has Claimed Many Lives, Seems to Have Been by Way of Belgium and Holland.

Masks Such as This Are Being Worn by Sufferers in the Camps and by all Those Who Come in Contact with Them, Thus Entirely Doing Away with Danger of Communicating the Infection.



Photographic Diagram of the Nasal and the Laryngeal Passages Which Are the Seat of Infection. It Is Everyone's Duty to Keep These Passages Clean and Disease Resistant by Some Mild and Safe Antiseptic. The Letters Show the Passages.

The English Artist Collier's Famous Picture of "The Plague." Such Epidemics as This Which Ravaged England and Almost All of Europe in the Seventeenth and Earlier Centuries Are Now Impossible, Modern Medical Science Having Devised Infallible Means of Coping with Them. The Influenza, Bad as It Is, Is a Slight Disorder Compared to Ancient Pestilences That Followed Wars.

By Dr. Gordon Henry Hirshberg, A. M., M. D.

THE first really serious epidemic of disease produced by the great war is that called "the Spanish influenza," which has caused deplorable mortality in New York and New England.

At the outset it should be said that the term "Spanish influenza" is clearly an error, and that the name should be "German influenza," for investigation proves that the disease originated in the German trenches. It has since made a tour of the entire civilized world, in the course of which it broke out with especial severity in Spain, owing to certain local conditions. The French, noting its ravages in Spain, and not having suffered very badly themselves, gave it the title "Spanish influenza."

That this should be the only epidemic disease produced by the world war is a remarkable proof of the protection afforded to us by modern medicine and hygiene. After nearly all other great wars, as a result of the misery, starvation and enfeeblement of the population, there have been great outbreaks of pestilence, which have depopulated cities and even countries.

The disease generally known as "the bubonic plague" is the great plague which caused the great ravages of past war epochs. Its cost in human lives has not been less than two billions. In addition, outbreaks of smallpox, cholera, typhus and yellow fever have followed debilitating wars.

Fortunately our enormous progress in medicine and our material resources for combating disease give assurance that no plague epidemic of such magnitude as those of the past can occur in America at the present time.

How widespread has been the outbreak of Spanish influenza is shown by the fact that our Assistant Secretary of the Navy, Franklin D. Roosevelt, suffered from it, while, at about the time he was recovering the youngest son of the King of Sweden died of it.

The first known advent of the influenza in this country occurred when the Norwegian ship Bergensfjord arrived at New York on August 12 with twenty-five cases, three of whom died, but there were probably other sources of infection, apart from the report that the German U-boats surreptitiously disseminated the infection in this country. Independent sources of infection, apparently, reached Boston and New England, where the disease raged most alarmingly, causing seventy deaths in one day and 9,000 cases at the Camp Devens military camp.

And now just what happens to the sufferer from Spanish influenza? From observations of one thousand soldiers it was found that from one to three days after contact or approach to others who had the disease a feverish state began. This fever rose steadily until on the second or third day afterwards, it was as high as occurs in pneumonia. In many cases it went as high at 104 deg. Fahr. Indeed, it is apparent that one of the most common as well as the most dangerous complications is that of pneumonia.

The disease starts with a chill or chills that may shake the whole room you're in. Severe headaches, with pains in the legs, in the groin, in the neck, in the spine, and in the small of the back are generally present.

Then "that tired feeling," named by doctors "general malaise," takes charge of the sufferer's anatomy. The victim feels wretched all over. Fever blisters, those frequent accompaniments of pneumonia, of meningitis and of tertian malaria, "break out" on the sufferer's lips.

The face becomes flushed, a thermometer stuck under the tongue registers 102 to 104 degrees, and the victim as well as his doctors knows he's in for it badly.

Spanish influenza "cures or kills" in Liberty motor speed. Within four days the worst is usually over. About the second day the abrupt crisis takes place. On the fourth day the patient is either as well as he ever was, or pneumonia or another complication asserts its dangerous presence.

A harsh cough is a frequently encountered symptom. The patient thus hacks and sprays forth lots of the microbes, which spread the infection rapidly unless handled with the greatest precaution.

A thick, tenacious sputum of a whitish mucoid character distinguishes this new disease from the well-known old influenza with its greenish sputum. This also distinguishes Spanish influenza from pneumonia, with its typical "rusty colored tough expectoration."

Failure of intestinal action, a restricted flow of the kidney fluids and a want of appetite play a large role in the characteristic signs and symptoms of Spanish influenza.

If you take close notice of the several differences between this new malady and the old influenza, you will observe that the fever is sharper, higher, but of shorter duration; the total course of the new scourge is briefer; there are fewer stomach or intestinal symptoms in the Spanish influenza, whereas in the previously known influenza gastro-intestinal disturbances were predominant.

A most important discovery has just been made with regard to this disease. The specific microbe which causes it has been definitely isolated. This is a complete disproof of the assertion in some medical publications that the bacillus was the same as that of the old influenza, or grip.

This interesting discovery is due to the researches of three English army surgeons, Captains T. R. Little, C. J. Garafalo and P. A. Williams, of the Canadian Mobile Bacteriological Laboratory, attached to the British base hospitals.

The last great pandemic of grip, or influenza, lasted three years, from 1889 until 1892. It spread like wildfire over the civilized world during that period. Then several American bacteriologists at work simultaneously and Professor Pfeiffer discovered the grip germ, or influenza bacillus, which has since been confirmed and established as the specific cause of the colds, pains, backaches and other classical symptoms of the old-time grip.

The present scourge, it was soon found, is much more malignant and entirely different from the other.

The manner in which the bacterial agent which causes this plague was run to earth is a model of the bacteriological skill, supremacy, efficiency and patience of the English and American medical staffs.

It was recognized that the rapidity with which the contagion spread pretty well pointed to some microbe or bacterium as the guilty party. It was also argued that the causative agent must lurk at least a large part of the time in or near the air passages of the victim.

The coughs, the sputum the pneumonia and bronchitis complications, the spray from the nose and throat as it came in direct contact with the men or reached them through plates, dishes and linens, seemed to invite bacteriological searches and microscopic studies.

Fortunately, for all of us on this side of the ocean, medical science has succeeded in isolating and identifying the germs in just that way at the very beginning of the American epidemic, which is therefore likely to be nipped in the bud.

The new bacillus is not in the blood. Cultivation of it is impossible from this source. It is lucky that so demoniacal a bug does not penetrate the delicate fluid tissue of man. Then its malignancy would perhaps be tenfold.

However, when the bacteriologists explored the discharges and excretions from the nose, the pharynx and the throat, lo and behold! their pioneer work was at last rewarded.

Spread upon glass and examined under a magnification of 1,200 times, a new microscopic living world opened up before their astonished gaze.

A veritable beehive of trembling, vibrating bacilli almost as round and as small and resembling the diplococcus of meningitis loomed up beneath the high magnifications of the microscope. A diplococcus is a type of microbe in which two disc-like shapes are attached to one another.

At the poles or opposing ends of this myriad of tiny germs their torpedo, blunt noses were flattened out to make them almost biscuit shaped.

In no "smears" of these bacteria were there any of the well-known Pfeiffer bacilli of influenza or any double cocci of pneumonia.

The newly discovered germ has characteristics peculiarly its own. These are described in technical reports in the London Lancet for July and the British Medical Journal for August 10, 1918.

As a rule there are so many bacteria that are superficially at first glance exactly alike that a mere inspection of them undyed or unstained under the microscope without planting them in various small test tubes of different soils would fool even experts into believing that they are similar and identifiable.

On this account it is that bacteriologists must use a great many other tests to convince themselves and their skeptical confreres and enemies that they have a new and a different germ.

It is done in this way. When they find and isolate a bacterium and under the microscope it resembles even when stained blue or otherwise dyed the diplococci of pneumonia or meningitis—both of which also look alike—they "put iodine on its tail," as it were. If it "takes" it is thus differentiated into one of two groups which take or do not take iodine.

Then it is planted in gelatine. It either grows and melts the gelatine or it does not. Thus another group is found.

Then potato, moss, agar, banana, blood serum and other soils are used—until a whole series of facts are found about a germ which show it to be different from all hitherto discovered ones.

Thus it is with the new germ. The medical gentlemen determined that it has none of the earmarks of any bacillus that has ever been "brought into captivity." This bacillus we have found grows with extreme reluctance upon the various "media" or fields on which most other micro-organisms thrive. It hankers after blood. It thrives and grows best on blood serum media, although it does not grow in the human blood.

There is a luxuriant, rich, abundant sprouting of the malicious bacillus in this serum soil, which explains why Spanish influenza clings so tenaciously to the lips, the tongue, the mouth and the gums of its victims and its "carriers."

The physicians and scientists of the Allied countries are seriously considering whether or not the germs of this disease have been intentionally disseminated by the German Government with the intention of weakening their opponents. No definite conclusion has been reached on this point, but the charge cannot be hastily dismissed, as the German Government has already been convicted of employing disease germs against civilians in Rumania.

The disease was first observed by army doctors to be raging in the German trenches on the Flanders front in the wet weather of last Spring. From the front it passed to the weakened interior population of Germany with great severity. It then broke out in Spain, and as the French civilians first noticed its ravages there they called it Spanish influenza. It is significant that intercourse between Germany and Spain by U-boat and in other ways has been particularly frequent. From these two centres its world-wide spread has started.

That the influenza germs have been secretly scattered in this country by German U-boats is a charge difficult to prove, but their gas attacks on crews of our lightships and lighthouses furnish character evidence against them.

It is scientifically demonstrated that the germs increase in virulence with the number of persons they pass through, until finally the system acquires immunity against them through infection.

Treatment for the disease is simple, Surgeon-General Blue, of the Public Health Service, summarizes it as follows: "Rest in bed, fresh air, abundant food, free action of intestines, with Dover's powder for the relief of pain. Every case with fever should be regarded as serious and kept in bed."

In order to guard against infection it is necessary to keep the mouth and nose clean and healthy by means of some mild antiseptic and to treat all colds promptly. A wash composed of one teaspoonful boric acid, one teaspoonful bicarbonate of soda and one teaspoonful of common salt will be found very useful in keeping nose and throat clean.

The disease is spread by "droplet infection," that is, by little drops swarming with germs scattered by infected persons who sneeze, spit and cough in public places. One sneeze in a street car may infect a whole city.

It is therefore very comforting to know that Health Commissioner Copeland, of New York, has called a meeting of theatrical managers and others with a view to enforcing the laws against spitting in public.

Kissing is another prolific method of infection, and this practice should be stopped except in cases where it is absolutely indispensable to happiness. Kissing between members of the gentle sex can certainly be abolished without hardship.

Army doctors have found the "gauze face mask" very useful in preventing infection. This is made with three or four layers of gauze in the shape of a rectangle five by seven inches, covering the mouth and nose and secured by a band over the ears and round the back of the head.

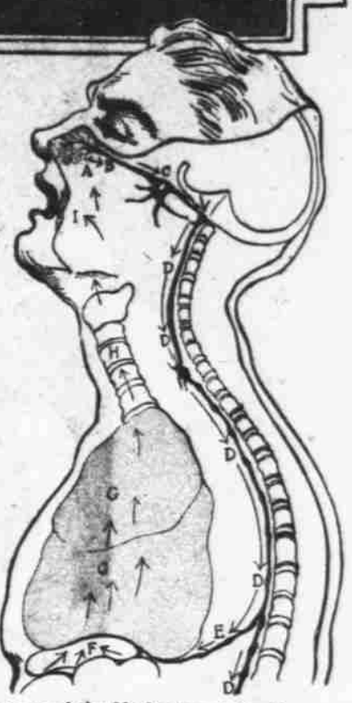


Diagram of the Mechanism of the Sneeze, Showing the Course of the Muscular Spasm Which Spreads "Droplet Infection."

When an irritating substance enters the nostrils it lodges in the Schneiderian Membrane and irritates the nasal nerve (A), the sensation follows the Fifth Nerve (B) to Meckel's Ganglion (C), whence it reaches the sympathetic nerve system (D). It passes along D and is carried by the Phrenic Nerve (E), controlling (F) the diaphragm. Under the irritant nerve impulse there is a spasm of the diaphragm which forces a violent expiration of air from the lungs (G), up through the Trachea (H), out of the mouth and nose (I), producing what we call the sneeze.

The mask is employed in the army camps as follows:

1. It is worn by all patients unless isolated.

2. It is worn by all doctors and other persons coming in contact with patients.

Facts About "Spanish Influenza" and How to Protect Yourself Against It

THE disease begins two or three days after infection with fever, heavy sneezing, headache, aching bones and general pains.

All colds with high fever should be put to bed and the doctor called.

Infection is mostly caused by reckless sneezing, coughing and spitting. Avoid these practices and those who have them.

To guard against infection, keep the mouth and nose clean with a mild antiseptic wash (see accompanying article).

Medical treatment consists of rest, abundant food, aperients, and quinine, with Dover powders to stop pain.

The disease started in the German trenches, passed to Spain and then spread over the civilized world.

Canadian army doctors have found that Spanish influenza is caused by a new, hitherto unrecognized bacillus, quite different from that of the old "grip."

Pneumonia may occur as a complication, unless careful treatment with rest in bed be given.

Medical measures already taken will make it impossible for the Spanish influenza to become a serious menace to the health of the army.

An accusation that the disease has been intentionally disseminated by German U-boats is being investigated by medical authorities.

The first identified case reached the United States in a Norwegian ship on August 21.