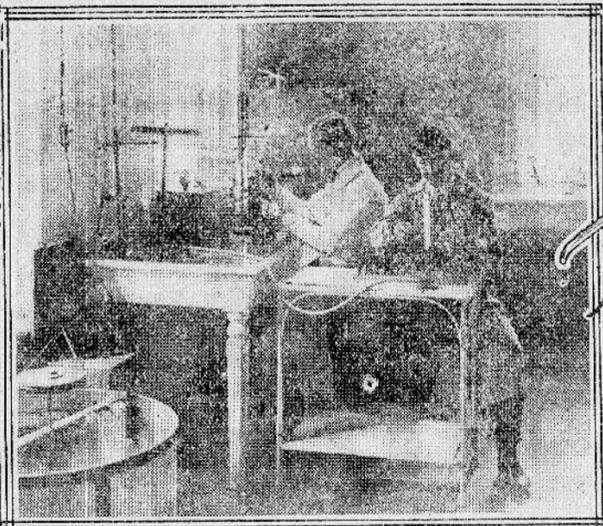


TYPHOID

HOW UNCLE SAM IS FIGHTING THIS DREAD DISEASE

By George Steiner



Preparation of Serum for Inoculation



Major Frederick P. Russell, The Man Behind the Test Tubes



Microscopic Test of Seruliferous Photos Copied by J. J. Lewis & Swigg

THE history of the world's wars would lose much of their horror and more than two-thirds of their terrible ravages of epidemics in military camps were omitted from the lists of the dead charged against each campaign.

For disease, not the sword or bayonet or the deadly rifle nor the great cannon belching shot and shell, has been the real reaper of the great majority of soldier dead through all the ages. For every man dead from wounds four have died from disease. Plagues of many kinds have decimated the ranks of armies, but in modern warfare the bacillus of typhoid has been responsible for sending more men to the hospital in war time than any other single disease.

This is because during actual war conditions many soldiers are speedily enlisted from civilian ranks and because the authorities of all nations have neglected, and for that matter still do neglect, to having sanitation around great military camps practically no better than those in use in the middle ages.

As a result, while during ordinary periods the rate of typhoid is less in the army than in civil life, the formation of great military camps preceding or following a declaration of war is almost certain to result in a tremendous increase in typhoid. In our Spanish-American conflict the death from typhoid alone far exceeded by many hundreds per cent the loss from wounds.

Fewer Cases Than Deaths Before.

The new anti-typhoid serum is far better than any possible cure for typhoid could be, for it absolutely prevents the disease, and in modern medicine even more than in other sciences

prevention is recognized as far superior in efficiency than cure.

From a strictly accurate scientific viewpoint the anti-typhoid serum is neither an antitoxin nor a vaccine. It is really a fortification of the blood with the principles that enable the body to kill off any typhoid germs that may come from time to time. In the system, in other words, it is a specific when taken in advance of the entry of the disease germs, and in this characteristic it exactly coincides with the so-called antitoxin for bacterial plagues.

The making of the serum is interesting. The laboratory workers first start with a collection of the very typhoid germs he desires to exterminate and cultivates them in a special liquid which is extremely poisonous to the bacillus, so that the germs form amazingly and speedily mount into the millions, whole colonies of them forming in the broth.

This is done because the elements which are opposed to the typhoid germs are preserved in the culture by the addition of an antiseptic, which prevents any decay or fermentation or

other chemical change. In this way, also, any contaminating germs are prevented from obtaining access to the broth, which otherwise would form a most attractive home for these various and dangerous members of the bacillus family.

Put Up in Tubes.

Such a preparation is quite inane, if it is normally sealed in a tube, in which a glass and airtight plunger has been inserted. When the plunger is firmly pressed the typhoid antitoxin is forced under the skin and a small portion of muscular tissue, after which it is slowly absorbed into the circulation.

It is this easily understood method by which Uncle Sam's doctors undertake to altogether prevent and resist the entrance of the horrible typhoid slaughters of past military campaigns. So far Major Frederick P. Russell, under whom the entire work has been handled, has merely inoculated a few volunteers from among the various military organizations centered near Washington.

The photograph shows an inoculation against typhoid taking place in the

army laboratory. The work is simple, practically painless and requires but a moment or two.

Theory Not a New One.

The theory under which this preventative typhoid works is one that is now fairly well known to the public—namely, that the entrance of every germ into the human body at once causes the formation in the blood of active principles hostile to the life of that disease germ. Now, then, the scientist in this case merely obtains a serum extremely rich in the principles that combat typhoid fever and introduces it into the blood.

The general result is an immunity from typhoid fever for about two years, the actual period of immunity depending largely on the particular individual and the state of his general health at the time of exposure to infection. The immunity granted is exactly like that as great as that obtained by a man who has suffered one attack of the fever.

The infusion of the new serum with the blood causes on a very slight scale the symptoms of a mild attack of typhoid fever. The patient has a

high fever for about eight hours and has no appetite or energy for from 14 to 18 hours.

In the cases so far treated in the United States army the men have been inoculated about 2 o'clock in the afternoon and have usually been able to eat their breakfast next morning with a fair appetite. This means that for a slight sickness far from equalling the distressing symptoms of many a slight cold the soldier can now obtain the certainty that he walks unscathed through swarming germs of the typhoid bacillus.

The idea of attempting to attain for Uncle Sam's boys in blue or khaki safety from the terrible scourge that has harvested thousands of their progenitors in the past wars of this republic resorted in the sending abroad of Major Frederick P. Russell, of the army medical corps, whose training and aptitude for this most important mission was recognized by the department as unusually fit.

Major Russell made extensive studies in Germany as to the workings of anti-typhoid serum in the German army, especially as to the results obtained during military expeditions of the Kaiser's soldiers in Africa. He also visited the great British army camp at Aldershot and studied the reports upon the anti-typhoid inoculation as practiced during the Boer war.

In neither the German nor the British army had practical perfection been achieved. It has been the United States considered the final and ingenuously to prepare for the final attack against typhoid in the ranks of its brave soldiers.

When volunteers shall next be called for, it is best done by President McKinley during the first days of the

Spanish-American war, these soldiers will in all human probability be unscathed against typhoid as soon as enlisted. In this way the terrible mortality which hitherto rested upon the bedding together of thousands of men in hastily constructed camps will be avoided.

Private Use Uncertain.

As to the use of the typhoid prophylactic in private practice there lies before the progressive members of the medical fraternity a weary campaign of education. In fact, it will probably be more easy to improve water supplies and sewage disposal as to kill off typhoid through these means rather than through the serum of prevention.

If this serum were of value after the disease had once started the advertisement of its cures would undoubtedly lead to its frequent use as a preventative. Unfortunately, while it can ward off the germs of typhoid, it cannot do battle with them once they have found lodgment in the human system and multiplied in such numbers as to produce even the early symptoms of headache and lassitude typical to typhoid.

Hence the usefulness of the serum being prepared by Uncle Sam's scientists in his army laboratories for widespread use in private practice is doubtful. It is essentially a war measure in every sense of the word. It is aimed primarily against the typhoid plague that sickens his thousands and kills his hundreds inevitably once a great military camp has become impregnated with the bacilli.

But as a war measure it is of the very first rank. It will, once war has been declared, increase the efficiency of our soldiers even more than a new improved rifle or some new-fangled smokeless powder.

Napoleon was wise in his generation, for he desired an army's strength depended on the ability to keep these regiments fed. Today Uncle Sam has made a step forward,

for he will be able not only to feed his men, but to make sure that the dreaded scourge of a typhoid fever epidemic does not stalk through the ranks, marking its victims and turning them from capable military units into diseased impediments, useless against the enemy and a source of terrible danger to their still healthy and combative comrades.

Four feet of galena ore has been struck on the Samson Mining company's property, located about eight miles west of Murray, Idaho. The ore, which was encountered in the face of the drift when in 110 feet, assays high in lead and silver. Development work will be continued.

The Blacktail mine in the Republic district in eastern Washington shipped two cars of fine ore to the Granby smelter a week ago and will ship two cars to Tacoma in a few days. Ten men are employed at breaking ore, and as soon as electric power is available the number will be largely increased. It is expected to ship two cars a day in July. There is an immense body of ore in sight, and what is more important, the quality is good. The ore is of higher grade than that shipped in the days when the Blacktail stood second in importance in the camp.

A. B. Ward, working a placer property at Delta, Wash., was at Wallace, Idaho, a few days ago with 25 ounces of dust and nuggets, which he deposited in the State Bank of Commerce. He reports that the placer properties in the Delta district are preparing for a big clean-up, which is expected to yield more than \$50,000. The season has been most favorable, and water has been abundant. Among the larger properties being worked near Delta are three claims owned by Buson & Thard, eight owned by A. B. Ward and brothers, one each by Hauck brothers and J. M. Savage.

WASHINGTON NEWS

THE MISSOULIAN SPECIAL SERVICE.

Washington, June 7.—The war department has appointed a new court martial to sit at Fort Mifflin, Pa. This court is constituted as follows: Captain Lawrence Platt, First Lieutenant David C. Anderson, George W. Brigid, Wyle T. Conway and Richard Weddell; Second Lieutenant William F. L. Simpson, Ben W. Field and Fred W. Pitts, all of the Sixth Infantry. Lieutenant Pitts being judge advocate general.

E. S. Dodds has been approved the new cashier of the First National bank of Columbus.

Senator Bradley has introduced a bill providing for the creation in bronze of the colossal equestrian group known as the "Indian Buffalo Hunt" in Washington, to cost \$50,000.

The new bank at Valler, the First National, which was organized recently with a capital of \$25,000, has been approved by the treasury department. George E. Towle of Minneapolis is the principal officer, the others being Montanus, E. P. and C. H. Kester, W. F. Hovey and Dave Becher.

From instruction from the secretary of the interior, the geological survey has begun investigation of water power sites on the public lands. The director of the survey has recommended 11 temporary withdrawals "in aid of proposed legislation affecting the disposal of the water power sites" aggregating 235,365 acres in Utah, Colorado, Wyoming, Montana, Idaho and Oregon, which have been approved by Secretary Ballinger. The policy is to protect the public interests on the one hand by promptly withdrawing from entry all public lands containing possible power sites, and on the other, excluding from withdrawal areas of no value for power purposes but properly disposable under the agricultural land laws.

The director of the survey has assured the secretary that the temporary withdrawals of water power sites already made, together with such as will hereafter be made prior to the convening of congress, will be ample to protect all the more important water power sites undisposed of and enable congress to intelligently legislate for their disposition. Field plans provide for special investigation of withdrawals already made and for surveys along certain western rivers where further information or more exact data are desirable. In addition to the continuation of the regular river-flow observations, for all of which work the current appropriations provide.

Five of the withdrawals made include all the water sites in the area that were withdrawn by Secretary

Ballinger last month. The present withdrawals, however, comprise a much smaller acreage, one-sixth less of the areas of the original withdrawals. This reduction has been made possible in part by omission of lands patented or reserved prior to the original withdrawals, but more largely by the exclusion of land in no wise essential or useful to power development. The vacated withdrawals include large areas of public land of possible agricultural or mineral value at such distances from the rivers as to have absolutely no connection with the future development of the water resources.

On the other hand the revised withdrawals in the same regions in some instances cover power sites missed by the earlier action. Thus in the case of the Salmon river in Idaho, where the original withdrawal totaled 422,500 acres, that based upon the recent recommendation of the geological survey includes 55,000 acres. A similar reduction holds for the Owyhee river in Oregon, and in even greater measure for the Blackfoot and the Missouri and tributaries in Montana.

All of the recommendations by the geological survey have been based upon official data already on file. The streams-low records collected by the water resources branch of the survey and by the reclamation service constitute practically all the hydrographic information available for the public land states, stations on all the important streams in these states having been maintained for a series of years for the purpose of determining the water available for irrigation. The topographic surveys which have been conducted by the geological survey for 30 years also furnish means of selecting without delay the sections of the rivers important for power purposes.

It is now more than 20 years since the first attempts were made to destroy scale insects on fruit trees by means of a poisonous gas. The gas used is known as typhoxenic acid gas, and it is extremely poisonous to human beings and domestic animals as well as to insects. This method has gradually increased in popularity until it has largely displaced all others in the orange and lemon orchards of California.

In order to use the gas effectively the tree is covered with a tent. A small quantity of sulphuric acid is dissolved in a small quantity of water in a jar which is placed on the ground in the tent. The proper amount of potassium cyanide is weighed out, carried into the tent by the operator and dropped into the jar, after which the gas is quickly closing the tent after him. The gas forms very quickly, rises and fills the tent, destroying all

the scale. The tent is then taken down and placed over another tree.

In the use of this gas there have been a variety of methods employed, more variation in the amount of chemicals used, and much difference in the results secured. In order to determine the most satisfactory methods and proportions of chemicals the expert investigator to the Pacific coast to conduct a series of experiments with typhoxenic acid gas. By an extensive series of experiments with trees of different sizes, with different proportions of cyanide, sulphuric acid and water, and fumigation at different seasons, the experimenter has determined the most economical and effective method of dealing with the pest, and his recommendations are now being followed by many successful fumigators.

These experiments will be continued and extended so as to cover every phase of the work against all the principal scale pests. It is believed that this work will result in a great saving to the citrus fruit growers of California, and at the same time make fumigation more uniformly effective.

How to prevent or lessen the losses due to rusting of iron or steel is an important problem and one which is receiving more and more attention.

This problem has become of far greater importance in recent years for two reasons: (1) The greatly increased use of these materials, (2) the fact that the iron and steel made today are much more seriously injured by rust than those made by earlier and slower processes.

The rust problem is being attacked by a great many investigators today, and both manufacturers and users of iron and steel are watching the results with keen interest.

The great interest which farmers and road builders have in this problem has led the department of agriculture to take it up. Several hundred ounces of iron or less technical character have already been issued. For the experiment a steel manufacturer made a number of samples of wire, using different processes and greater or less quantities of the different ingredients usually found in the iron and steel, and these samples were given different protective coatings. Sections of wire fence were then made of these wires, and tests have been made on the grounds of the George Washington school at Drexler. The object is to determine which method of manufacturing an coating wire will best resist corrosion in actual use.

Another line of experimental work due to rusting of iron or steel is an important problem and one which is receiving more and more attention.

These experiments have only been under way a short time, and it is too soon to expect any definite results.

Corrosion of iron and steel results largely from electrolysis, a theory that appears to be making great headway toward general acceptance.

The protection of iron and steel from destruction by rust is one of the great conservation problems to which the present age is just awakening. If it can be solved a great waste of our mineral resources can be stopped. The production and use of rust-resistant steel and iron will pay in the long run even if it involves an increase in cost of manufacture.

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NATIONAL FINANCES ARE GOOD

FIGURES MADE PUBLIC SHOW LARGE DEPOSITS RECEIVED BY THE BANKS.

Washington, June 7. During the current fiscal year the national banks of the country have received in deposits \$1,822,995,284, more than \$1,500,000,000 in excess of the entire outstanding money supply of the United States, according to figures made public today.

The year has been one of exceptional prosperity for national banks. Since May 14, 1908, there has been an increase of 103 in the number of national banks. Of this number that went into liquidation, 71 were in Oklahoma, and withdrew from the national system to organize under the state law to take advantage of the state guaranty law. Notwithstanding the unusual number of banks withdrawing from the national system the aggregate capital surplus and profits of the banks reported on April 28, 1909, amounted to \$1,729,957,531, or an increase of \$8,586,428 in the year. Loans and discounts increased \$43,762,980, deposits \$512,403,344, and total resources \$774,261,145.

Colds that hang on weaken the constitution and develop into consumption. Foley's Honey and Tar cures persistent coughs that refuse to yield to other treatment. Do not experiment with untried remedies as delay may result in your cold settling on your lungs. Garden City Drug Co., Geo. Freisheimer, Prop.

Notice.
The directors of the Duke Coeur Patene Copper Mining company will hold a meeting at the Grand Pacific hotel, at 8 o'clock Saturday, June 12.

A FOREIGN BEAUTY



The above is a picture of Madame Gude, wife of the minister from Norway to the United States, said to be the most beautiful woman in the country.



Brings the Orders

Easy to write a pulling Mummikaker ad. Just remember this. What brings the orders is not the name of your business. It's the thing you offer to sell, or the thing you offer to do. Don't say "Carpentering and General Repairing." Be specific. Think up the things that people need. Say, "I can make your front fence look respectable. Your satisfaction and self-respect will more than pay for what it costs you." "I can fix up your house so the weather won't get in. It won't cost much. Maybe an hour's work or two." "That new kitchen shed, NOW is the time to plan it. Ring me up. There's a certain lot of good lumber in the market you can get much cheaper if you buy NOW." "Let me make those cellar stairs easy and SAFE for your wife and your mother. A little cost and a big satisfaction to you." Same rule holds good in every other business. Make a definite offer of one thing that people want. That's what brings them to the telephone. That's what brings YOU the business.

THE MAN WHO FOUND THE LOST LOCKET.
"This must be the watch charm the class ad inquired for this morning. I found it yesterday and looked in the 'Lost and Found' column this morning."

Appeared Once June 3 **LOST AND FOUND.** **Cost Only 15c**
LOST—MASONIC WATCH CHARM. Return to Missoulian office and receive reward.

THE MAN WHO RECOVERED THE LOST LOCKET.
"The class ad for mine from now on. I wouldn't part with this locket for a great deal of money. I certainly appreciate the work it did for me."
Have you lost anything?
Try a class ad—it works day and night.