

Introduction

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The AIH Bioterrorism Project arose more or less spontaneously after the attacks on the World Trade Center and the Pentagon in September 2001, followed so soon after by the sickening and death of several individuals coming into contact with weapons-grade anthrax that was mailed to CBS Television News and Democratic Congressional leaders. While the perpetrator of these crimes has never been identified, we soon learned that the material had been manufactured in our own U. S. Army Biological Warfare Laboratories, and that even the tiny amounts contained in these few envelopes was enough to infect and kill many people.

Fear swept the country as millions realized that the Government is essentially powerless to stop a biological attack from a determined enemy, and as unprepared for large-scale biological warfare as for airliners used as explosive weapons, or indeed for serious terrorism generally. The universal outrage and disbelief were further compounded as we learned that the major producer and supplier of biological weapons was and still is none other than our own government, and that whatever capacity Iraq, Al Qaeda, and other hostile nations and terrorist groups now possess very likely originated in our own laboratories or those of our Russian competitors.

Like our allopathic colleagues, homeopathic physicians all over the country were beset with more or less frantic calls from our patients seeking advice about how to protect themselves from anthrax, smallpox, and other potential bioweapons. I wrote brief Advisories on Anthrax and Smallpox and circulated them, as did many other homeopaths.

At this historic juncture, when the danger of biological attack is clear and omnipresent, the exemplary record of homeopathy in treating epidemic diseases gives the American Institute of Homeopathy both opportunity and obligation to acquaint not only our own patients but also the medical community and the public at large with a valuable additional service of which they may well be unaware. *We have no intention of recommending homeopathic medicines as a substitute for or alternative to conventional prophylaxis with suitable vaccines or treatment with antibiotics and other medications as required.* We simply offer these gentler methods of proven safety and effectiveness under the following special and limited circumstances:

- 1) when an actual attack is suspected or imminent, and the known risk of conventional vaccines may outweigh the uncertain risk of possible exposure, or no effective vaccine is available;
- 2) shortly after an attack, for persons already exposed or at high risk of exposure who are as yet asymptomatic, or for early or incipient cases of disease, for whom conventional treatment is not yet available or has proven injurious in the past;
- 3) for more advanced or desperate cases, when conventional treatment has failed or caused serious adverse reactions that make it impossible to continue with it, or as an adjunct to such treatment;

- 4) for individuals with known sensitivity to or intolerance of conventional vaccines or medications, or both, or who refuse to take them for any reason; and
- 5) for individuals suffering major or minor adverse reactions to conventional vaccines.

One further problem with relying on conventional vaccines for prophylaxis is the process of weaponization, which often involves deliberate alteration of the microbial genome to render the vaccine less protective against it. Because the suitability of homeopathic medicines is based on the total symptom-picture of the patient rather than the antigenicity of the causative organism, they should be equally effective under these conditions.

In December 2002, Jennifer Jacobs, M.D., M.P.H., current AIH President, appointed a Committee to study how and to what extent homeopathic medicines might prove effective for prophylaxis and treatment of the five most commonly identified biological agents -- anthrax, smallpox, plague, tularemia, and botulism -- in the situations outlined above, and to publish a report both in this Journal and in abbreviated form as press releases to the medical community and the media. Dr. Jacobs appointed five members to the Committee:

Mitchell Fleisher, M. D.,
Jacquelyn Wilson, M. D.,
Robert Schore, M. D.,
Bernardo Merizalde, M. D.,
and myself, whom she named as Chairman.

Asking each of the others to research and report on one or two of the five major diseases, I assigned smallpox to Dr. Fleisher, anthrax to Dr. Wilson, plague to Dr. Schore, and botulism and tularemia to Dr. Merizalde, with myself as co-ordinator and general editor. For each disease, my plan was, first, to summarize the pertinent medical facts (epidemiology, pathology, signs and symptoms, clinical course, conventional treatment, prophylaxis, etc.), and second, to consider when, to what extent, and *which* homeopathic remedies might be used in any of the situations described above.

In preparing this report, I would like to thank, first and foremost the members of the Committee for their diligence and promptness in making this publication possible. I am also grateful to Roger Morrison, M.D., and Nancy Herrick, P.A., who made an extensive review of the literature on smallpox shortly after September 11 and generously retrieved it for us. Where it overlapped with Dr. Fleisher's work, I simply fused both sources into a single text. Wherever possible, I have let the various contributors speak for themselves in their own words, albeit occasionally with minimal editing to achieve a consistent tone, for which I hope they will forgive me. I also want to thank Larry Brilliant, M. D., formerly with WHO, who contributed some lively and pertinent reflections about smallpox, courtesy of Dr. Schore, his old grade-school chum; and Mitch Fleisher, M. D., and Barbara Winchell, R. N., both of whom kept me well-informed with timely news items about vaccines and biological warfare gleaned from various websites and media sources.

In what follows, our main hope is to reassure the public, by showing how these diseases actually behave, and what practical measures may safely be taken to combat them, both preventively, in advance of an actual attack, and once such an attack is in progress. The information and advice we offer will hopefully provide a useful antidote to the climate of fear and uncertainty that is mainly what terror is about. Biological agents are complex, sensitive organisms that are all quite difficult to prepare, and easily decompose with improper handling, prolonged storage, or dissemination under suboptimal conditions. A determined enemy could kill at least as many people in an even shorter time with nerve gas or other chemicals, which are much simpler and cheaper to make, far more stable over time, and more reliable to use. But however unlikely it may be that biological weapons will actually be used on a mass scale, they remain formidable precisely to the extent that we imagine and have good reason to fear that they will be. Insofar as they convince us to limit and restrict our lives for fear of them, those who wish us ill will already have accomplished a huge piece of their work.

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ANTHRAX

Jacquelyn Wilson, M. D.

Because of bioterrorism and the events of September 11, anthrax, formerly old and rare, has become a new and feared disease in the U. S. Anthrax is a severe bacterial infection from the spores of *Bacillus anthracis*, which germinate inside the macrophages of the human body and may cause septicemia, toxemia, and death. Composed of protective antigen (PA), lethal factor (LF), and edema factor (EF), anthrax toxin is cytotoxic, and has even been used in cancer chemotherapy.

For the past 100 years, reported human cases of anthrax have averaged 35 or so annually in the US, most of the cutaneous type, contracted through occupational exposure to mainly cattle and sheep, via infected wool and animal hides. Anthrax occurs naturally in three forms:

- 1) *cutaneous*, with almost zero mortality if treated early enough with oral antibiotics;
- 2) *gastrointestinal*, with a 20-40% mortality even with treatment; and
- 3) *pulmonary*, with a 50% mortality, even with IV antibiotics.

In November 2001, when the mail was contaminated with powdered anthrax, the pulmonary form was diagnosed in a sizeable number of patients, half of whom died in spite of intensive antibiotic treatment. It seemed that one deep breath from a contaminated envelope was enough.

Can homeopathy lower this statistic? While clinical trials and mortality data are lacking, our literature includes case reports by doctors with experience treating anthrax long before antibiotics were invented. Pulmonary anthrax looks like flu at first, with fever, aches, and sweats, but can kill patients in hemorrhagic shock within 24-48 hours, once it becomes systemic.

Homeopathic experience with the disease is so far limited to anecdotal case reports, most of them in the cutaneous form, known as "malignant pustule." The remedy cited most often for prevention and treatment was the nosode *Anthracinum* 30 or 200, with *Arsenicum album* and *Crotalus horridus* close behind. In the U. S. Homeopathic Pharmacopeia, *Anthracinum* is authorized for OTC use, but only for boils, carbuncles, and abscesses, not for anthrax itself, which requires a prescription.

Anthracinum.

J. J. W. Lux, a homeopathic veterinary surgeon and colleague of Hering, conducted experiments with the isopathic use of disease products in potency. In December, 1831, when asked about remedies for the treatment of bovine plague and anthrax, he declined to recommend any remedies on a routine basis but offered a suggestion. Using a drop of blood from an anthrax-infected animal, and a drop of the nasal mucous of a cow with plague, he prepared a 30C dilution of the nosode *Anthracinum*. During the epidemic of 1832 many veterinarians relied on using nosodes like these as complements to standard drugs for treating animals under their care.

In 1836 Hering espoused a very different view, to the effect that he "never succeeded in curing but only ameliorating diseases with their own morbid products," and claimed that nosodes are curative only when administered on the basis of the totality of symptoms, or in other words as the constitutional *simillimum*. If *Anthracinum* and other nosodes are given isopathically, they are useful mainly as intercurrent remedies, to remove obstacles and thus advance the case. For a complete cure, he insisted that their action be complemented by constitutional remedies.

Another important use of *Anthracinum* may be for a person who has never been well since being immunized with anthrax vaccine, who has suffered adverse reactions to it. These are very common from the current vaccine, the mildest being sore, red arms and aches that last for 2 days, causing absenteeism from work. Many women in particular have complained of arthralgias that last for months, with a feeling of fatigue. *Anthracinum* may help to remove these and other side-effects of the vaccine. Other remedies may be needed for those with chronic reactions to it.

--Little, D., HYPERLINK, <http://www.simillimum.com/thelittlelibrary/casemana>, www.simillimum.com/thelittlelibrary/casemana, Nov 7, 2001.

Materia Medica

In his *Keynotes of Leading Remedies*, H. C. Allen gives the following specific indications. in addition to *Anthracinum* and *Arsenicum album*:

Carbolic. acid.

Gangrenous ulcers, felon, erysipelas of a malignant type. Felon: the worst cases, with sloughing and terrible burning pain. [*Ars.*, *Lach*]

Crotalus horridus

Hemorrhage: blood oozing from mouth, nose, anus or sexual organs; black, thick, tarry, decomposing rapidly.

Ipecacuanha

Drowsiness from defective respiration; nausea, but much better after vomiting.

Lachesis

Malignant pustule, black or blue blister[s], often fatal in 24-48 hours [*Pyrogen*].

Lycopodium

Icterus with pneumonia, especially in right lung. Spasmodic motion of alae nasi, dilated nostrils.

Pyrogenium

Septic fever, with rapid loss of strength, sinking pulse, delirium, and fainting. Bad effects from inhaling foul odors of putrid fever or dissecting-room; poisoning by foul breath.

Veratrum album

Diarrhea, colic, vomiting, coldness, and craving for acids.

In *Homeopathic Therapeutics*, Lilienthal adds more detailed indications:

Anthracinum

Induration of cellular tissue; red lines, streaks and stripes mark out the course of lymphatics, with edema of affected parts. Discharge of foul-smelling pus, gangrene, or absorption of pus, with collapse. Violent, burning pains, not relieved by *Arsenicum album*.

Apis mellifica

Stitching, burning pain, sensitive to touch, with erysipelatous redness around it. Furuncles, sloughing dead connective tissue.

Arsenicum album

Burns like fire. Red-blue spot becomes gangrenous, with sensation of boiling water under the skin. Cold, blue, dry skin, peeling off in scales, with cold sweat, pulse small, irregular, frequent.

Belladonna

Phlegmonous inflammation affecting regional nodes, with fiery redness and brain involvement.

China

Exhaustion of vital power, with excessive sensitiveness, irritability of nerves, and deficiency of animal heat. Decomposition of animal matter with symptoms of putrid fever.

Hepar sulph.

Formation of boils or pustules, with relief of the severe pain. Favors suppuration, hastens the discharge of the slough.

Hyoscyamus

Anthrax in nervous, hysterical people, with great restlessness from excessive nervous excitement. Shakes head in all directions, with optical illusions, constriction of pharynx, itching.

Kali iodatum

Anthrax with features of the syphilitic or tubercular miasm: tissue distended by interstitial infiltration, with enlarged glands.

Lachesis

Dark redness around the sore, which discharges dark, bloody pus. Tension of the skin around the carbuncle, as if too short, with nightly burning of the ulcer, better from washing with cold water. Gangrene, carbuncles from blood poisoning.

Lycopodium

Warm poultices aggravate the pains. Boils returning periodically. Carbuncles, with burning, stitching pains, and alternating chilliness and heat of the body.

Rhus toxicodendron

Burning and itching around carbuncles, with vertigo, as if about to fall. Stupor, with pale face, disfigured and convulsed, pointed nose, and bloody or serous, frothy diarrhea.

Stramonium

Pains so severe as to drive the patient to distraction.

Tarentula cubensis

Anthrax, especially on back of neck, with burning, excruciating pain, banishing sleep, and great prostration.

Baehr wrote that *Secale cornutum* is too little thought of in anthrax, and may be given if cerebral phenomenon set in early in the disease, especially after *Arsenicum album* or *Phosphorus*. *Malandrinum* has also been recommended for blackish diarrhea, pain in the back and limbs, and pustules similar to a vaccination gone bad. [R. Straube]

Jahr claimed that the best all-around remedy for anthrax is *Arsenicum album*, but that *China*, *Rhus tox.*, *Silica*, and *Pulsatilla* may be indicated for certain cases. In his experience, malignant pustule generally yields to

- 1) *Arsenicum album*, *Belladonna*, *Silica*, or *Rhus tox.*; or
- 2) *China*, *Hyoscyaminum*, *Muriatic. acid.*, *Secale*, or *Sepia*; or
- 3) *Anthracinum*, *Apis*, *Carbo veg.*, *Kreosotum*, or *Lachesis*.

J. H. Allen, of Hering College in Chicago, said that the diagnosis of anthrax is easy, given the initial lesion and the malignancy and rapid development of symptoms in the following order:

Slight itching and smarting at the point of inoculation.

In 24 hours the part becomes red, inflamed, and angry looking, in the center of which develops a large vesicle or bleb filled with a clear serum.

Contents of the vesicle soon become purulent and bloody, and ruptures, revealing a dark, gangrenous ulceration.

The neighboring glands and lymphatics become affected, and the gangrenous area enlarges, with sloughing.

General infection of the whole system follows, accompanied by rigors, vomiting, great prostration, rapid pulse, profuse perspiration, and often diarrhea, with the patient rapidly sinking into a typhoid state, with sudden collapse.

In *Diseases and Therapeutics of the Skin*, he regarded the prognosis as grave, although many cases recover under homeopathic treatment. His list of remedies included:

Anthracinum

Arsenicum

Carbolic. acid.

Rhus tox.

Tarantula cubensis.

Apis

Carbo veg.

Lac caninum

Pyrogenium

As his description makes clear, even cutaneous anthrax can lead to sepsis and death, and carries at least a 20% mortality without treatment. This risk can be cut almost to zero with prompt antibiotic treatment.

Scolopendra.

Other remedies for malignant pustule are found in J. H. Clarke's *Clinical Repertory*, which recommends the usual *Anthracinum*, *Arsenicum*, and *Lachesis*, but also *Belladonna*, *Bufo*, and *Scolopendra*, the centipede, which is described as follows in Clarke's *Dictionary of Practical Materia Medica*:

Convulsions and malignant pustule. The effects of centipede bites include swelling, pain, inflammation and gangrene of the bitten part, with appearance at times like malignant pustule. Vomiting and precordial anxiety. In one fatal case, paroxysms of vomiting increased in intensity until the child convulsed and ceased to breathe. *No perspiration of the right arm for 3 months.* Sudden onset, complaints grew rapidly worse: one child, a girl of four, died in 8 hours. Large red spot on the skin, becoming black, forming an eschar as large as a 5-franc piece in the center of it, resembling a malignant pustule, and associated with swelling of the lymph glands. Violent itching, followed by intense pain in the bitten part.

Under *Scolopendra*, Boericke mentions terrible pains in the back and loins, extending down the limbs, and returning periodically, from head to toes. Angina pectoris. Inflammation, pain, and gangrene. Pustules and abscesses.

HOMEOPATHY IN CRISIS INTERVENTION

Submitted to the Committee Hearing on Governmental Reform

Joyce Frye DO, MBA.

November 14, 2001

In 1911 the Belgian physician Van den Berghe described successful treatment of anthrax-infected cattle with *Anthracinum*. Veterinary colleagues following his advice reported cures within 24 hours using *Anthracinum* 30C.

-- Van den Berghe S., "Anthracinum in Splenic Fever," *British Homeopathic Journal* 1911:460-465.

In October, 2001, Reuters reported a recommendation by Dr. B. Gangapadhyay of Orissa Homeopathic College from the *Times of India*: "*Anthracinum* works like magic. If a person takes a dose for two days in succession, he will be immune from anthrax for at least three months."

-- Reuters. www.indiatimes.com/2001: Internet Communication

According to sources in the homeopathic pharmaceutical industry, sales of *Anthracinum* have multiplied since September 18, in spite of disclaimers in their labeling that there is no current data to support this use.

Tarentula cubensis.

Van den Berghe used mainly *Anthracinum*, *Arsenicum album*, and *Lachesis* for cutaneous anthrax. Burt also mentions the Cuban spider, *Tarentula cubensis*:

Don M. B., 72, good constitution, called me to treat him for an abscess in the back of his neck, whose burning, excruciating pain had completely banished sleep for six or seven nights. There was fever, with great thirst and prostration. On examination, I found a regular anthrax, with all the accompanying symptoms. Gave *Tarentula cub.*, one dose q 2 hours. After the second dose the pain was greatly relieved, the patient was able to sleep through the whole night, and recovered without using any other remedy, except for *Silica* to aid cicatrization.

Doña A. R., 51, past the climacteric, thin, spare body, delicate constitution, had anthrax in the interscapular region, with severe burning pain, unable to sleep from it. *Tarentula cub.* for a few days made a complete cure.

Doña F. L. de B., 84, delicate constitution, had a large anthrax in the back of the neck, which was first treated with local applications by physicians of the old school for two weeks, then incised and drained, and chloral hydrate and morphine were given to relieve the burning, agonizing pain, all to no effect. The patient grew worse daily. On examination, I discovered that the whole mass of muscle and connective tissues were destroyed from neck to waist, and from shoulder to shoulder, leaving a cavity 6 inches long and 4 inches wide, at the bottom of which several dorsal vertebrae were plainly visible. There was also infiltration of surrounding tissues, and the patient had quotidian fever and diarrhea. After the 4th dose of *Tarentula cub.*, the pain was completely relieved. On the third day a line of demarcation was formed, and two days later the surrounding mortified tissues sloughed off. With continuing doses of this remedy and *Silica* occasionally, the patient was entirely cured within seven weeks from my first call.

-- Burt, W. H., *Physiological Materia Medica*, 4th ed., Gross & Delbridge, Chicago:1888.

Inhalation anthrax

There is very little literature or historical information regarding this illness, apart from a newly discovered series of Kent's lectures from 1894-1902, including material on *Anthracinum*, which suggested that it could be used for the disease, and that *Arsenicum album* might also be a good choice:

Blood black, thick, like tar, and decomposing rapidly. Ecchymoses, and blood oozing from mouth and sexual organs. Hemorrhagic exudations, very acute: the condition develops with extreme rapidity and suddenness, so that the case must be seen early, or nothing can be done. It hasn't a very extensive use, yet stands alone in this particular application. Repeated rigors, with burning, gangrene of the lungs, and expectoration putrid or watery, like bloody water. Pleurisy that starts benignly but fails to yield to proper remedies. Bloody serum in the pleural cavity, with great prostration and sinking of strength. You can see how closely related it is to *Arsenicum album*: rapid, gangrenous progression, as if the whole body would turn into gangrene.

-- Kent, J. T., Unpublished *Materia Medica*, 2001

In the current outbreak of anthrax [November, 2001], the common or pathognomonic symptoms as reported by news media and the CDC are insufficient to determine the *genus epidemicus*, but several descriptions of hemorrhagic shock suggest the use of remedies such as *Phosphorus*, *Crotalus horridus*, *China*, and *Carbo vegetabilis*. Homeopathy should be considered as early as possible, and may be lifesaving even in advanced cases when conventional medicine has nothing to offer beyond supportive care.

-- HYPERLINK <http://www.homeopathic.org>

Barbara Brewitt, Ph. D., has developed a recombinant, quasi-homeopathic remedy called Granulocyte Macrophage Colony Stimulating Factor, or GM-CSF. She claims that it may be complementary to *Anthracinum* at the first sign of a fever in those exposed to anthrax spores by inhalation. Her patented product, an unofficial homeopathic drug, purportedly stimulates macrophages, the cells of the reticuloendothelial system, and is said to alleviate flu-like symptoms, e.g., nausea, vomiting, diarrhea, fever, and headaches. I take the liberty of passing on this information, without making any endorsement of its safety or efficacy.

-- HYPERLINK <http://www.biomedcomm.com>

First Aid

If aerosolized spores are inhaled into the lungs following an attack, or are introduced into food or absorbed into the skin, homeopathy should be considered for first aid where insufficient antibiotics and doctors are available. A good start is simply washing hands and exposed parts with soap and water, which kills any spores on the skin, clothes, and bedding.

Antibiotics given at the time of exposure have been shown to weaken immune responses to anthrax, but are still officially recommended at the first sign of fever following a documented attack.

-- JAMA HYPERLINK <http://jama.ama-assn.org/issues/v287n17>, 2002

This is the best full text article, with lots of references. Of course it also downplays problems with the anthrax vaccine, as reported by Dr. Nass in

HYPERLINK <http://www.mercola.com>.

Homeopathic first aid also poses problems about labeling. The FDA approves homeopathic remedies for treatment of illness but not for prophylaxis, or in lieu of vaccines. If they are available, homeopathic remedies for inhalation anthrax could be added to conventional measures. *Anthracinum* 30 or 200 could be plussed in water and given frequently, since in fatal cases death is likely within 48 hours. This would be a prescription use of the nosode, and would have to be given under the supervision of a licensed M. D. In such emergencies it might also be wise to add *Arsenicum album*, *Crotalus horridus*, and *Pyrogenium*. These could also be used as an adjunct to antibiotics in the hospital, if available it in their Formulary, or if the family brings it with them.

In the event of a massive outbreak, with the hospital system overloaded, it makes sense to prepare a special Homeopathic First Aid kit containing at least the following:

<i>Anthracinum</i>	<i>Apis</i>
<i>Arsenicum album</i>	<i>Carbo veg.</i>
<i>Crotalus horridus</i>	<i>Lachesis</i>
<i>Pyrogenium</i>	<i>Staphylococcinum</i>
<i>Stramonium</i>	<i>Tarentula cubensis</i>
<i>Zincum</i>	

Echinacea tincture [cited in Boericke, gtts. 1-10 q 2 hours].

Tyler's *Pointers to the Common Remedies* lists *Zincum* for convulsions during acute, infective fevers, with restless feet, and body jerking during sleep.

For prophylaxis, I suggest *Anthracinum* 30C or 200C b.i.d. under the tongue, or in a water bottle. Wash hands with soap and water to inactivate spores. A surgical face mask might help to protect against spores in the air, in which case it should be burned when it is no longer necessary. Let's hope we never have to use these things.

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HYPERLINK <http://www.biomedcomm.com>

More on Anthrax
Mitchell Fleisher, M. D.

On Signs and Symptoms.

(a) *Cutaneous form*: Spores inoculated subcutaneously, incubate and germinate in 1 to 3 days. Lesion begins as itching papule, which enlarges, forms vesicle or "malignant pustule" containing serosanguineous fluid, with edema of surrounding tissue and enlargement of regional lymph nodes. Vesicle dries to form thick, black eschar ringed by other bullae. In endemic areas patients may exhibit few systemic symptoms and only slight edema, but in susceptible individuals high fever, toxemia, and potentially fatal septicemia may develop.

(b) *Gastric form*: When infected meat is eaten, ulcers develop in throat, surrounded by edematous tissue, which can progress to a severe, potentially fatal gastroenteritis.

(c) *Inhaled form*: Inhalation is comparatively rare in humans apart from those working with animal hides and dander, but is most dangerous form and also principal route of anthrax used as bioweapon. Inhalation can lead to acute laryngitis or virulent hemorrhagic bronchopneumonia, "wool-sorter's disease," which carries very high mortality.

(d) Occasionally anthrax may present as *meningitis*.

Diagnosis.

Bacillus anthracis can be positively identified in

- 1) smear from edge of skin lesion (cutaneous form),
- 2) stool swab (gastric form)),
- 3) laryngeal smear (inhaled form),
- 4) sputum smear (inhaled form), or
- 5) smear of cerebrospinal fluid (meningitis form).

Internet Resources.

<http://www.bt.cdc.gov/Agent/Anthrax/Anthrax.asp>
http://www.cdc.gov/ncidod/dbmd/diseaseinfo/anthrax_g.htm
<http://www.nlm.nih.gov/medlineplus/anthrax.html>
<http://www.bact.wisc.edu/Bact330/lectureanthrax>
<http://www.hopkins-biodefense.org/pages/agents/agentanthrax.html>
<http://www.aomc.org/ComDiseases/Anthrax.html>
<http://www.aphis.usda.gov/oa/pubs/anthrax.html>
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Postscript.

Richard Moskowitz, M. D.

Anthrax is primarily a disease of herbivores such as sheep and cattle, and in nature occurs most often in the cutaneous form, from direct contact with spores in wool or hides. After a short incubation period, it begins as a "malignant pustule" or boil that promptly turns black or necrotic: hence the name "anthrax," which simply means "coal-black," like anthracite. *This tendency to produce gangrene or necrosis is characteristic of the disease in all its forms.* In susceptible individuals, the disease can progress into a sepsis or blood infection, again with local or more generalized tissue destruction and hemorrhagic phenomena.

The spores may also be inhaled directly into the lungs, in which case the illness begins after an incubation period of up to 3 to 5 days with flu-like symptoms, but then rapidly evolves into a hemorrhagic pneumonia and septicemia known as "wool-sorter's disease," with a fatality rate of 50-80%, even with the best of treatment. In this aerosolized form it can also be used as a weapon, although *the disease is not contagious from patient to patient, so that each victim has to be targeted separately.* To infect large populations thus requires highly advanced scientific and

technical capabilities that might be acquired by a determined enemy with sufficient resources, but seems excessively elaborate, impractical, and expensive for most real-life situations.

Widely touted as the most effective antibiotic for the inhaled form, Cipro has been stock-piled by many hospitals and concerned individuals just in case, but the cheaper and even more potent Levaquin is actually preferred by many authorities. For large-scale prophylaxis during the incubation period, Doxycycline is probably the first-line drug of choice. But even when given IV in massive doses, no drug will act fast enough to stop the inhaled form consistently.

Currently required for members of the U. S. military, the one available vaccine has been linked with a whole spectrum of disabling chronic illnesses in veterans of the first Gulf War that have contributed significantly to the legendary if ill-defined complex of ailments familiarly known as "Gulf War syndrome." Despite systematic attempts by several Administrations to downplay these reports, hundreds of American military personnel have already been discharged in recent years for refusing to be vaccinated. In sworn Congressional testimony, one former Air Force Colonel, a highly-decorated pilot of many years' experience, has documented substandard conditions and practices in the laboratory preparing the vaccine, which hopefully will not be made more widely available any time soon.

Both the extreme rapidity with which pulmonary anthrax typically develops and its high fatality rate despite the best antibiotic treatment creates a unique and valuable niche for homeopathic prophylaxis and treatment at every stage of the disease. As described in Allen's *Materia Medica of the Nosodes*, the homeopathic remedy *Anthracinum* is prepared from the spleen of infected sheep and was introduced into homeopathy by the veterinarian Lux, a student and colleague of Hering, as early as 1830. It quickly proved its worth not only preventively but also for curing the disease in numerous outbreaks among livestock in the 19th century.

While I don't recommend using it for long-term prophylaxis in advance of an actual attack, it should prove very effective if given as soon as possible afterwards, since the incubation period is so short. In this situation, I'd suggest taking *Anthracinum* 30 twice daily for 3-4 days, and then 2 doses a week for 2 or 3 more weeks, or until the emergency subsides, whichever comes first. If it is not generally available for this application on an over-the-counter basis, it should at least be liberally provided to licensed homeopathic physicians and health professionals and dispensed under their supervision.

For the treatment of frank pulmonary or septic anthrax, intensive antibiotic treatment will clearly be needed, but its extremely high mortality rate makes it imperative to offer homeopathic remedies adjunctively as well. In the early flu-like stage, typhoid remedies like *Bryonia*, *Baptisia*, and *Rhus tox.* are apt to prove useful, while in the advanced or septicemic phase some of the remedies most often cited by Vermeulen and others include *Arsenicum alb.*, *Arsenicum iod.*, *Carbo veg.*, *Carbolic. acid.*, *Crotalus horridus*, *Echinacea*, *Lachesis*, *Mercurius*, *Phosphorus*, *Pyrogenium*, *Secale*, *Silica*, and *Sulphur*. To these I would add *Scolopendra* and *Tarentula cubensis*, based on Dr. Wilson's research, as well as *Vipera*, which is replete with blackish discolorations and gangrenous phenomena, adding the obvious caveat that other remedies are certain to be needed in individual cases.

As with most epidemic diseases, the *genus epidemicus* or specific remedy corresponding to the majority of cases for that outbreak will need to be ascertained once 20 or so individuals have been treated successfully, after which it could be given out on a large scale to people nearby who are in imminent danger of exposure, as well as to others already exposed but not yet sick, and to those with early or incipient cases. Unfortunately, this tried-and-true method will be of limited value with anthrax, which attacks most of its victims more or less simultaneously, apart from a brief warning period for those living downwind of the attack, and those who weeks or months later come into contact with anthrax spores which have fallen on or in proximity to the skin and clothing.

Because the spores remain thermostable for long periods of time and thus capable of re-aerosolizing and being inhaled hours or days later, simple first-aid measures such as scrubbing of clothes, bedding, and exposed skin with soap and water and disinfection of contaminated surfaces with solvents are imperative. Further research will also hopefully determine the conditions under which spores germinate in the lungs, and thereby lead to safe and effective methods of forestalling or at least inhibiting that process.

Selected Rubrics for Anthrax, from *Complete Repertory* (abridged).

ERUPTIONS, Carbuncle:

ant. t., *anthr.*, *apis*, *arn.*, **Ars.**, **Bell.**, both., bry., *bufo*, *canth.*, *carb. ac.*, carb. v., *chin.*, *crot. c.*, *crot. h.*, *echin.*, *hep.*, *hippoz.*, *hyos.*, iod., kali c., kali i., *lach.*, *led.*, **Lyc.**, *ph. ac.*, phos., phyt., *pyrog.*, *rhus t.*, *sang.*, *scol.*, *sec.*, **Sil.**, *sulph.*, *tarent.*, *tarent. c.*

GANGRENE, Lungs:

arn., **Ars.**, *bufo*, caps., *carb. ac.*, *carb. an.*, carb. v., *chin.*, *crot. h.*, dulc., *hep.*, **Kreos.**, *lach.*, lyc., lyss., osm., *phos.*, *plb.*, *sec.*, sil., sul. ac., *tarent.*, tereb.

SEPTICEMIA:

ail., ant. t., *anthr.*, *apis*, *arn.*, **Ars.**, ars. i., *bapt.*, bell., bry., *carb. ac.*, **Carb. v.**, *cenchr.*, *chin.*, *chin. ars.*, *chin. s.*, *crot. c.*, **Crot. h.**, *echi.*, elaps, gunp., *hep.*, *hippoz.*, iod., *ip.*, *kali c.*, *kali p.*, **Lach.**, lyc., *merc.*, *naja*, *nat. m.*, *nit. ac.*, *ph. ac.*, *phos.*, *puls.*, **Pyrog.**, *rhus t.*, *sal. ac.*, *sec.*, sep. sil., *sulph.*, sul. ac., *tarent.*, *tarent. c.*, *ter.*, *verat.*, *verat. v.*, *vip.*, zinc.

Anthracinum.

Spleen of sheep infected with anthrax. Nosode. "*Anthrax*," a Greek word meaning "coal [*cf. anthracite*]."

Anthrax is an infectious, often fatal disease caused by infection with *Bacillus anthracis*, especially in cattle, and in humans who come into contact with cattle or products infected with it, through infection via the skin, "malignant pustule," or via the lungs, from inhalation of spores. When infected meat is consumed, an intestinal form is also possible.

The clinical picture is mainly determined by its tendency to produce sepsis, with serious and often fatal consequences. The disease is marked by hemorrhages and serous effusions in

various organs and body cavities, and by symptoms of extreme prostration. Anthrax spores may continue to be infectious for years, even in articles made from infected animal products.

Anthrax is used in biological warfare. In 1979 an outbreak in Sverdlovsk was attributed to an accident at a Soviet germ-warfare factory. Over 1000 people were reported to have died from it. The Russians claimed that the epidemic was caused by infected meat.

Compare:

Arsenicum, Lachesis, Sulphur, Mercurius, Silica, Crotalus horr., Pyrogenium, Arsenicum iod., Echinacea, Secale.

-- Vermeulen, *Synoptic Materia Medica*, Volume 2 (excerpts)
(from *Reference Works*)

The alcoholic extract of the anthrax poison prepared from the spleen of infected cattle. A nosode rejected by the old school and the majority of the new, despite being a remedy which has proved of the utmost use in practice. It has not yet been proved, but the frequent use made of it and the verification of its symptoms by some of our best practitioners justifies its acceptance.

The first preparation was made according to Hering's directions [Staph's *Archives*, 1830] by Dr. G. A. Weber and applied with the most astonishing success in the cattle plague. He cured every case with it, and also cured men poisoned by the contagion. In 1842 France sustained a loss of over 7,000,000 Francs, and a small district in Germany lost 60,000 thalers yearly from the cattle plague. In 1785, 100,000 horses died of it in Siberia; in 1800 one small district alone lost 27,000 horses. The experience of many practitioners since suggests that radiant heat, proposed by Hering and Pasteur, combined with the nosode *Anthracinum*, may suffice to cure every case.

-- Allen, *Materia Medica of the Nosodes* (excerpts)
(from *Reference Works*)

In carbuncle, malignant ulcer, and complaints with ulceration, sloughing, and intolerable burning.

When *Arsenicum* or the indicated remedy fails to relieve the burning pain of carbuncles or malignant ulceration.

Hemorrhages: blood oozes from mouth, nose, anus, or genitals; blood black, thick, tarry, decomposes rapidly. [*Crot. horr.*]

Septic fever, rapid loss of strength, sinking pulse, delirium, fainting. [*Pyrogen.*]

Gangrenous ulcers: felon, carbuncle, erysipelas of malignant type.

Felon: the worst cases, with sloughing and terrible burning pain. [*Ars., Carb. ac., Lach.*]

Malignant pustule: black or blue blisters, often fatal in 24-48 hrs. [*Lach., Pyrogen.*]

Carbuncle, with horrible burning pains, discharging ichorous, offensive pus.

Dissecting wounds, especially with gangrenous tendency; septic fever, with marked prostration. [*Ars., Pyrogen.*]

Septic inflammation from absorption of pus, with burning pain and great prostration. [*Ars., Pyrogen.*]

Similar to: *Ars.*, *Carb. ac.*, *Lach.*, *Pyrogen.*, *Sec.*, in malignant and septic conditions.
Compare: *Euphorb.* in the terrible pains of cancer, carbuncle, or erysipelas when *Ars.* and *Anthr.* fail to relieve.

-- Allen, *Keynotes of Leading Remedies*
(from *Reference Works*)

Crotalus horridus.

Affects blood, heart, liver, produces profound shock with deathly sickness, trembling, and prostration. Sleeps into his symptoms.

Carbuncles, malignant scarlatina, yellow fever, the plague, cholera. Bloody pus, sweat. *Low septic states.* General disorganization of the blood: hemorrhages and jaundice. *Hemorrhages from every part of the body.* Hemorrhages slow, with oozing of dark, thin blood from all orifices and surfaces, especially the pharynx.

Tissues rapidly decompose, producing putrid and malignant conditions. Dark or bluish parts. *Septic conditions, bubonic plague, gangrene, petechiae.*

-- Robin Murphy, *Lotus Materia Medica*
(from *Reference Works*)

Lachesis.

Like all snake poisons, *Lach.* decomposes the blood, renders it more fluid: hence a hemorrhagic tendency is marked. *Purpura, septic states, diphtheria, and other low forms of disease, when the system is thoroughly poisoned and the prostration is profound. Malignant or septic states: gangrene, diabetic, carbuncle, erysipelas.* Bubonic plague. Suppuration, especially in internal parts; bluish discoloration.

-- Vermeulen, *Concordant Materia Medica*
(from *Reference Works*)

Tarentula cubensis.

Useful in septic conditions, when progress is rapid, with alarming prostration, atrocious burning or sharp, stinging pains. A remedy for the pain of death, soothes the last agony. Intermittent septic chills. Bubonic plague, malignant suppuration. Purplish hue and burning, stinging pains. Carbuncle, felon, bluish abscesses, gangrene.

Compare:

Anthr., *Ars.*, *Bell.*, *Crot. h.*, *Echin.*, *Lach.*, *Sil.*

-- Robin Murphy, *Lotus Materia Medica*
(from *Reference Works*)

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SMALLPOX

Foreword

Richard Moskowitz, M. D.

Of the five main biological warfare agents known, smallpox stands alone in two important respects. First, it is by far the best known, with a long and notorious history in Western culture, having played an important role in the Spanish conquest of Mexico, and even been deliberately used as a bioweapon in the form of infected blankets traded by American settlers to decimate the native tribes whose lands they coveted. Like other such weapons, it turned back on the attackers with impersonal savagery, generating deadly epidemics in Europe, the United States, and all over the world, such that it became one of the most dreaded scourges of mankind, while its distant cousin cowpox or vaccinia provided the first effective vaccine and also lent its name to the general concept of "vaccination," which has since become indispensable to modern medicine in its epic warfare against infectious diseases of every kind.

Second, while quite contagious and thus capable of propagating itself to large populations far away from the initial target area, it is considerably less so than plague, and has a much longer incubation period, like measles or chickenpox, which gives more time for effective preventive and treatment strategies to be deployed. The absence of any effective antiviral treatment, the familiar hazards of the cowpox vaccine, and the long, consistently successful track record of homeopathic medicines for prophylaxis and treatment at every stage of the illness all conspire to make this monograph by far the longest and most detailed of the five.

In preparing it, I was greatly assisted by Mitch Fleisher, whom I asked to study smallpox for this report, and also by Nancy Herrick and Roger Morrison, who had already done so on their own initiative at the time of the anthrax attacks in 2001 and graciously provided the fruits of their work. To avoid unnecessary duplication, I have made a concordance amalgamating features of both reports. I conclude with an article by Dr. Eaton in the *AIH Transactions* of 1907, which when taken together with the ensuing discussion, is if anything even more pertinent today, and some timely reflections by Larry Brilliant, M. D., formerly of the WHO.

Smallpox

Mitchell Fleisher, M.D.,

Roger Morrison, M. D., and Nancy Herrick, P. A.

Introduction.

Since homeopathic medicine has proved itself convincingly effective in both prevention and treatment of epidemic diseases in the past, it is imperative for all homeopathic physicians to share our experience with the public and offer our services in this time of national and global emergency.

Smallpox is highly contagious. One infected person could disseminate it from family to city in as little as two months. The virus spreads by contact, either from typical vesicles and pustules on the skin or via nasal and respiratory secretions from infected individuals. Patient-to-

patient transmission gives it a much wider range as a bioweapon than anthrax, but also provides a much longer warning period for preventive measures to take effect.

Incubation period.

It takes 7 to 17 days for the virus to incubate in a potential host before symptoms appear, which is still too soon for a vaccine, even if available, to be effective. Some degree of lymphadenopathy with liver and/or spleen enlargement may occur during that time.

Febrile period.

The illness begins with high fever (102-106°F.), headache, muscle aches, abdominal pain, and vomiting, a prodrome which lasts 3 or 4 days and then subsides. With fever, patients usually experience intense, persistent pain or bruised soreness in the back and loins. In children, vomiting, coma and convulsions may precede and accompany the fever. In any case, this prodromal fever sickness is generally intense, with frequent vomiting and digestive symptoms quite likely to continue for at least 48 hours. Other common complaints are chills, abdominal pain, headache with a sensation of "swimming," cough, lassitude, and photophobia. The tongue may be thickly-furred and coated white, with deep flushing of the face. The sensorium is clouded with stupor more often than delirium, except in milder forms. In worse cases, convulsions may occur, perhaps alternating with coma, and continue for up to 24 to 36 hours.

Persistent vomiting will readily distinguish the illness from other fevers. The skin is not as hot or dry as in scarlet fever, while vomiting with stupor or convulsions will rule out typhoid fever, in which there may be prolonged vomiting, but neither coma nor convulsions are likely to develop so rapidly.

Eruptive period.

After the fever subsides, the patient may feel quite well for a few days. Then on or about the third day, the characteristic eruption appears, first as ulcers in the oropharyngeal and nasal mucosae, and then as small papules or raised pocks with a hard, shotty feel on the forehead, face and forearms, which soon become shallow, gray ulcers and spread over the whole body and down the legs in about 24 hours, reaching full maturation in 2 or 3 days. At first these papules are slightly red and elevated, quite minute, and easily overlooked in a hasty examination, but feel distinctly irregular to the finger as it passes over them.

After 3 days they begin to form vesicles, a transformation which is completed by the 5th day or so. At first they are umbilicated, i. e., rounded with a puckered top, a diagnostic sign, and contain clear fluid. During this stage the temperature, pulse, and respiration are still normal, and the patient remains comfortable. On about the 6th day, the vesicles become yellow and pustular in roughly the same order as the original appearance of the rash, and rounded up, such that the top is no longer umbilicated, while the skin adjacent to them becomes red and swollen, such that the eyelids, facial features, and hands may be all but obliterated. With pustulation, the fever returns, reaching 103°F. or higher, and the patient may become delirious, as eruptions appear on the oro- and nasopharyngeal mucosa as well, and a peculiar, disagreeable odor emanates from the patient.

In *The Common Diseases of Children*, Ruddock distinguishes two kinds of skin eruption, both of which were prevalent in his time:

1) *The distinct type*, where the pustules are separate and well defined.

2) *The confluent type*, where they are densely packed, run into each other, and form large suppurating surfaces. In this scenario, all symptoms are aggravated, lymph nodes are affected, the limbs swell, mucous membranes are densely packed with lesions, and there is real danger of suffocation, putrescence, and delirium. The disease is most infectious when pustules coalesce and their peculiar odor is strongest. Once a patient recovers, recurrence is rare.

In the worst cases, skin and mucosal lesions become confluent and hemorrhagic. Invasion of the throat by pocks is an ominous symptom, which can result in asphyxia. In milder cases, the pustules begin to dry up in a day or so, and the general symptoms subside. The eruption phase usually lasts about 2 weeks, followed by desiccation and desquamation for another 2 to 4 weeks, during which the pustules break, form crusts, dry up, and disappear, sometimes with intense itching. The skin remains mottled for a time, but gradually smoothes out unless the eruption has extended into the corium, in which case the pocks become pitted and leave permanent scars.

The more numerous and confluent the pustules, the greater the risk, while pustules that mature perfectly by the 4th day are the least dangerous. In confluent cases, the risk of serious chest symptoms, abscesses, and corneal ulceration and opacity are at their highest. *Fever is most dangerous from the 9th through the 12th day of the eruption, by which time the strength is at its lowest: half of the deaths occur between the 7th and 11th day.* Other bad prognostic signs include lack of perspiration, oliguria, hematuria, severe hoarseness, delirium, and convulsions. Infants are at higher risk, but children between 7 and 14 rarely die. Small, dark, poorly-ventilated homes, malnutrition, and inadequate hygiene all pose major hazards.

Patients remain contagious for about 4 weeks, from before the eruption appears until all the lesions heal and scabs fall off. Nasal secretions, clothing, bedclothes carry the virus for up to 3 months, and must be disinfected or destroyed, i. e., burned, baked, or boiled for at least 30 min. at 212°F.

Made from vaccinia, the related cowpox virus, the smallpox vaccine is considered almost 100% effective, but the U. S. vaccine last given in 1971 has expired, and doses already given will no longer adequately protect those exposed to the disease from now on. Although vaccination rarely has serious consequences, it may produce a mild pox-type illness, as well as more chronic afflictions in some patients, so that its large-scale use has been deferred until the disease actually reappears. With only 15 million doses currently available, homeopathic prophylaxis could be a valuable substitute to the general population if a major epidemic were to begin today.

Homeopathic Prophylaxis.

The homeopathic nosodes *Variolinum*, made from a smallpox pustule, and *Malandrinum*, derived from "grease" or "farcy," a similar disease of horses, have both proved highly protective against smallpox epidemics in the past. The collective experience of generations of homeopaths

in the pre-vaccine era provides ample documentation that smallpox can be effectively prevented or mitigated if either of these remedies is given at the time of exposure or early in the incubation period.

Variolinum

G. H. G. Jahr, an experienced homeopath who treated a great many cases around the mid-1800's, prescribed *Variolinum* at the onset of the disease, and found that its course

is generally abbreviated by it more effectively than by any other agent, with the added benefit that complications do not occur or soon disappear with continued use of this drug.

In his popular book, *The Prescriber*, J. H. Clarke adds:

Variolinum 6C to 200C may be given once or twice daily as prophylactic to those who are brought within range of the infection.

Fellger reported giving *Variolinum* to several hundred people, none of whom were ever attacked with smallpox, and goes a step further:

I have also used it and seen it used in many and even in severe cases. When treated with *Variolinum* 200C, the disease is shortened nearly by half, suffering is much mitigated, secondary fever is absent or much lighter, pustules do not burst but wither or wilt and fall off, the stage of suppuration is hastened and shortened, and patients are not marked with permanent scarring.

Malandrinum

For confluent or complicated cases, i. e.,

Where the skin has an unnatural color between pustules, and the smallpox lesions become confluent, which is always serious; or when the eyeball becomes congested and red, which is a danger signal,

Fellger used *Malandrinum* with equally notable success.

Recommended schedule.

Although many dosages have been recommended in the past, and probably any schedule will be of some benefit, the Committee recommends either of two strategies, based on careful thought and study:

With no reported cases in your area, take nothing. If properly stored, remedies can maintain their effectiveness for many years or even decades. Keep them dry, in a dark place, and protected from light and heat, sources of electrical power, or any material with a strong aroma or fragrance.

With documented cases in your region or state, take Variolinum 30C in either of the following ways:

*Once a day for 5 days, followed by
Variolinum 200C, one dose, one month later, and
Variolinum 1M, one dose, one month after that; OR*

One dose every other day for a total of 5 doses.

In either case, the recommended dose is 2 or 3 of the larger pellets, or perhaps 5 or 10 of the smallest granules, dissolved on the tongue. As always, the mouth should be free of all food, drink, toothpaste, mouthwash, etc., for at least 20 minutes before or after each dose. Any-one developing flu-like symptoms should not take any further doses, which will only tend to intensify the reaction while adding no extra protection. Many others will be protected with no reaction at all or at most a slight one from the remedy.

After definite contact with a known case of smallpox, the schedule should be changed to twice a day for three days.

The following smaller-dose options were recommended for people with across-the-board hypersensitivity to all homeopathic remedies:

- a) One pellet of *Variolinum* 30C by mouth, once a week for 3 weeks or until reaction occurs, then stop.
- b) One pellet of *Variolinum* 6C by mouth every 3 days for 5 doses or until reaction occurs, then stop.
- c) One pellet of *Variolinum* 6C dissolved in 4 ounces of water and stirred for 30 seconds. One teaspoon by mouth, discard the rest, and repeat once a week for up to 3 weeks or until reaction occurs, then stop.
- d) One pellet of *Variolinum* 6C dissolved in 4 ounces of water and stirred for 30 seconds. One inhalation of the aroma when the glass is placed under the nose, discard the rest, and repeating once a week for up to 3 weeks, or until reaction occurs, then stop. This technique should work and be safe for even the most exquisitely sensitive patients.

The pellets should not be handled before giving them to others, since sensitive patients can receive a dose directly through contact with the skin. 2 or 3 pellets should be poured into the cap and then introduced directly into the mouth or the glass of water for dissolving.

With documented cases in your home city, town, or local area, it may be prudent to get the vaccine if it is available. Various side-effects may then be treated with appropriate homeopathic remedies if necessary. Most will pass in 3 to 4 days, but for unusually strong reactions, a visit to the doctor or hospital is warranted.

Malandrinum 30C may be substituted for Variolinum 30C more or less interchangeably in any of these dosage regimes.

Homeopathic Treatment of Smallpox.

For home care of patients with smallpox, 19th-century homeopaths recommended the following treatments. While some of them sound archaic today, their vast pooled experience has inestimable value alongside our purely theoretical knowledge at present, when no living colleague has ever treated a case of smallpox.

General Hygiene.

Patients should be cared for in a room with moderate light, preferably separate from everyone else, which can be ventilated to provide ample fresh air continuously. Curtains, carpets, and all unnecessary furniture should be removed, and carbolic acid [phenol] should be used liberally as disinfectant. Tepid sponge baths relieve heat and restlessness, quiet delirium, lower the pulse, and promote sleep. Wet cloths applied to the throat, fastened at back of neck and top of head to protect the submandibular glands, seldom fail to comfort. Steam inhalation is useful when the throat is sore. When recovering, warm clothing such as flannel is necessary, and afterward a change of air is advisable, to the seaside if possible. The patient must not go out too early, lest secondary symptoms recur.

Diet.

During the fever, milk and soda water, gruel, dry toast, simple biscuits, egg yolks beaten with cold milk, grapes, oranges, cooked fruit, etc., should be the staple diet. Drink may consist of cold water, barley water, weak lemonade, and the like, in small quantities as often as desired. As fever abates, a milk-based diet may be given, gradually returning to solid food. Strong drinks are rarely necessary, except in malignant cases, where wine, brandy, extract of beef, beef tea, etc., may be administered in frequent small doses under medical supervision. The patient's position in bed should be changed frequently to avoid bedsores. In 1873 the Austrian Government named Dr. Roth to treat an outbreak of smallpox, for which he gave everyone exposed two tablespoons of vinegar per day, apparently with excellent results.

Local Treatment

When the eruption appears in force, the whole surface should be smeared with olive oil, cream, cold cream, or glycerin and water 1:2, 2 or 3 times daily. As pimples ripen into pustules, but before they break open, the skin may be sponged with equal parts of glycerin and rose water, and dusted with a powder of *Ant. tart.* 1X and violet powder 1:8. The glycerin and rose water helps the powder to adhere, which minimizes pitting. The hands of children should be muffled to keep them from scratching, which easily leads to ulceration and scarring.

In children of both sexes, special attention should be directed to the urinary organs, which are vulnerable to serious complications. Vigilance is needed to minimize local irritation. When the skin becomes overheated or hypersensitive, great relief may be obtained by sponging with warm water and a few drops of phenol and then drying with a soft towel. Once pustules burst open, powdered starch or corn flour should be applied to absorb the matter. Cleanliness and frequent washing with tepid water are important, especially during the later stages. Eyelids glued together should be sponged regularly with warm water.

Smallpox Rubrics.

A Concordance from *Synthesis* and *Complete Repertory*

From Lilienthal,

VARIOLA, smallpox:

acon., am-c., anac., ant-c., *ant-t.*, *apis*, *ars.*, *bapt.*, *bell.*, *bry.*, camph., canth., carb-v., cham., chin., *cimic.*, coff., crot-h., dig., gels., *ham.*, *hep.*, *hydr.*, **Hydr-ac.**, hyos., ip., *merc.*, petr., *ph-ac.*, *phos.*, *rhus-t.*, *sarr.*, **Sil.**, sol-n., *sulph.*, *thuj.*, *variol.*, verat-v., zinc.

From *Synthesis* and *Complete Repertory*,

Mind; DELIRIUM, with smallpox: bell., stram., verat-v.

Mind; DREAMS, of smallpox marks on face: anac.

Mind; FEAR, general, of death, in smallpox: ph-ac.

Mind; FEAR, general, of smallpox: vaccin., variol.

Mind; MEMORY, weakness, loss of, after smallpox: anac.

Mind; SADNESS, despondency, in smallpox: chin-s.

Mind; UNCONSCIOUSNESS, coma, in smallpox: chlor., nat-m.

Mind; WORK, mental aversion to, in smallpox: variol.

Head; ERUPTIONS, pimples like smallpox all over, having shotty feeling under them: am-c.

Eyes; INFLAMMATION, with smallpox: merc., sulph.

Eyes; OPACITY, cornea, after smallpox: sil.

Hearing; IMPAIRED, after smallpox: merc., sulph.

Face; ERUPTIONS, pimples like smallpox, on chin: hydr.

Throat; SWALLOWING, difficult, in scarlatina or smallpox: rhus-t.

Rectum; DIARRHEA, general, with smallpox: ant-t., ars., **Chin.**, thuj.

Speech & Voice; VOICE, hoarseness, after smallpox: maland.

Chest; COMPLAINTS, with smallpox: acon., ant-t., bry., phos., sulph., verat-v.

Back; ERUPTIONS, pustules, like small-pox: ant-t., sil.

Sleep; SLEEPINESS, in smallpox: nat-m.

Sleep; SLEEPLESSNESS, general, in smallpox: sarr.

Fever, VARIOLA, eruptive:

acon., anac., ant-c., ant-t., arn., ars., bapt., bell., bry., carb-ac., chin-s., cimic., clem., cocc., crot-h., cupr-acet., gels., hep., hippoz., hydr., hyos., kali-bi., lach., merc., merc-i-r., mur-ac., nit-ac., op., ph-ac., phos., puls., rhus-t., sarr., sec., sil., sin-n., sulph., thuj., variol., verat-v.

Fever, VARIOLA, with complications, adenitis: merc-i-r., rhus-t.

Fever, VARIOLA, with complications, initial fever: acon., bapt., bell., gels., variol., verat-v.

Fever, VARIOLA, with complications, suppurative fever: acon., bell., merc., rhus-t.

Fever, VARIOLA, confluent: ars., hippoz., merc., phos., sulph., variol.

Fever, VARIOLA, discrete: ant-t., bapt., bell., gels., sulph.

Fever, VARIOLA, malignant:

am-c., ant-t., ars., bapt., carb-ac., crot-h., lach., mur-ac., ph-ac., phos., rhus-t., sec., sulph., variol.

SKIN; ERUPTIONS, smallpox:

ant-c., **ANT-T.**, anthr., *apis*, arg-n., *ars.*, *bapt.*, *bell.*, *bry.*, canth., *carb-ac.*, carb-v., caust., cham., *chin. s.*, clem., cocc., *crot-h.*, cund., cupr., cupr-acet., *ham.*, hyos., kali-i., *lach.*, *maland.*, **MERC.**, nat-m., nit-ac., *phos.*, puls., **RHUS-T.**, *sarr.*, sep., *sil.*, stram., *sulph.*, *thuj.*, *vaccin.*, *variol.*, *zinc.*

Skin; ERUPTIONS, black in smallpox:

ant-c., **Ars.**, bell., bry., hyos., lach., mur-ac., **Rhus-t.**, sec., sep., sil., spig.

Skin; ERUPTIONS, boils with smallpox: hep., phos., sulph.

Skin; ERUPTIONS, pustules like smallpox: kali-bi.

Generalities; COLLAPSE, in smallpox: *ars.*, carb-v., lach., mur-ac., ph-ac.

Generalities; CONVULSIONS, during smallpox: *thea.*

Generalities; CONVULSIONS, when smallpox fails to break out: **Ant-t.**

Generalities; DROPSY, with smallpox: *apis*, *ars.*, canth.

Generalities; SEPTICEMIA, blood poisoning, after smallpox vaccination: *maland.*, *sarr.*

Generalities; VACCINATION, after smallpox: *maland.*, *thuj.*, *variol.*

Homeopathic Therapeutics.

Once symptoms appear, the following remedies may be considered. The descriptions are taken mainly from Lilienthal's *Homeopathic Therapeutics*, with additions from various sources. As always, determining the *genus epidemicus* for each outbreak will be of crucial importance. At the first sign of symptoms, we recommend *Variolinum* 30C, followed an hour later by 200, and by 1M one hour after that. Thereafter the symptom picture must be allowed to develop to provide more definite indications. Since no living homeopath has had experience treating smallpox, we must rely on the experience of those from the past.

Materia Medica

Aconite

First stage and early part of second, with high fever, congestion of lungs, great restlessness, and apprehension of fatal outcome. The usual symptoms of *Aconite* should also be present: sudden onset, high fever, intense thirst for cold drinks, constricted pupils, etc. *Gels.* and *Bell.* are also useful in the earliest stages.

Ammonium carb.

Hemorrhagic tendency, from thin, watery blood and hemolysis, with gangrenous ulcerations and high-grade adynamia.

Antimonium crud.

Gastric symptoms, with vomiting and heavily-coated tongue, especially during prodromal stage. Smallpox associated with diarrhea.

Antimonium tartaricum

One of the most frequently recommended remedies, endorsed by Hughes, Tyler, Mathur, and Farrington. May be given as soon as smallpox is suspected, or at any stage, either alone or in alternation with any other remedy. *Where the eruption has not come out properly or been*

suppressed by conventional treatment. Great difficulty breathing, with face bluish-purple, drowsiness, and twitching. Tongue with thick, white coating, or with pocks in mouth or on tongue. Also for dry teasing cough at the start, and later for advanced pneumonia typical of *Antimonium tart.* Putrid variola with typhoid pneumonia, paralysis of lungs, and vomiting of viscid mucus, clogging the air passages.

Apis

Symptoms of the pocks are very intense: *erysipelatous redness and swelling, especially of the face, eyelids, and throat, with hoarseness and pain in swallowing;* may be alternated with *Bell.* Stinging, burning pains in skin and throat; thirstless, oliguric. At a later period or when eruption recedes, with severe dyspnea, as if he would not be able to breathe again. Marked restlessness. Chills followed by high fever, without perspiration.

Arsenicum album

Another of our commonest remedies, recommended by many authorities. Especially in asthenic cases, with great prostration and sinking of strength. Irregularly developed variola, with typhoid or hemorrhagic tendency. Also when pustules sink in and areolae grow livid, with metastasis to mouth and throat in last part of eruptive period. Gangrene with putrid odor, and diarrhea at any stage. With typical *Arsenicum* symptoms: severe chills with heat in face, anxiety and desire for company, restlessness, thirst for small sips, etc.

Baptisia

Typhoid tendency, with hemorrhagic diathesis and fetid breath. Pustules appear thickly on palate, tonsils, uvula, and in nasal cavities, but less so on skin. Profuse salivation, with great prostration and severe pain in sacral region. Nearly comatose, feels "as if scattered about" or "as if in pieces." After *Bapt.*, the patient regains appetite, and can take and retain nourishment.

Belladonna

During first stage, with high fever, cerebral congestion, and intense swelling of skin and mucosae. Stupor, delirium, and convulsions, with severe headache, ophthalmia, and photophobia. Tends to keep the eruption on the surface. Also during later phases, modifies itching of pustules and promotes desiccation. Dropsical swellings, closed eyes, and swollen throat, in alternation with *Apis.* Tickling cough, dysuria, bladder tenesmus, and insomnia, with desire to sleep. With typical *Belladonna* symptoms: rapid onset, high fever, hot face, cold hands and feet, dilated pupils, throbbing pains, bursting headache.

Bryonia

Prodromal stage with gastric symptoms, or later if chest symptoms indicate it. Eruption slow in developing. High fever with persistent nausea and vomiting. Generally warm, worse from motion, extremely thirsty, averse to being spoken to or disturbed in any way. Lung or bronchial congestion.

Camphora

Sudden collapse, with coldness of surface. Swollen skin becomes sunken, pustules dry up from complete giving out of the life force; excessive weakness. *Though cold, can't bear being covered.*

Cantharis

When urinary symptoms predominate, with hemorrhagic state, bloody urine, cutting and burning pains throughout the urinary and/or GI tract, constant thirst, yet disgust for all drinks. Pustules burn with the least touch.

Carbo veg.

Asthenic type, with cold breath, excessive prostration, great desire for fresh air or being fanned; livid purple or black appearance of the eruption, and hippocratic facies. Associated with gastric disorder and putrefaction.

Chamomilla

Great fretfulness of children during eruptive stage, with typical impatience and coldness. Fever at 9 a.m. or 9 p.m., with flushing and heat of one cheek. Avoids any touch of painful parts.

China

Hemorrhagic purple or black pustules, with great exhaustion from copious, painful stools, excessive debility, and prostration after severe attack. *One of the main remedies when diarrhea is a chief characteristic.*

Cimicifuga

In prodromal stage, for muscular and rheumatic pains. Also during eruptive fever, with wakefulness and mental excitement, as if the brain would burst out. Dull, heavy ache in the small of the back, relieved by rest and aggravated by motion, with excessive muscular soreness, prickling, itching, and heat of the whole surface, and white pustules erupting on face and neck. Modifies the disease by preventing pustulation, and reduces pitting.

Coffea

Restlessness and bilious vomiting in the prodrome, with nervousness, intolerable pains, and bilious vomiting.

Crotalus horridus

A leading remedy for septic cases. Bleeding tendency when rash fails to appear, with passive hemorrhage from many orifices, dry tongue coated yellow or dark-brown with red edges and tip, and low, muttering delirium with drowsiness. Urine dark and scanty, with insatiable thirst and coldness of surface, especially extremities, and tremulous weakness all over.

Digitalis

At the onset, for burning heat all over, with itching, extreme thirst, dry mouth, and painful constriction of throat. Red eyes and photophobia, with palpitations and severe headache extending down the legs.

Gelsemium

Predominance of nervous symptoms, especially nervous chills and restlessness. Intense, painful fever at the onset, with a tendency to convulsions. Heavy, drooping eyelids, with extreme weakness and trembling.

Hamamelis

Hemorrhagic variola, with dark, venous blood oozing from nose, bleeding gums, hematemesis, bloody stools, uterine hemorrhage, and petechiae. Tearing pains across the small of the back, with fullness of the joints of the legs. Typhoid pattern.

Hepar sulph.

Pustules become painful boils. Chills, aversion to drafts, and croupy cough with suppuration.

Hydrastis

One of the most frequently recommended remedies. Dark pustules, which are intensely itchy, swollen, and tingling. Face swollen, eyes almost shut, throat extremely sore. Oral cavity full of pustules, with offensive mouth odor. Important for secondary fever, with great prostration and faintness, pulse slow and labored, heart palpitations, intense aching in the small of the back, and legs very weak and achy. *Prevents pitting.*

Hydrocyanic. acid.

Severe cases, where the eruption turns livid from the start, with coldness inside and out, hot head, cold extremities, and rapid, feeble pulse. Coma and prostration, especially with diarrhea. Convulsions with cyanosis.

Hyoscyamus

Eruption fails to appear at the proper time, causing nervous excitement, with paroxysms of rage, anguish, and delirium. Wants to get out of bed and be uncovered, with hyperesthesia of the skin. Vesicles in crops, with restless sleep, fever, and dry, teasing cough, better from sitting up.

Ipecacuanha

Stomach pain with nausea, during eruptive stage.

Lachesis

Eruption blackish-purple with extreme burning pain, sensitive to touch. *Highly recommended in the suppurative stage, especially for sepsis or collapse, with hemorrhaging of dark blood.* Overly sensitive to heat, worse after sleep, and cannot tolerate covering or constriction.

Malandrinum

An important remedy both in treatment and for preventing disfiguring scars. Aching in the limbs, with pain in the left side of the head, great debility, and a lazy, weak feeling. Gastric symptoms: inability to swallow and bilious vomiting, with foul-smelling diarrhea and tympanitic distention of the abdomen. Very chilly and sleepless, with crying, moaning, and ill temper in children. Dark or blackish pustules, with terrible itching after the attack. Has cured cases with extreme fever, incoherent talk, and muttering delirium, as well as confluent cases. *Also used like Thuja and Silica to counteract adverse side-effects from vaccination.*

Mercurius sol.

In the stage of maturation or suppuration, with ulcerated throat, fetid salivation, swollen glands, diarrhea, and bloody stools. Sensation of blood rushing to head, with irritation of mucosae, moist,

swollen tongue, and extreme thirst. Diarrhea or dysentery with tenesmus, especially during phase of suppuration or desiccation. Pustules burning. *Hearing loss after smallpox.*

Phosphorus

One of the most important remedies, even for confluent cases. Hemorrhagic diathesis, with bloody pustules; prevents pitting. Respiratory symptoms prominent: hard, dry, exhausting cough, with pain or rawness in the chest, bronchitis, pneumonia, and hemorrhage from the lungs. Back pains as if broken, impeding all motion. Frequent fainting, with typhoid coloration from the start, great exhaustion, and prostration. Wants company, with great thirst for cold drinks.

Phosphoric acid.

Confluent variola, with typhoid-like flavor. Lesions do not fill with pus, and degenerate into large blisters, which burst and leave the surface ulcerated. Stupid, wants nothing, not even to drink, answers questions, but doesn't talk otherwise. Subsultus tendinum, with great restlessness; fear of death, and watery, painless diarrhea.

Rhus tox.

A major remedy. Typhoid-like symptoms, with dry tongue, sordes on lips and teeth, and great restlessness: wants to get out of bed, in spite of great debility. Pustules black or with bloody pus, and extremely itchy. In confluent smallpox, pustules greatly swollen at first, then shrink, become livid, black, and bloody. Dysentery with distended abdomen, bloody stools, and dark blood. Rheumatic symptoms, with aching in neck, back, and down legs, great tightness of muscles, and thirst for small sips.

Sarracenia purpurea

Few reliable indications, but many homeopaths report great success in severe cases. Often used as specific, as well as prophylactically. Pustules may be very large, with headache, backache, and bone pain.

Silica

A leading remedy for severe, chronic cases. Suppurative stage, with exhaustion and delayed desiccation. The skin lesions are painful, ulcerate, and leave scars. Pustules on forehead. *Caries of bone following severe attacks, with fistulous openings and discharge of thin pus and bony fragments, and for other chronic sequelae of smallpox or vaccination, such as weakness or corneal opacity.*

Sulphur

Metastasis to brain, especially in the stages of suppuration and desiccation. The pustules fill with pale, bloody serum, and become moist, offensive, itchy, slow to heal, and may ulcerate. Indicated when ophthalmia complicates the picture. *Also indispensable as intercurrent, where seemingly well-indicated remedies fail.*

Thuja

Pains in upper arms, fingers, and hands, with fullness and soreness of throat. Areolae around pustules dark-red, with pustules milky, flat, and painful to touch, especially during stage of

maturation; may prevent pitting. *The first remedy to be thought of for chronic conditions following vaccination.*

Variolinum

Especially when the throat gets the brunt of the disease. *Widely used for prophylaxis. If given steadily throughout, the disease runs a milder course, imperfect pustules become more regular, and quickly dry up. Promotes suppuration and desiccation, and prevents pitting.* Skin lesions itch intensely, with severe backache. During high fever, creeping chills in the back with cold hands and feet. According to Tyler, can improve scarring even years later, and has also cured extreme weakness, lassitude, inability to speak, and learning disorders following smallpox infection.

Veratrum vir.

Intense fever, with excessive pain and restlessness. "Arterial excitement," congestion, throbbing pulse, and rapid heartbeat, with pulmonary symptoms and pneumonia. When used in alternation with *Macrotin*, an extract of *Cimicifuga*, the pustules flattened and quickly dried and fell off.

Zincum

Great exhaustion and prostration from the start, forestalling the eruption, especially after night-watching and anxiety. Sordes covering tongue and tonsils, with foul breath, dryness and soreness of mouth, palate, and uvula.

Miscellaneous Articles.

From Jahr, *40 Years' Practice* (excerpts):

Although smallpox at the present time breaks out sporadically, and is not as terrible as it was before vaccination, very bad cases still occur, especially among the poorer classes, not only among children who have not been vaccinated, but also among adults who have. I have seen a husband and wife attacked by smallpox a second time years later, when their pitted faces might have led one to suppose that they were sufficiently protected. *If the case comes under homeopathic management in the preliminary stage sets in, it can be made to run a mild course without dangerous complications, sometimes in less than a fortnight, although very severe cases may run a longer period.*

Invasion of the throat is a very bad symptom which may lead to asphyxia, and for which, art can do nothing if the pocks are numerous and firmly seated. In the case of a mother whose daughter had died of such a symptom under allopathic treatment, and in whose throat several pocks had already broken out, immediate revaccination was insisted upon by the patient and had a speedy effect: no new pocks broke out in the throat and the old ones dried up very speedily. *Variolinum* might have had the same effect, but it doesn't always help.

Treatment of Simple Variola.

It is sometimes difficult to distinguish the preliminary stage of smallpox from typhoid fever. It had not only happened to me but to many other physicians of both schools that in isolated cases when no smallpox was about, this stage was also mistaken for incipient typhus until the stigmata appeared on the skin. On former occasions, when I knew that variola had

broken out in the hospital, I was in the habit of prescribing *Rhus tox.* followed by *Sulph.* as soon as the lesions were seen, and continuing the latter until desquamation had set in. With this regime I found that the disease usually ran a very mild course. I now prescribe *Variolinum* at the first sign of it, which is abbreviated by it more than by any other remedy.

In the few instances where the disease breaks out with its usual fierceness in spite of the *Variolinum*, I again have recourse to *Sulph.* which acts even more favorably after *Variolinum* than in former time. If called in the suppurative stage, after the exanthem is fully out, I still begin the treatment with *Variolinum*, and again have recourse to *Sulph.* if the nosode does not act with its usual prompt effectiveness, and thus cure my patient more speedily and with less pitting afterward than with *Thuja* or *Merc.*

Complications.

Under *Variolinum* these rarely occur, or soon disappear with continued use of the drug. If not, I have given the following with excellent success:

For much headache, with or without nausea or vomiting, *Bell.*, *Bry.*, or *Rhus tox.*

For facial angina, *Sulph.*, *Merc.*, or *Ars.*

For diarrhoea during suppurative stage, *Merc.*, *Sulph.*, or *Ars.*

For putrid, bluish-black pocks, *Ant. t.*, *Ars.*, *Carb. v.*, *Chin.*, *Ph. ac.*, or *Sulph.*

For confluent cases, *Ant. t.* or *Ars.*

For delayed suppuration, *Ars.*, *Merc.*, or *Sulph.*

For bloody pocks, as in menstrual disturbances, *Ars.*, *Lach.*, or *Phos.*

From C. W. Eaton, M. D., "The Facts About *Variolinum*," *AIH Transactions*, 1907 (excerpts):

The extensive employment of internal vaccination by means of *Variolinum* in Iowa, the mass of experience resulting from that use, and the vigorous defense made in the courts when the authorities questioned our right to use it, have combined to produce an impression in many quarters that it is an Iowan idea, although we obtained it simply by homeopathic inheritance.

Iowa is nevertheless proud of this practice, as of the independent decisions of its District Courts in three widely separate localities, protecting our right to use it and compelling school and municipal authorities to accept it. We are also proud of the thousands who have been rendered immune by it, and thus spared the danger of scarification, so that, when the request came for us to take up this matter before the Institute, we are ready to respond.

I am happy that the request was for a paper that would discuss the subject in a scientific manner. No matter what our views may have been before, if we approach it objectively, we are sure to reach agreement in our conclusions. I care not how many of you have previously been favorable and how many unfavorable. The privilege of this occasion lies in the fact that we are all lifelong workers in applied science and therefore, always ready to take up anything or abandon anything, irrespective of preconceived opinion, provided the demonstration be sufficient.

The entire matter of internal vaccination by means of *Variolinum* is comprised in the answers to three simple questions:

First, What is *Variolinum*?

Second, Is its use, as a greatly improved form of vaccination, reasonable ?

Third, Has the test of actual experience demonstrated its effectiveness ?

What is Variolinum?

Variolinum is the contents of the ripened pustule of smallpox, of variola, not of a vaccine pustule, of vaccinia or cowpox. Any immunity conferred by cowpox is thus indirect, while from smallpox it is direct.

Is the use of Variolinum reasonable?

It is reasonable

- (a) if an individual may be rendered immune to a disease by inoculation with the virus of that disease, in the proper preparation and amount; and
- (b) if said virus is effective when administered by mouth, rather than hypodermically or by scarification.

These two propositions demand close attention and exact thinking, for here is the very core of the whole matter: no loose and hazy "general impressions" or half-and-half conclusions will do. We must advance cautiously, weigh our words, reach definite and clear conclusions, and then stand by them. In this spirit let us take up each of them in turn.

(a) *May an individual be rendered immune to a disease by the administration of the virus of that disease in the proper form and amount?*

Behind this question lies an enormous amount of experimental research which bears on it as directly as if undertaken for the sole purpose of determining the answer. For all the work done in the field of serum therapy rests on the proposition that immunity is obtained by administering the virus of the disease. This has nothing to do with the merits or demerits of serum therapy, with what these serums accomplish, but solely with how these serums are obtained. They are all obtained from animals rendered immune to a disease by administering the virus of that disease. The countless thousands of animal experiments, clinical experiences, and manufacturing processes in biological laboratories all testify to this fact of immunity conferred by the proper use of the virus.

Perhaps I owe you an apology for calling your attention to a matter so familiar. But it is because I want here and now your definite assent or dissent. Let us come to the scratch: has scientific research demonstrated that immunity is obtained by the proper administration of the virus of disease? If the answer is "yes," let us say so clearly and decisively.

(b) *Is the virus effective when administered by mouth rather than hypodermically or by scarification?*

Is it absorbed and actually taken into the system when swallowed? Never mind the theory. Again to avoid trespassing on your time I cite an established and conspicuous fact, the danger from ingestion of tuberculous milk and meat. Why dangerous? Because disease products

do make their impress on the system when ingested. In Great Britain a Royal Commission this year reported that of the 60 cases of human TB investigated by them, in 28 the bacillus was introduced through the alimentary canal.

Our whole system of milk and meat inspection rests on the fact that disease products do inoculate the system when taken in by digestion. Of course, the hypodermic dose is generally smaller, but not invariably so. In any case, the amounts required do not concern us, but only if inoculation results from swallowing disease products in any dose. And the answer furnished by both the British Royal Commission and our own systems of meat and milk inspection is pointed and undeniable. So again I ask for your answer, and if it is "yes," let it be clear and decisive.

I note in passing that for homeopaths evidence is at hand from the effective action of remedies such as *Psorinum*, which is already amply conclusive that disease products profoundly impress the organism when given by mouth.

Reverting to the question whether the use of *Variolinum* is reasonable, there seems to be no escape from an affirmative answer. We have seen that it is the virus of smallpox, that an individual may be rendered immune to a disease by the proper administration of its virus, and that inoculation by swallowing has compelled the enactment of food inspection laws. How can we escape the verdict that the use of *Variolinum* is reasonable? We have the virus, the law of immunization, and the fact of inoculation by ingestion. Is internal vaccination reasonable? The answer is inevitable.

Has experience with smallpox demonstrated the effectiveness of Variolinum?

The epidemic of five years ago, which has not yet wholly disappeared, afforded a rare opportunity for such a test. Up to that time, most physicians had never seen a case of smallpox. Then suddenly all that was changed, and experience with both types of vaccination accumulated rapidly. What was the verdict of this experience? How did *Variolinum* stand up to the test in actual practice?

This is a simple question of fact and should be answered by the actual figures. So I asked some of my Iowan colleagues who I knew were using the nosode to summarize their experience in the following particulars:

- 1) How many were vaccinated with *Variolinum*,
- 2) How many were known to have been exposed after taking *Variolinum*, and
- 3) How many developed smallpox after taking *Variolinum*.

In making this request, I stipulated that only those individuals who could be documented in ledgers and case records be selected, in order to make the figures definite and exact, and that uncertain cases without such documentation be omitted, so that the report will be a modest and conservative understatement of the fact. This suggestion was cordially received, and all those reporting were so careful with their figures that the total number vaccinated by the nosode was much larger than the figure given. One observer estimated he had used *Variolinum* in twice as many cases as reported, but lacked the records to verify them. In any case, I am pleased to present the following tabulation of our combined experience:

Number vaccinated with *Variolinum*: 2806

Number known to have been exposed to smallpox after taking *Variolinum*: 547

Number who developed smallpox after taking *Variolinum*: 14

These reports were obtained from 14 Iowan practitioners of character and standing, of whom two are members of the State Board of Health, and a third was also a member when the epidemic was at its height. All agreed that the number known to have been exposed was much lower than those who were actually exposed. For example, one who reported only 8 known *exposures* believes that another 100 or so were "doubtless exposed."

Many reported exposures were serious and massive, as for instance the following:

One case began atypically and was taken to hospital, where he was visited by relatives and regularly worked over by interns and nurses to relieve a severe pain, thus fully exposing at least 20 people. To every one of them *Variolinum* was given, and not one took the disease. This was a bad case who remained in the pesthouse for about 4 weeks.

In a family of 7, 3 people developed smallpox before I was called in. Of the other 4, the parents had been vaccinated, and 2 young men had not. I administered *Variolinum* to them all, and none of them got sick, though in constant and direct contact with the sick.

A man developed smallpox. His wife, who had been vaccinated, and the 3 children, who had not, were all given *Variolinum*. They lived in the same house, and slept in the same room with him throughout his sickness, yet none of them contracted it.

A father and 3 children developed smallpox. The mother and 5 other children, who had not been vaccinated, were given *Variolinum*. Within 48 hours the eldest son developed symptoms, but the attack was very light. All the others, though living in the same house and directly exposed through attendance on the sick, escaped all symptoms of the disease.

Young man of 30 developed smallpox. His mother and an adult sister who lived with him had not been vaccinated, and were given *Variolinum*. Despite attending and nursing him through a violent attack, neither contracted the disease.

Gave *Variolinum* 30X for one week to the mother and sister of a boy with a developed case of smallpox. Neither of them had been vaccinated before. They were quarantined for 35 days with the patient, and neither of them contracted the disease.

A girl was given *Variolinum* and quarantined for 35 days with 3 cases of smallpox, and did not contract the disease. She usually gets whatever comes along, but not this time.

A girl of 6 was given *Variolinum* 30X. 3 cases of smallpox have developed in the family since then, and she was exposed to each of them without being vaccinated or protected in any other way, and has never showed a symptom of the disease. Her grandfather died of it, her

brother had the worst case of it I've ever seen, and a cousin a year later, and she has been with them all without becoming ill.

I gave *Variolinum* to 2 children who had never been vaccinated. A few months later, they were exposed to an uncle with smallpox, but did not take the disease.

Of the 14 cases who took smallpox after *Variolinum*, one was a mild case occurring 2 years later, 3 were not strictly within the limitations of the test, as they had also been vaccinated by scarification a short time before contracting the disease. In addition to the 14 cases reported, there were 3 others, but in each of them the symptoms appeared within 72 hours after the first dose, proving that infection had already occurred before taking the remedy.

The obvious conclusion is that the protection afforded by *Variolinum* is not absolute, and that in exceptional instances smallpox will still occur. But the same is true of scarification, after which smallpox occurs with much greater frequency than with *Variolinum*.

My own personal experience is not included in these reports, so that this inquiry may be scrupulously judicial in its spirit, and this presentation have in it none of the bias of the advocate.

I should add that Dr. Jonathan Pettet of Cleveland read a paper on vaccination by *Variolinum* before this body as far back as 1873, and that *Variolinum* has an established place in Hering's *Guiding Symptoms*, Clarke's *Dictionary of Materia Medica*, and Boericke's *Manual of Materia Medica*. The following proving experiences were reported by my colleagues who took part in the Iowa study:

A man of 52 who had been exposed to smallpox was given *Variolinum* 12X to be taken 5 disks before each meal and at bedtime. After taking 7 doses he complained that he felt nauseated after each one and had vomited his supper the night before. The remedy was discontinued for 2 days and then resumed, with same result, again vomiting his meal after the 4th dose. It was again discontinued for 6 days, with no nausea or vomiting for the last 4. He was then persuaded to try it again, with a repetition of his former experiences.

A girl of 15, who was always sickly, of light complexion and scrofulous build, received *Variolinum* 30X for one week. I was called to see her on account of high fever, preceded by chills, rapid pulse, backache, headache, malaise, loss of appetite, loose stools, and restlessness. The next day she developed an eruption very similar to chickenpox which had already begun to disappear. Since that time the girl has been stronger and particularly free from sickness.

A girl of 6, seemingly in good health, was given *Variolinum* 30X. At the end of the 5th day the parents called and threatened to sue me for making their child sick. When I saw her, she had a fever of 103.2°F., with chills, generalized aching, backache, headache very pronounced, loss of appetite, loose bowels, restlessness, and vomiting. I stopped the remedy, and in a few days she was all right.

I gave *Variolinum* 30X to a brother and sister. The boy promptly developed chills, fever, headache, backache, general achiness, loss of appetite, diarrhea, and restlessness, with an eruption

on the palm of the hand resembling smallpox. It disappeared after a few days. The girl had a similar eruption on sole of one foot, but not so marked, and very sore.

A dentist of 47, who had no use for homeopathy, took a chance with me because he had been exposed by a patient of his own and could not work with the pain of a scarified arm. After taking *Variolinum* 12X for 4 days, he complained of chills, headache, and aching all over, and especially in the back. He discontinued it for 2 days, then began again. After 3 more days he was so sick that if not for pressure of work he would have been home in bed, with the aforementioned symptoms much intensified and an indescribable sickness on him as well.

As to how long the immunity conferred by *Variolinum* will remain in force, nothing can be said, because there has been no experimental research which has settled this question regarding either method. There has been a great reduction in the length of time that protection is assumed to last after scarification. The U. S. Government currently revaccinates its soldiers every 3 years. There would seem to be no special difference between scarification and homeopathic method, but the whole matter is one of assumption, not of proven fact.

In summary, we have reviewed a series of 2806 vaccinations with *Variolinum*, including 547 exposures and 14 cases of smallpox. Shown thus by clinical test to be remarkably effective in practice, as well as scientifically correct in principle, the demonstration stands complete. The use of *Variolinum* therefore does not ask our acceptance, but demands it. As scientists, we are not at liberty to indulge our whim about the matter. With so much at stake, it is not optional with us whether to know or remain uninformed. In such circumstances, we are under the highest obligations to know, and failure to do so seems criminal.

Discussion.

Dr. Hensley, Oklahoma City:

I can't see much difference in giving *Variolinum* from vaccination with the present aseptic and antiseptic methods of scarification. With these modern methods now in vogue, I would rather vaccinate by scarification than with *Variolinum*. One is prepared from the smallpox pustule, and one from cowpox. It all comes from practically the same source.

Dr. Baker, Chicago:

I most thoroughly disagree. One prominent surgeon lost a son from these methods. I do not see why Dr. Hensley should object to internal administration of *Variolinum* any more than to that of *Lachesis*, *Mephitis*, etc.

Dr. Hensley:

Of about 5000 children vaccinated in our schools in Oklahoma City, there were no bad results at all. There was a little girl who got a pin scratch on her toe and died of septicemia, but this was not due to vaccination.

Dr. Miller, Pittsburgh:

I have been warned by the chairman not to say anything about compulsory vaccination, but that is all I want to fight. I am an uncompromising enemy of that and expect to be until I die. I have not had experience with *Variolinum*, but rather with *Malandrinum*. I have never been

vaccinated, and have never given anything but *Malandrinum* as a prophylactic, and my little girl has taken it. With *Malandrinum* I am not afraid of smallpox. I attended a family where one of the children had been vaccinated by the Board of Health and allowed to go to school. She contracted smallpox and developed pustules all over her body. Several other children in the house were given *Malandrinum* 30, and were exposed as much as people who take smallpox, but they never took it. I have given this remedy to hundreds of people, and have never yet known of a case to occur where it had been given.

Dr. Körndoerfer, Philadelphia:

Having had considerable experience in the treatment of smallpox, including the serious epidemics of 1871-72, 1881, and 1885, I feel a deep interest in the subject under discussion. Before 1871, I was strongly opposed to vaccination, but during that epidemic my views changed. I became an advocate of this means of protection, for I had learned from practice that it is a great and beneficial modifier of this dread disease. I have not had a single fatality from smallpox among patients who had a successful vaccination, even in infancy, but, among the unvaccinated the disease invariably ran a more violent course, and fatalities numbered about 25%. As to the use of *Variolinum* for prophylaxis, I must counsel against dependence upon this or other internal means, for until its utility is proved beyond a reasonable doubt, we would be doing a serious injustice to our patients by depriving them of the great benefit to be derived from vaccination.

Dr. Miller:

The Health Officer of New York City says that the deaths that have occurred from vaccination make it necessary to reconsider vaccination as a preventive of smallpox.

Dr. Cole, New York City:

I asked Dr. Eaton to write this paper because of a request to the New York State Health Department that it accept internal vaccination. When the matter was referred to me, I said that prophylaxis by *Variolinum* was insufficiently substantiated to take the place of vaccination, and that until the homeopathic school had settled the question for itself, we should not accept it. It is safe to say that fully 70% of homeopathic physicians stand by vaccination. 353 cases of smallpox were reported to the New York State Health Department in 1906, and the data concerning vaccination are as follows:

Vaccinated without specified date: 6
Vaccinated 15 years ago or less: 26
Vaccinated more than 15 years 40
Vaccinated within 5 months: 5
Vaccinated within 15 days: 13
Vaccinated unsuccessfully: 14
Unvaccinated: 233
Unstated as to vaccination: 16

In other words, at least 66 per cent of the smallpox cases occurred in unvaccinated persons.

Dr. Eaton, Des Moines:

The figures given by Dr. Cole are pertinent and valuable in being both recent and authoritative, and they make clear that there is no absolute protection, that smallpox will occur in certain cases after vaccination by either method. Dr. Cole's statistics show that 10% of those scarified were not protected by it, and our experience with *Variolinum* just cited shows 14 such cases, a record far more successful, with a much lower rate of failure after the use of *Variolinum*.

We must not be misled that advocating the use of *Variolinum* is an attack on vaccination. Just the reverse: it helps to promote vaccination by improving its method. But while the success rate so largely favors *Variolinum*, the one fact before which all others are reduced to insignificance is that with it we escape both acute and chronic forms of sepsis which not infrequently follow scarification. These two types differ widely, but are both lamentable, and so familiar to all present that I should not be justified in taking your time to consider them. It is beyond me how partisans of scarification, no matter how prejudiced, can assert that no bad symptoms occur after the procedure, even under the most modern antiseptic and aseptic precautions. Such people only refuse to recognize what is right before their eyes.

During the height of the epidemic in Des Moines, an able young physician in the largest allopathic practice took me aside, and after detailing the thorough antiseptic precautions he used before his vaccinations, told me of seeing "arms that make me shudder," and asked me to tell him about *Variolinum*.

But as to the proposal that the Institute formally endorse *Variolinum*, I am not in favor of that. It is our province to endorse homeopathy *per se*, rather than every one of its individual details. What I am most emphatically in favor of is taking action that physicians shall have the right to use such method of prophylaxis against smallpox as seems best to them. In other words, make prophylaxis compulsory, if you must, but leave the choice of method to the physician. The Iowa homeopaths and their State Homeopathic Society have been reasonable and broad-minded about this, having adopted a definition of vaccination which recognizes both scarification and *Variolinum*, so that each practitioner is at liberty to follow his own judgment and conscience. Mandatory vaccination may find excuse as a way of protecting the public, but when the law dictates to the physician to do it by this method and not by that, it is stark, absolute despotism.

Dr. Cole:

Your point, Dr. Eaton, is that there should not be one method of prophylaxis, but rather two or three ways. One man had some experience with one method, another with another, but there would be a great many people exposed to danger thereby. We want prophylaxis which has merit. I do not believe it is safe to leave it to the individual judgment of the physician. There should be some established, authoritative system which has been proven to be the most widely effective.

Dr. Eaton:

Dr. Cole says it is not safe to leave the method of vaccination to any one man's judgment. He is undoubtedly right in that. But such a proposal was never made by any one. *Variolinum* is

not an idiosyncrasy, but simply a minority method. And that minority is thoroughly respectable in numbers, while in quality it includes not a few of the best names in our ranks.

The notion that minorities have no rights which the majority are bound to respect is but a piece of bigotry from an outgrown past, and it is mortifying to see Boards of Health still clinging to it. It seems difficult for these bodies to remember that they were created by the profession, of the profession, and for the profession. They consistently behave like ordained superiors, as if the medical profession consisted of wayward and ignorant underlings who must be disciplined by their strong and omniscient hand.

Postscript.

While this is properly an Iowa Report, there are many physicians all over the country who use this method, and most of them are keen and competent observers. In illustration of this fact, the following letters from Drs. Fahnestock and Bishop are here subjoined:

Piqua, Ohio
May 25, 1907

In reply to your letter, I do not know the exact number of cases to whom I have given *Variolinum*, but I am sure it is more than 100, and I have not seen or heard of a single one of them who contracted smallpox in any form since receiving it. I went to see a case of smallpox with our district Health Officer, and gave *Variolinum* to the mother and the son who did not have the disease. All lived together, these two were exposed all the time, and neither ever took sick. In an epidemic 3 years ago, our first case was from Cincinnati, and had an eruption misdiagnosed first as hives, then as chicken pox. When the eruption came out, he went to the barber shop and was there fully an hour waiting his turn. He had had fever and backache as well. On either side of him sat 2 of my patients. They both looked at him, felt the shotty eruption, and both said, "You have smallpox." Sure enough, the next day another M. D. pronounced it a genuine case, and I gave both witnesses *Variolinum* 30X. Neither one contracted the disease, even when one was later exposed a second time. At that time, more than 15 of my patients were exposed after using *Variolinum* and none were taken sick. A month ago, on the day our family wash was picked up and brought home, the washerwoman broke out with smallpox, as did her husband. The rest of the wash remained at her house for several days, during which time several other parties called for theirs and were exposed at same time. The next day, the house was carded for smallpox. To her clientele and everyone in my family I gave *Variolinum* 30X, had the wash put in boiling water, etc. There has been no trouble as yet, and no indications of any. I only give you a few cases to add a mite to your own experiences.

Yours truly,
J. C. Fahnestock

Los Angeles, California, May 27, 1907

I am doubtful of satisfying your needs concerning *Variolinum*, for I have never kept exact tally of the cases in which I have used it for prophylaxis. I can say, however, that I have used it in lieu of other vaccinations for over a quarter of a century, in hundreds of cases, and with a single exception not one had an attack of smallpox afterwards. The exception was the father of a child of two and a half. The infant had confluent smallpox and had been sleeping with its mother until

the 5th day of the disease, when I was called and found the disease just turning from the vesicular to the pustular stage. Furthermore, the mother was in her seventh month of pregnancy, and none of the family had ever been vaccinated. *Variolinum* saved the infant, who was evaluated by the Health Officer as a probably fatal case, while the mother was delivered of a healthy daughter in due time. It was the father alone who contracted the disease, which assumed the confluent and congestive form, but he too was speedily cured with *Variolinum*. He later admitted to me that he had neglected to take the *Variolinum* powders which were left for the family, was careless in taking up the floor coverings where his son had been confined, and had breathed clouds of dust into his lungs that were mingled with desiccated scales that had fallen from the patient. This was in the epidemic of smallpox in Los Angeles seven years ago. Fourteen years ago, while practicing in Connecticut, I had already had ample opportunity to prove the efficacy of *Variolinum* as both curative and preventive of variola, without a single disappointment.

To sum up then, the number whom I have protected with *Variolinum* is all who have come to me in a continuous and extensive general practice over the past thirty years, with that one exception, the circumstances of which were as above. The number I have known to be exposed to smallpox after taking *Variolinum* are the members of those many households in which I have treated cases of smallpox, encompassing every degree of severity, as well as others outside of the family who were exposed, including myself.

Very truly yours,
Herbert Martin Bishop

Why I Will not Vaccinate My Family Against Smallpox -- Yet

By Larry Brilliant, M. D.

You know this old puzzle: You are a farmer by a river, with a fox, a chicken, and a bag of grain. There is a boat with which you may move yourself plus any one of these items at a time to the opposite bank. You must move all three from the left to the tight bank without leaving the fox alone with the chicken or the chicken with the grain, for obvious reasons.

And now think about another, more important twister: whether to vaccinate your family based on the limited and conflicting data we have on Al-Qaeda, the Russian smallpox weapons program, and Iraq. Can we use logic to puzzle our way out of this dilemma?

I was vaccinated against smallpox hundreds of times in the WHO campaign in India, and again by the CDC last year as a "first responder." My children, wife, mother, brother, and neighbors have not been vaccinated recently, and I do not recommend it, at least not yet. Based on the known risks and benefits, I do not recommend that anyone rush out to do so unless they too will be first responders or work in a hospital Emergency Room.

Why? My decision is based on trying to solve as many equations simultaneously as needed to solve the puzzle of the farmer, the fox, the chicken, and the bag of grain, but with no simple answers in this case, and where making the correct decision may literally be a matter of life and death. I feel an obligation to put enough information in your hands, augmented by the best readings I could find, so you can think it through and make your own informed decision.

Smallpox as a disease does not exist: it has been eradicated. A very small amount of the virus has been held frozen in liquid nitrogen in two "legal" and "secure" facilities in Atlanta and Moscow, as agreed to by the 150 member countries of the WHO. It would be easy to reawaken this demon once it is removed from these freezers. Except for the removal of some viral material last year by a U. S. Army scientist in order to test new antiviral agents and vaccines [cf. Preston's book, cited below], a controversial and potentially destabilizing act, all the other samples remain in place.

The fear of smallpox as a weapon is based solely on public information which is highly speculative and anecdotal, or on military or intelligence sources which are secret and unavailable. Vaccination of 280 million Americans could cause potentially fatal side effects in the tens of thousands and death in 500 to 1000 people. To justify so many adverse reactions, there must be real evidence 1) of increased risk of a smallpox epidemic, and 2) that the latter will be preventable by the vaccine.

This means that there are three conditions, all of which must be satisfied before it is logical to begin a campaign of vaccinating against a disease which does not exist:

- 1) that the virus must exist somewhere outside of the two secure repositories where it has resided for three decades;
- 2) that this illegal virus must be in the hands of terrorists or nation-states that would use it as a weapon of war; and
- 3) that it must not have been genetically altered so as to be impervious to the vaccine we currently have.

As is made clear in Richard Preston's *Demon in the Freezer*, Jonathan Tucker's *Scourge*, and other works cited below, the first condition appears to have been satisfied. In the Gorbachev era, Russian scientists working under a 5-year program evidently manufactured 100 tons of smallpox virus annually at a secret facility named Vector near Novosibirsk in Siberia.

There is as yet no publicly documented evidence that the second condition has been fulfilled. The major reasons for concern include the following:

- a) Saddam Hussein used Sarin [nerve gas] and anthrax, and attempted to use camelpox, against the Kurds. If he has smallpox, it is logical that he might well use it as a last resort.
- b) Weapons inspectors found a refrigerator in Iraq labeled "smallpox" during the last round of inspections. We don't know if this referred to the disease or the vaccine, but there were active cases of smallpox in Iraq as late as 1972, and there is no reason to doubt that virus could have been harvested from them. Iran certainly hid cases of smallpox from WHO inspectors, including myself, in those years. When Iran and Iraq went to war in the 1980's, Saddam had obvious reasons for hoarding the virus.

- c) Al Qaeda documents, including some obtained by the *Wall Street Journal*, contained references to smallpox as a weapon to be used by terrorists. Taliban fighters and Al Qaeda terrorists frequented a Soviet-era weapons dump north of the Afghan border, but it is not known whether biological weapons were stored there.
- d) Soviet epidemiologists, who lifted smallpox scabs from patients in India and smuggled them back to Russia to become part of Vector's collection of weaponized smallpox, fell on hard times after the breakup of the Soviet Union, as did the virologists at Vector. There is evidence that some of these scientists visited Iraq and were paid to consult with their Iraqi counterparts in Saddam's biological warfare program.

As for the third condition, nobody knows. Both Preston and Tucker cite Australian gene-altering experiments with mousepox, and suggest that it would be a simple matter for terrorists or even college microbiology students with access to virus to create a "superpox" impervious to today's vaccines. If terrorists have such a strain, it is silly to vaccinate anyone with a high-risk vaccine that is ineffective against it. [Cf. the article by David Rosner, which is appended below.]

How great is the risk of adverse reactions? Nobody can really quantify it, because so much has changed, both for better and for worse, since the 1970's when the last large databases were available. At that time the death rate was 2 or 3 per million vaccinated, and the risk of serious side effects about 10 times higher. But 30 years ago far fewer Americans were immunocompromised by chemotherapy or AIDS, and the prevalence of eczema, a major contraindication to smallpox vaccine, was also much lower. On the other hand, recent data suggest that vaccinating healthy, pre-screened young men and women carries very few risks. All in all, it is likely that 10 to 100 people per million vaccinated would have a very serious or fatal reaction to the vaccine, or somewhere between 3000 and 30,000 people.

Some of the most cogent writings on the smallpox dilemma include the following:

- 1) David Rosner's excellent article, "The Problem with Smallpox," which I found at <http://www.nationinstitute.org/tomdispatch/index>
- 2) Richard Preston's book, *Demon in the Freezer*, reviewed by Michiko Kakutani in the *N. Y. Times Book Review*. Preston's book is the best single read on smallpox as a bioweapon. It errs on the sensational side, and doesn't give the objective kind of risk assessment that we need. But that's the Administration's job, isn't it? Their failure to provide that is one of the things that's so troubling about this.
- 3) An editorial in the *Chicago Tribune* in support of Bush's smallpox plan. It's intelligently written, and stresses the Administration's message that the risk is "important," but not "urgent or immediate."
- 4) Letter to the *N. Y. Times* by Stan Foster, formerly of the CDC and WHO Smallpox programs about the risk of invading Iraq *spreading* rather than quelling the danger of smallpox. Thought-

provoking.

5) Judith Miller's article in the *N. Y. Times*, "CIA Hunts Iraq Tie to Soviet Smallpox," detailing the possibility that weaponized smallpox from Russia may have gotten to Iraq.

And so, here we are. Here's why I choose not to vaccinate my family.

- a) To the best of my knowledge, there is no proof of any link between Saddam Hussein or Al Qaeda, but the concern is real, and if any proof arises I might change my mind.
- b) If Saddam has smallpox, he might well be crazy or desperate enough to use it if he were about to be killed, but he probably also has the capacity to alter the virus genetically to make it vaccine-proof. If it's an endgame, why would he use a virus that we have a vaccine against? It makes no sense.
- c) If Al Qaeda has it, I don't believe they would use it. Al Qaeda seeks the victory of an entire people, a culture, a religion. Smallpox is the ultimate boomerang weapon: if released at Chicago O'Hare, it's only a matter of days before it infects Mecca and Medina. It's not a weapon for war unless the combatant sought the destruction of both civilizations.
- d) Smallpox can be prevented if an exposed person is vaccinated as late as 4 or 5 days after exposure. Although it could be spread unseen with the first attack, cases would start appearing within two weeks, and there would be ample time for all Americans to be vaccinated and still be safe.
- e) I won't go into the fear that the Bush Administration has exaggerated the risks of terrorism in general, and of smallpox in particular, to frighten the public into accepting this latest erosion of civil liberties. I have no information on which to make further comment, and it doesn't really matter for our purposes here.

Based on the evidence I've seen to date, the risk of getting vaccine-preventable smallpox is simply not as high as the risk of an adverse reaction to the smallpox vaccine. Unless and until that changes, I will not vaccinate my family and the ones that I love.

The Problem with Smallpox

Prof. David Rosner

Director, Center for History and Ethics of Public Health, Columbia University

The eradication of smallpox has been hailed as among the greatest triumphs in public health history. Once a disease that swept through cities and towns, leaving untold casualties in its wake, it has disappeared from the natural environment through massive inoculations and public health campaigns worldwide. Since the last case appeared in the 1970's, it is truly the only disease to have been eradicated through human intervention.

Yet the Cold War allowed us to grab defeat from the jaws of victory: in smallpox we saw the chance to create a new and better weapon of mass destruction. Both the U. S. and the Soviet

Union made sure that the virus remained in storage awaiting a new opportunity to terrorize the world. Both distributed it to research labs to make it immune to the vaccine that had eradicated it by genetically altering the virus.

This is the irony at the heart of the call to vaccinate hundreds of thousands of emergency workers in the U. S. The vaccines developed in our labs may be effective against the older strains and maybe even against the new ones we have created, but maybe not against those purposely altered in the Soviet Union. And what about the many other biological weapons that both we and the Russians spent decades refining? Cholera, anthrax, and a host of other deadly agents may have been developed in the Soviet labs in addition to our own.

This all begs the question of whether there is a real threat. Smallpox and other biological agents can't just be let loose without elaborate preparations for dispersal, while mass vaccination campaigns may kill more people than exposure to the virus itself. In 1947, the last big campaign in New York City, 3 people died of smallpox, while 12 died from the effects of the vaccine.

Even if smallpox could be used as a weapon of terror, the fear of it is being used to make fundamental changes in public health agencies across the nation. Some workers in the field are seriously concerned that mundane but indispensable activities, like making sure that our water is safe to drink, that the air isn't too polluted to breathe, that our food isn't too spoiled to eat, are being sacrificed on the altar of bioterrorism. We may be unsure what to do about strange people driven by irrational motives, but the issue can be used to integrate public health into the emerging anti-terror state.

For the past year, the public health community has been under intense pressure to transform itself into an anti-terrorist enterprise. Following September 11 and the anthrax scare, Tommy Thompson and other HHS officials have told public health departments nationwide to focus on disease surveillance, lab improvements, and civil defense preparation. Federal money for anti-terrorist activities threatens to divert attention from a host of others like anti-smoking and environmental issues, by being dangled in front of cash-strapped Health Departments and university research workers. Fear of smallpox has played nicely into the Bush Administration strategy to militarize public health.

The Demon in the Freezer

By Richard Preston

Michiko Kakutani, *N. Y. Times Book Review*

This book will give you nightmares. Nightmares about the horrors that smallpox visits on a victim's body, turning the skin dark and dappled with thousands of pustules and resulting in an excruciating death. Nightmares about the tons of frozen virus produced by the Soviet Union and since unaccounted for. Nightmares about a bioengineered form that is resistant to all known vaccines.

A writer for the *New Yorker*, Preston does for smallpox what he did for Ebola in *The Hot Zone* (1994): by jump-cutting back and forth across narrative strands, he turns a story about science and medicine into a thriller of a theme-park ride.

Letter to the *New York Times*
Stanley Foster, M. D., M. P. H.
Professor of International Health
Rollins School of Public Health, Emory University, Atlanta

Instead of deterring the spread of biological weapons, military intervention in Iraq could actually disseminate them. In the case of smallpox, an agent rumored to be in the Iraqi arsenal, dissemination to the Middle East, Africa, and Asia is possible. Without either the expertise or the vaccine stockpiles to control the disease at the onset, accidental reintroduction of the virus could result in up to 100 million cases and 30 million deaths within a 3-to-5-year period.

As an epidemiologist with the CDC and WHO, I worked in Nigeria, Bangladesh, and Somalia as part of a global effort to eradicate smallpox. In 1980 I had reason to hope that I would never again witness the anguish of this untreatable disease, which causes intensely painful, open sores and kills 30% of its victims. No individual, group, or country has the right to risk exposing the world to the tragic risk of smallpox or any other biological agent.

CIA Hunts Iraqi Tie to Soviet Smallpox

By Judith Miller

New York Times, December 3, 2002

The CIA is investigating an unidentified informant's tip that Iraq obtained a virulent strain of smallpox from a Russian scientist, N. N. Maltseva, who worked at the Viral Research Institute in Moscow for 30 years until her death 2 years ago. Dr. Maltseva is known to have visited Iraq at least twice, in 1972 and 1973, as part of the WHO eradication campaign, and possibly as late as 1990, according to the new informant. Her Institute housed the entire Russian collection of 120 strains of smallpox, and experts fear she may have provided the Iraqis with one that could be resistant to vaccines and useable as a bioweapon.

The Russian government's refusal to share smallpox and other lethal germs for study by the U. S., or to answer questions about the fate of such strains, has reinforced American concerns about whether Russia has abandoned what was once the world's most ambitious bioweapons program. One year ago, Bush and Putin vowed to increase co-operation against bioterrorism, but American officials say that Russia has resisted repeated requests for information about their stocks of smallpox virus.

Formerly secret Soviet records also show that in 1971 Dr. Maltseva was part of a covert mission to Aralsk in Kazakhstan, north of the Aral Sea, to help stop an outbreak of smallpox that was not reported to world health officials. Last June, based on these records and interviews with survivors, experts from the Monterey Institute of International Studies reported that the outbreak resulted from open-air tests of a virulent strain of smallpox on an island in the Aral Sea, between Kazakhstan and Uzbekistan. The U. S. recently spent \$6 million to help both countries, now independent, to decontaminate anthrax buried in pits on the island by the Soviet military. According to Alan Zelicoff of Sandia Laboratories, co-author of the Monterey report, the Aralsk outbreak demonstrated that the virus could spread more easily than was previously thought.

The Monterey Institute report led American officials to wonder if the smallpox vaccine would be effective against the Aralsk strain and whether new vaccines might be needed if the latter were used in an attack. But both Dr. Maltseva's daughter, a physician in Moscow, and S. S. Marennikova, Dr. Maltseva's assistant, denied that Dr. Maltseva had ever gone to Iraq, as far as they knew.

Donald Henderson, a senior advisor to HHS who helped lead the smallpox eradication campaign, described Dr. Maltseva as an outgoing, hard-working scientist who had traveled widely for the campaign and clearly enjoyed doing so. The organization's records show that she visited Iran, Iraq, Syria, and even Pakistan, to follow up on an outbreak there. As Dr. Henderson added, he was deeply disappointed that Dr. Maltseva and other Russian scientists he had worked with closely had helped cover up outbreaks of infectious diseases that should have been reported to the WHO.

The Russian government has never publicly acknowledged either the Aralsk outbreak or its testing of smallpox in the open air. At a WHO meeting in France last year, Russian virologists responded to the Monterey report and newspaper accounts by insisting that the Aralsk outbreak was natural and did not involve a particularly virulent strain, and were seconded by American experts. They said that Dr. Maltseva took tissue samples from Aralsk and brought them back to Moscow in 1971, but destroyed them when Russia moved its stockpile to Vector, where their smallpox collection is now stored.

Many American experts, however, even those who doubt the Aralsk strain is unusually potent, are skeptical that it was destroyed. Former Soviet scientists from the bioweapons program have privately said that the military took control of all strains when the collection was moved, and American health and defense officials have asked the Russians for a sample of the Aralsk strain without success.

By the way, here's the solution to the Frustrated Farmer puzzle:

- 1) The farmer takes the chicken across the river.
- 2) The farmer returns, picks up the corn, and carries it across the river.
- 3) The farmer deposits the corn on the far shore and brings the chicken back to the starting point.
- 4) The farmer takes the fox across and leaves him with the corn.
- 5) The farmer returns and takes the chicken across.

If only the smallpox puzzle could be solved so easily!

Plague

Robert Schore, M. D.

Plague is a bacterial disease of rodents which spreads to humans and other animals via infected fleas. The causative organism is *Yersinia pestis*, which occurs clinically in three different forms:

- 1) *bubonic*, an infection which originates in the lymph glands;
- 2) *pneumonic*, an infection originating in the lungs; and
- 3) *septicemic*, an infection of the blood, the most serious and advanced form, which arises from either of the other two.

People may contract plague from the bites of infected fleas, from direct contact with the tissues or body fluids of an infected animal, from inhaling airborne droplets from persons or animals with plague pneumonia, from laboratory exposure to plague bacteria, or from deliberate exposure to the organism as a bioweapon.

Naturally-occurring plague occurs sporadically in the United States, mainly in southern Colorado, northern New Mexico and Arizona, western Nevada, southern Oregon, and parts of California. As with other biological agents, weaponized plague will most probably be genetically modified in order to maximize virulence, with pneumonic and septicemic forms predominating.

Since homeopathic medicines have been remarkably effective in epidemics of influenza, scarlet fever, cholera, whooping cough, diphtheria, and measles in the past, it is reasonable to expect it to act beneficially for plague as well, once the characteristic symptoms of the outbreak can be matched to a homeopathic remedy according to the accepted methodology.

Natural history and clinical course.

In the bubonic form, incubation usually occurs for 2-6 days after exposure. The early flu-like symptoms include fever, headache, and general malaise. These are followed by development of painful, swollen buboes in the regional lymph nodes draining the inoculation site, which in susceptible individuals may progress rapidly into the more severe septicemic form, with or without spreading to the lungs. The pneumonic form is also highly transmissible to others, via coughing. The incubation period of primary pneumonic plague is only 1-3 days.

Chief symptoms.

In the bubonic form, the presenting symptoms are mainly swollen, lumpy, tender lymph nodes, or "buboes," with fever, headache, chills, fatigue, and gastrointestinal symptoms. The pneumonic form typically presents with high fever, chills, dyspnea, cough, and bloody sputum.

Conventional treatment.

Conventional treatment consists of isolation in hospital and treatment with antibiotics, usually streptomycin or gentamicin. Preferred antibiotics for prophylaxis are the tetracyclines,

chloramphenicol or sulfonamides. The vaccine is no longer available. Since the efficacy of these treatments is unclear, homeopathy may present a useful alternative under some circumstances.

Homeopathic prophylaxis and treatment.

We have no experience with plague as a bioweapon. The experiences of homeopathic physicians with isolated cases as documented in our literature suggest that *prophylaxis for asymptomatic patients should be limited to those who have come into close contact with a known case of plague. The homeopathic remedy found to be the simillimum for the attack should be the one used to treat asymptomatic contacts.* After careful analysis and discussion of several acute cases, the remedy or remedies which correspond most closely to the outbreak will be found, based on the most distinctive and peculiar symptoms of the majority of cases. *Before such remedies are identified, the nosode Pestinum may be used, e. g., in ascending potencies of 30, 200, and 1M, one each day for 3 days.* Treatment should of course be monitored closely and remedies and dosages changed as appropriate.

Based on RADAR Repertory analysis of the common symptoms, the remedies most likely to help bubonic plague are the following:

<i>Arsenicum album</i>	<i>Carbo animalis</i>
<i>Hepar sulph.</i>	<i>Kali iodatum</i>
<i>Mercurius solubilis</i>	<i>Nitric. acid.</i>

For primary pneumonic plague, the commonest presentation to be anticipated after a biological attack, the main remedies will probably include:

<i>Arsenicum album</i>	<i>Belladonna</i>
<i>Crotalus horridus</i>	<i>Lachesis</i>
<i>Silica.</i>	

Among remedies seemingly well applicable to both bubonic and pneumonic types, the following deserve to be mentioned:

<i>Arsenicum album</i>	<i>Carbo animalis</i>
<i>Hepar sulph.</i>	<i>Mercurius solubilis</i>
<i>Nitric. acid.</i>	<i>Silica.</i>

The remedies most often mentioned in the *materia medica* literature as curative of or helpful for plague with early prostration include:

<i>Arsenicum album</i>	<i>Belladonna</i>
<i>Ignatia</i>	<i>Lachesis</i>
<i>Opium</i>	<i>Phosphorus</i>
<i>Rhus tox.</i>	

Among other remedies likely to be useful in particular cases the following should be mentioned:

Anthracinum
Aurum mur.
Bufo
Crotalus horridus
Hepar sulph.
Pestinum

Aurum
Badiaga
Carbo animalis
Dulcamara
Kali iodatum
Tarentula cubensis.

Symptomatic patients should take the specific remedy for the outbreak, or *Arsenicum album* 30 or 12 every 3 hours until appropriate medical care can be found. Asymptomatic contacts should take *Pestinum* 30 once on the first day, 200 the next, and 1M the next.

A Brief Review of the literature.

Anthracinum.

First preparation made according to Hering's directions by Weber, and applied with astonishing success in the "cattle plague." He cured every case, and also those poisoned by contagion. No notice was taken of his report, published in 1836, save by Dr. Dufresne of Geneva, who used it to prevent further spread of the disease in a flock of sheep, and cured the shepherds as well.

-- *Bibliothèque Homœopathique de Genève*, 1837, cited in Allen, H. C., *The Materia Medica of the Nosodes*.

Lachesis.

My third son had an attack of plague, and was under treatment from two eminent doctors of the old school, but finding no perceptible improvement I was forced to try homeopathy. While conscious of my position and responsibility, my unbounded faith in homeopathy impelled me to do so. Although I had by that time successfully treated a few cases of the plague, I was still very uncertain how to proceed, especially regarding my son, and at a loss to find the *simillimum*. As there were six buboes in his case, I considered it to be one of malignant boils or pyemia, and gave *Lachesis* 6C. To my surprise the buboes matured in 2 or 3 days and were operated on by an able surgeon, after which my son recovered perfectly in 2 months. This was my first use of *Lachesis* in plague, and it was a random shot.

--*British Homœopathic Journal*, 1912, vol XXVII, No. 6

Naja tripudians.

Buboes. *Lach.* and *Naja* have had the greatest success of all homeopathic remedies in recent epidemics of plague in India.

--Murphy, R., *Homeopathic Remedy Guide*

Rhus toxicodendron.

Rhus tox. affects lymph glands, esp. axillary, which are swollen and tender, and has power over bullous cellulitis and septicemia, which make it homeopathic to the plague, in which it has been used with good effect.

--*British Homœopathic Journal*, 1913, vol. XXVIII, No. 5

Aurum metallicum.

Gozzi claims that perspiration is worse at night, and that excessive doses of gold render it debilitating and depressing, with suppression of urine and perspiration, and exacerbation of the disease, such that patients complain of malaise and heat. He also asserts that dry, warm weather favours the action of gold, and that its use causes inconvenience in cold weather, especially cold and wet, which homeopathically is like saying that the symptoms calling for gold are better in warm, dry weather and worse from cold and damp. In this it is like syphilis and bubonic plague.

--Burnett, J.C., *Gold as a Remedy in Diseases*

Crotalus horridus.

Adynamic conditions in general, especially low, malignant fevers, with great prostration, low muttering delirium, tongue dry, brown, cracked or yellow with brown centre and red edges, etc. Bubonic and pneumonic plague.

--Clarke, A.G., *Decachords*

Ignatia amara.

For the plague, both preventively and curatively. Turkish people wore the bean as a preventive against the plague.

--Vermeulen, F., *Concordant Materia Medica*

Conclusion.

Homeopathy is a useful alternative for treating plague as a bioweapon, especially in those patients who are allergic or unduly sensitive to conventional drugs. In the event of a large-scale attack, patients without access to overloaded emergency facilities or experienced medical care may well benefit from homeopathic treatment or first-aid until definitive care is available.

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Postscript.

Richard Moskowitz, M. D.

Plague is potentially the deadliest of all bioweapons, in that it combines the virulence and extreme rapidity of action of anthrax with the infectivity of smallpox or tularemia and thus the ability to spread to larger populations outside the immediate target area. Since the weaponized material would be inhaled directly into the lungs, the primary pneumonic form would be the main threat, and its brief incubation period of 2 or 3 days would allow no time for a vaccine to take effect, even if there were one, and very little for effective treatment of any kind. *If treatment is delayed more than 18 hours after the onset of symptoms, the case fatality rate increases dramatically: the interval from onset of symptoms to death averages only 2-4 days.* In addition to this fulminating pneumonia, the pathology of severe cases includes sepsis, hemorrhagic shock, renal failure, and necrosis or gangrene of vital organs or peripheral tissues (e.g., fingers and toes), which

would certainly suggest the remedies that Bob has listed -- *Arsenicum*, *Crotalus horridus*, *Hepar*, *Lachesis*, *Mercurius*, *Silica*, etc. -- as well as typhoid miasm remedies like *Baptisia*, *Bryonia*, *Pyrogenium*, and *Rhus tox.*, gangrenous remedies such as *Secale* and *Vipera*, and others of similar ilk.

After reading over Dr. Schore's work, I also looked up the disease in Lilienthal, the *Complete Repertory*, and *Reference Works*, and found the following remedies, some of which were not found on his list:

Lilienthal, *Homœopathic Therapeutics*: bapt., carbo veg., chin., sec., sulph., sul. ac., verat.

***Complete Repertory*:** pyrogen.

***Reference Works*:** ant. tart., bapt., carbo veg., chin., iod., operc., psor., pulx., sass.

In a massive attack resulting in a large-scale outbreak, widespread use of IM antibiotics for prophylaxis and treatment would be impractical, in which case one of the tetracyclines, e; g., Doxycycline, would be the standard drug of choice. The formaldehyde-killed plague vaccine is no longer available, might not be effective against a genetically-modified weaponized strain, and would be too late in any case. In this situation, the homeopathic nosode *Pestinum* might well offer significant protection to those not yet exposed but at high risk, as well as those recently exposed but not yet sick. As Dr. Schore has said, a simple alternative would be to use *Arsenicum album* and eventually the *genus epidemicus* in the same situation.

Personally, I doubt that plague will be used in a biological attack in the foreseeable future, for two reasons. First, the bacillus is so virulent and dangerous to its handlers that many of the early investigators came down with the disease and died of it. This might not deter a suicidal fanatic, but could make the planners of an attack think twice about the feasibility of getting it safely to the target area and carrying out the attack effectively. Second, only the United States and the former Soviet Union possessed the resources, the will, and the technical capacity to weaponize this stuff. For terrorists to use it, they would have to have bought or stolen it from us or the Russians, and then figure out how to use it: certainly not impossible, but comparatively difficult and therefore unlikely.

An unusual case.

I conclude with a case of sylvatic plague in a pregnant woman from the early years of my practice in Santa Fé, which I reported to *JAMA* in 1977 with the late Jonathan Mann, M. D., then chief Medical Officer of the New Mexico Health Department, later head of the AIDS Task Force for the World Health Organization:

A 28-year-old woman in her fifth month of pregnancy was examined for chills, fever, and a painful right inguinal swelling. After moving to a house on the edge of Santa Fé, she had dusted her dog with flea powder, as advised by the NM Health Department, but not her cat. Five or six days before being seen, she noted several itchy lesions on her legs which she assumed were flea bites and subsided in a few days. On the evening before admission, she experienced the sudden onset of high fever, shaking chills, and headache. By the following morning, she complained of severe pain in the right groin,

which caused her to limp and seek medical attention. Six previous pregnancies had resulted in four abortions and two live births.

On physical exam the patient appeared acutely toxic, with a temperature of 104°F., pulse 120 per min., blood pressure 90/60 mm., and respiration 20 per min. Skin lesions, presumably healing flea bites, were noted on the right calf, with no evidence of purpura, ecchymosis, or petechiae. A dry, irritating cough on deep inspiration was associated with decreased breath sounds and fremitus over the right base posteriorly. A soft flow murmur was audible over the apex; the liver and spleen could not be felt. The fundus was at the umbilicus, and no fetal heart tones were heard, but fetal movement was observed. The right inguinal canal was markedly swollen and red, exquisitely tender to palpation, and contained two tense, marble-sized buboes. The sensorium was clear.

The patient was hospitalized with a presumptive diagnosis of bubonic plague. The white count was 16,500 per cu. mm., with 86% polys, 10% bands, and only 4% lymphs. The chest film was normal, the urine contained 1-3 RBC's and 35-45 WBC's per hpf. The bubo aspirate was sent to the State Lab in Albuquerque under a police escort, and the presence of fluorescent-antibody-staining organisms confirmed the diagnosis of plague; cultures of blood and aspirate also grew out *Yersinia pestis*.

She was treated with streptomycin 500 mg. IM q 8 hours for 5 days, improved rapidly, and was afebrile by the 4th hospital day. On the 3rd day, the platelet count was only 111,000 per cu. mm., with an abnormally high titer of fibrin split products, but there was no bleeding or evidence of renal impairment or placental dysfunction. She was discharged on the 6th hospital day with no further medication, and the buboes regressed slowly over the next several weeks with the aid of *Silica 30*.

The remainder of the pregnancy was uneventful. On January 30, 1976, she gave birth at home to a healthy 6-pound boy after a short labor requiring no medication. There were no complications; the placenta delivered spontaneously and was grossly intact. Both mother and baby continued to do well throughout the postpartum period.

Unless treatment is begun early, plague acquired in pregnancy usually leads to abortion or miscarriage, events which exert a most unfavorable influence on the outcome of the disease.

-- Adapted from Moskowitz, R., and Mann, J., *JAMA* **237**:1854, 25 April 1977.

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Tularemia

Bernardo Merizalde, M. D.

Originally known as "rabbit fever," the disease we know as tularemia was first described in Japan in 1837, but subsequently named for Tulare County, California, where the bacterium was first isolated and identified. Tularemia is an infectious disease caused by the hardy organism *Pasteurella tularensis*, or *Francisella tularensis* in the newer nomenclature, a distant cousin of the plague bacillus. Although many wild and domesticated animals have been infected with it, the organism is especially prevalent in rabbits, hares, and other rodents, and most often attains epidemic proportions in rabbits.

The disease is most commonly transmitted from rodents to man by insect vectors like the deer fly, *Chrysops discalis*, ticks, and others, but also from handling infected animal carcasses, eating or drinking contaminated water or food, such as poorly cooked rabbit meat, or simply by inhaling *F. tularensis* in the air. Those at highest risk of natural exposure to tularemia include people who spend a lot of time outdoors in Nature, often with specialized occupational or recreational interests, such as hunters, veterinarians, falconers, and others who keep, handle, or care for birds of prey, many species of which feed on rabbits. The disease is not known to spread from person to person, so that patients with tularemia do not need to be isolated.

Symptomatology.

Symptoms typically appear 3 days after exposure, with a range of between 2 to 14 days, depending upon where the organism enters the body. One common form begins with a sudden and persistently high fever, associated with a papule developing on the skin, which evolves into an ulcer associated with swelling of regional lymph nodes. Other accompanying symptoms may include chills, headaches, swollen and painful eyes, sore throat, muscle aches, joint pain, dry cough, and progressive weakness. Associated with milder symptoms, a less virulent type B strain has also been identified.

Tularemia may present in any of six semi-distinct forms -- namely, the ulceroglandular, glandular, oculoglandular, oropharyngeal, pneumonic, and typhoidal -- depending on the principal mode of transmission. Some authorities prefer a simpler dual classification into the commoner ulceroglandular type, with mainly local or regional signs and symptoms, and the more lethal or typhoidal form, with chiefly systemic symptoms.

Representing some 70-80% of sporadic cases occurring in the wild, *the ulceroglandular form* occurs when the organism is inoculated into the skin and subcutaneous tissues through a scratch, abrasion, or tick or insect bite, and spreads via the proximal lymphatic system. In this form, tularemia is easily recognized by the presence of a typical lesion with swollen, painful lymph nodes proximal to it. Apparently as few as 10 organisms can cause disease if inoculated under the skin in this fashion. Ulcers on the skin or mouth may also develop. In the purely glandular form, regional lymph node involvement develops without any ulcer or skin lesion, and the organism is presumed to have gained access to the blood and lymphatic systems through tiny abrasions that are undetected. In the uncommon oculoglandular form, representing 1% of cases, the organism enters through the conjunctiva from a splash of infected pus or blood, or from rubbing the eyes after contact with infectious materials, such as blood from a rabbit carcass.

Of the more systemic types, the rare oropharyngeal form occurs from eating infected rabbit meat that has not been properly cooked, and presents as a throat infection, intestinal pain, vomiting, and diarrhea. Acquired by inhalation, the pneumonic form may occur naturally, but is mainly observed in laboratory workers, presenting with fever alone, or fever and a pneumonia-like illness, consisting of chest pain, dyspnea, and hemoptysis. But secondary pneumonia also complicates the picture in 10-15% of patients with ulceroglandular tularemia, and in one-half of those with the typhoidal form. *The typhoidal or septicemic variety* is the most severe, develops in 10-15% of cases, and often includes pneumonia. In most cases, the mode of transmission and portal of entry remain unclear.

Physical Findings.

The physical findings commonly seen in most cases include fever, hepatosplenomegaly with soreness, and in perhaps 20% of cases, a generalized maculopapular rash that may become pustular. In one series, erythema nodosum occurred in 4 of 88 cases. The characteristic ulcer forms at the site of entry of the organism into and under the skin, which varies with the vector, as we have seen. Beginning as a tender papule, the lesion ulcerates, suppurates, develops sharply-defined borders, and soon turns black. The regional lymph nodes are swollen and tender, and may become fluctuant and drain spontaneously.

Conventional Treatment.

Tularemia should be treated as soon as possible, even prophylactically immediately after exposure if possible, since untreated it carries a fatality rate of 5-15% overall, and considerably higher once it reaches the typhoidal form. Appropriate antibiotics lower the overall mortality rate to about 1%: streptomycin, gentamicin and tobramycin have been the most effective in the past.

Homeopathic Treatment.

A search of the homeopathic literature came up more or less empty for tularemia, so that we can only conjecture about possible remedies by extrapolation from the pathognomonic symptoms, but on that basis the following remedies could well prove helpful:

Arsenicum album

Anxiousness, restlessness, and fatigue, with anguish, fear of dying, and despair of recovery. Nasal discharge clear and excoriating, with GI symptoms, especially nausea, vomiting, and diarrhea. Irritable, fastidious, critical, and difficult to please.

Carbo vegetabilis

Great weakness and prostration, with abdominal distension, burping, and flatulence. Chilly but with a feeling of suffocation and desire to be fanned. Complexion grayish, as if the vital functions are giving out. In the later stages, when recovery seems elusive and difficult.

Causticum

Significant mucus, which is thick, white or gray, and hard to dislodge, especially in the trachea and larynx, with marked hoarseness. Muscular weakness or paralysis, with a general feeling of tension. Tearing rheumatic pains and/or sciatica, alleviated by warmth. Incontinence.

of urine, with sensations of rawness in the throat, stomach, eyes, and elsewhere. Intensely sympathetic, with anxious forebodings.

Kali bichromicum

Overheated, with thick, yellow or greenish mucus or crusts in the nose, rheumatic pains, sinus infections, and swollen uvula. Pains here and there in single spots, with gastric irritation.

Mercurius vivus

In addition to the papular or ulcerative eruptions typical of the disease, with swelling of local and regional lymph nodes, fever, and weakness, characteristic symptoms of the remedy will be found: increased salivation, sensitivity to changes of temperature, tendency to become chilled or overheated, and nighttime aggravation. Inflamed, bleeding gums and enlarged tonsils may be present as well.

Phosphorus

General nervousness and apprehension, with fears of the dark, thunder, and being alone, and the need and desire for touch and affection. Burning sensations in the skin of back and limbs especially, with trembling from slight exertion. They tend to be cold but yet crave cold drinks.

Phytolacca

Agonizing rheumatic pains in various parts, with restlessness, but worse from movement. Faintness on rising. Throat and mouth red and inflamed, with clenching of teeth and pain extending to the ears, better from cold drinks. Hard, painful swellings in the breasts, with a tendency to form cysts.

Psorinum

Cold, chilly and sensitive to drafts, but also aggravated by heat, with eczema, dermatitis, and intolerable itching. Perspiration and all discharges foul-smelling.

Prophylaxis.

Although long-term immunity usually follows recovery, reinfection with tularemia has been reported. A vaccine for tularemia is currently under review by the FDA but is not yet available in the United States.

Postscript.

Richard Moskowitz, M. D.

Although tularemia acquired naturally from rodents and rabbits can usually be treated effectively with antibiotics if caught early enough in its various localized forms, its principal threat as a bioweapon lies in the extent to which the weaponization process can aerosolize and disseminate it in a form and particle size capable of being inhaled directly into the pulmonary alveoli and thereby producing pneumonia and sepsis, i. e., the much more deadly typhoidal form, largely bypassing the usual subcutaneous and lymphatic routes. In this respect it is exactly analogous to the plague, and indeed is properly thought of as a cheaper, more abundant, and only slightly less deadly version of the latter, the main differences being that it cannot be transmitted

from one human victim to another, but on the other hand is much less well known, more varied in its clinical presentations, and therefore more difficult to recognize and more easily overlooked.

According to the AMA handbook *Bioterrorism*, tularemia was first studied and perhaps used by the Japanese in Manchuria during World War II. A Soviet microbiologist who defected to the West claimed that large-scale outbreaks on the Russian front may also have been intentional and resulted in tens of thousands of deaths among German and Russian troops alike. Moral considerations aside, this possibility underscores the other major problem with biological and chemical weapons generally: their ability to turn on their users and attack them with equally devastating effect.

This is particularly true of tularemia because of its extreme infectivity, in which it again rivals the plague: one expert has said that 10-50 bacilli are sufficient to cause disease if they are inhaled or injected hypodermically. In the late 1960's the U. S. military had stockpiled large quantities of virulent material, and by the early 1990's the Russians had done the same, having developed new strains resistant to all antibiotics and vaccines, according to the same Soviet informant. In 1969, WHO experts reported that 50 kg. of virulent organisms aerosolized and dispersed over a metropolitan area of 5,000,000 inhabitants would result in about 250,000 incapacitating casualties and perhaps 20,000 deaths. Like the plague, it is also very dangerous to laboratory workers handling the organism.

There is no mention of remedies or treatment for tularemia in the homeopathic literature. But its general resemblance to the plague both bacteriologically and clinically (tender, swollen lymph nodes, pneumonia, sepsis, hemorrhages, gangrene, etc.) suggests that, in addition to the remedies cited by Dr. Merizalde, the others listed under plague might do good service as well. The nosode *Tularemia* probably exists somewhere, and could be of use in the event of an attack, but I've not yet seen it.

As with the plague and anthrax, the main application for homeopathic remedies is likely to be for prophylaxis, based on the *genus epidemicus*, and also as an adjunct to antibiotic treatment for advanced cases. The main antibiotics favored for treatment are exactly the same as for the plague: namely, streptomycin, gentamicin, chloramphenicol, and various tetracyclines, with doxycycline the probable drug of choice for large-scale prophylaxis. Ciprofloxacin has also shown promise *in vitro*. But if the weaponized strains have indeed been altered for maximum resistance to drugs and vaccines, then homeopathic treatment based on the total symptom-picture could easily become the principal treatment modality for this seriously underrated disease.

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Botulism

Bernardo Merizalde, M. D.

Botulism is a paralytic illness caused by the lethal neurotoxin of *Clostridium botulinum*, a bacterium related to that of tetanus which is also commonly found in the soil. These rod-shaped organisms grow best in anaerobic or deoxygenated conditions, and form spores which allow them to survive in a dormant state until exposed to conditions that can support their growth. There are seven types of toxin designated by the letters A through G, of which only A, B, E and F have caused illness in humans.

Botulinum toxin is the most poisonous substance known. If evenly dispersed and inhaled, a single gram of crystalline toxin could kill more than 1,000,000 people. It is a zinc-containing protease enzyme, which binds irreversibly to and then cleaves the fusion proteins by which neuronal vesicles release acetylcholine into the neuromuscular junction.

The three main forms of naturally-occurring botulism are

- 1) foodborne, caused by eating foods that contain the botulism toxin;
- 2) in wounds infected with toxin-producing *Clostridium botulinum*; and
- 3) in infants consuming the spores, which germinate in the intestines and release toxin.

All forms result from absorption of the toxin into the blood from the gastrointestinal mucosa or a wound; it does not penetrate intact skin. Wound botulism and intestinal botulism are infections of a sort, but the resulting disease is solely attributable to production of botulinum toxin in deoxygenated or anaerobic wound tissue or in the intestinal tract. All forms are life-threatening medical emergencies, but the disease cannot be transmitted from person to person.

Foodborne botulism has occurred after eating improperly preserved foods in restaurants or delicatessens, even foil-wrapped baked potatoes when kept at room temperature after baking and served plain, e. g., in potato salad or Mediterranean-style dips, or condiments like sautéed onions, garlic in oil, or commercial cheese sauces. Other food sources include inadequately gutted fish, yogurt, cream cheese, and jars of peanuts.

In the United States, an average of 110 cases of botulism are reported each year, with approximately 25% foodborne, 72% in infants, and the rest wounds. Wound cases have been reported in users of black-tar heroin.

Symptomatology.

Symptoms of the foodborne type may appear at any time from 2 hours to 8 days after ingestion of toxin, but the average is about 12 to 72 hours. For inhalation of aerosolized toxin in a biological attack, the incubation period is not precisely known, but it probably is about the same as by other routes. Because the disease is essentially an intoxication, most patients are afebrile unless they develop a secondary infection, such as aspiration pneumonia. The toxin does not

penetrate brain tissue, so that patients are not confused or obtunded, but often appear lethargic and may not communicate effectively because of the typical bulbar paralyses, "the 4 D's," i. e.,

Diplopia, or double vision;
Dysarthria, or slurred speech;
Dysphonia, or hoarseness; and
Dysphagia, or difficulty swallowing.

In naturally-occurring foodborne botulism, these neurologic signs may be preceded by abdominal cramps, nausea, vomiting, or diarrhea, probably a result of other bacterial metabolites present in food, but not in a biological attack with purified botulinum toxin in food or aerosol. In all of its forms, however, the neurologic signs of botulism are identical, and consist of a classic triad:

- 1) symmetrical, descending, flaccid paralysis of the arms, legs, trunk and respiratory muscles, with prominent bulbar palsies, as listed above, in
- 2) an afebrile patient, with
- 3) a clear sensorium.

It is not possible to have botulism without multiple cranial nerve palsies, as above. Other parietic symptoms include blurred vision, ptosis, or drooping eyelids, enlarged or unreactive pupils, dry mouth, and profound weakness of the peripheral musculature. Deep tendon reflexes may be present initially, but diminish or disappear in the ensuing days, with constipation in some cases. Sensory changes are not observed. Infants appear lethargic, constipated, flaccid, and feed poorly, with a weak cry and poor muscle tone.

Diagnosis.

In small or early outbreaks, botulism may closely resemble and is often mistaken for other CNS diseases such as Guillain-Barré syndrome, stroke, or myasthenia gravis. Brain scan, spinal fluid examination, EMG, and tensilon test are all useful to rule them out. In the case of biological attack, the diagnosis can be definitively established by injecting toxin-containing serum or stool into mice and reversing the typical neurological signs with type-specific antitoxin.

Conventional Treatment.

Although the signs and symptoms of botulinum intoxication are identical regardless of its antigenic type, the extent and duration of paralysis may vary considerably among individuals, from some who are only mildly affected to others so paralyzed as to appear comatose and to require months of ventilatory support. Dysphagia and loss of the gag reflex may require endotracheal intubation and mechanical ventilation.

Conventional treatment for botulism in any form is limited to supportive care and passive immunization with equine antitoxin, which should be given as early as possible after the diagnosis is made, in order to prevent more serious disease and subsequent nerve damage, but will not help whatever paralysis has already occurred. All patients must be evaluated for adequacy of gag and

cough reflexes, control of oropharyngeal secretions, oxygen saturation, inspiratory force, and vital capacity. Since airway obstruction or aspiration usually precedes hypoventilation, intubation is indicated preventively when these signs of deterioration are present. In a large-scale attack, the need for mechanical ventilators, critical care beds, and skilled personnel would quickly exceed local capacity and persist for weeks or months. Development of a reserve stockpile of breathing machines is under way and will require a complement of staff trained in their use.

Many patients also require other types of supportive care, such as feeding by stomach tube, TPN, intensive care, and treatment of secondary infections, and must be closely monitored to forestall impending respiratory failure. Infants not requiring ventilation may be positioned in reverse Trendelenburg with neck support, which improves ventilation by reducing the volume of oral secretions flowing into the airway.

In untreated persons, death results from airway obstruction secondary to paralysis of the pharyngeal and upper airway muscles, and inadequate tidal volume secondary to paralysis of the diaphragm and accessory respiratory muscles. Recovery occurs as new motor axons sprout and gradually reinnervate paralyzed muscle fibers, a process that in adults may take weeks or months to complete, with ongoing requirements for fluid and nutritional support, assisted ventilation, and treatment of complications.

Mortality from botulism has diminished in the U. S. as a result of improved treatment, from 25% during 1950-1959 to 6% during 1990-1996.

Homeopathic Treatment.

A number of homeopathic remedies have the typical symptoms of botulism, although the choice of remedies should always be based on the closest match between the peculiar symptoms of the patient and the total symptom-picture of the remedy. Different remedies will be indicated for different individuals, depending on the presenting symptoms and their relative importance, while a sequence of remedies may be needed at different stages of the illness.

Arsenicum album

Gastrointestinal symptoms: vomiting, diarrhea, and cramps. Anxiety or anguish, with fear of death and of being alone. No diplopia, but difficulty swallowing and breathing, with hoarseness.

Causticum

Paralysis of the bladder, with incontinence, and increased mucous secretions from the nose and airways, which are thick, grayish-white, and difficult to dislodge.

Cuprum

Predominantly gastrointestinal symptoms: cramping, vomiting, diarrhea, and difficulty swallowing.

Gelsemium

Muscular weakness, weariness, and abdominal pain, without vomiting or diarrhea. Marked diplopia, dysarthria, dysphonia, and dysphagia.

Laurocerasus

Breathing worse from sitting up, better from lying down with head low. Senses blunted, with tetanic spasms in muscles, pulse slow and weak, and pallor, cyanosis, and coldness of the skin to touch. Liquids make a loud noise when swallowed.

Veratrum album

Gastrointestinal symptoms, vomiting and diarrhea, followed by "the four D's," diplopia, some dysarthria, dysphonia, and dysphagia.

Prophylaxis.

Botulism can be prevented by the presence of neutralizing antibody in the blood. In the event of an attack, passive immunity can be provided by type-specific equine antitoxin or specific human hyperimmune globulin. In advance of an attack, partial active immunity can be conferred by botulinum toxoid. The use of antitoxin for post-exposure prophylaxis is limited by its scarcity, and by the high incidence of adverse reactions, chiefly serum sickness. Because of these risks, it is uncertain how best to care for persons exposed to botulinum toxin who are not yet ill. To strike a balance between the risk of the disease and the adverse effects of the antitoxin, it is current practice to monitor those who may have been exposed to toxin and treat them with antitoxin at the first signs of illness. Vaccinating the entire population with botulinum toxoid could theoretically eliminate the risk of the disease, but is not feasible or even desirable, owing to the scarcity of toxoid, the rarity of the disease, and the potential therapeutic benefits of Botox used medicinally.

Decontamination.

Despite its potency, botulinum toxin is easily destroyed. Heating to 85°C. for at least 5 minutes will effectively detoxify contaminated food or drink. Persistence of aerosolized toxin at the site of an attack is determined by atmospheric conditions and the particle size of the aerosol. Extremes of temperature and humidity will degrade it, while fine aerosols will slowly dissipate into the atmosphere. Depending on the weather, aerosolized toxin has been estimated to decay at 1% to 4% per minute, which means that substantial inactivation occurs within 2 days after the attack. When exposure is anticipated, some protection is provided by covering mouth and nose with an undershirt, shirt, scarf, or handkerchief, while in contrast to mucous membranes, the unbroken skin is impermeable to the toxin. After exposure, skin and clothing should be washed with soap and water. Contaminated objects and surfaces should be cleaned with 0.1% hypochlorite bleach if they can not be avoided for hours to days until natural degradation occurs.

Botulinum toxin is licensed in the United States for treatment of torticollis, strabismus, and blepharospasm associated with dystonia, and is also used "off label" for a variety of common conditions, including migraine headache, chronic low back pain, stroke, traumatic brain injury, cerebral palsy, achalasia, and various dystonias.

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Postscript

Richard Moskowitz, M. D.

Although of bacterial origin, botulinum toxin is essentially a chemical weapon, and thus not transmissible from person to person. As the head of their biological warfare unit later admitted, the Japanese first tested it against prisoners during their occupation of Manchuria, with deadly effect. Allegedly to counteract a similar program of the Germans, the United States also produced large quantities of toxin and toxoid during the War. Between 1990 and 1995, the Aum Shinrikyo cult mounted several attacks with aerosolized toxin against U. S. military installations and at several other downtown Tokyo locations, but failed as a result of faulty technique.

In 1969-70, the American biological weapons program was officially ended by executive order of President Nixon, but the Soviet Union continued to develop and manufacture the toxin, as have Iran, Iraq, North Korea, Syria, and other countries. It was also one of the weapons tested by the Russians at the Aralsk facility on an island in the Aral Sea, where a Soviet defector later testified that attempts were made to splice the gene for producing toxin into the genome of other bacteria. After the Gulf War in 1991, Iraq admitted to UN inspectors it had produced almost 20,000 liters of concentrated toxin, of which about half were loaded onto military weapons. Still not fully accounted for, this cache is about 3 times the amount needed to kill the entire world's population.

From a homeopathic point of view, the rapid onset of botulism (12-72 hours, on average) makes prophylaxis very difficult at best, although the nosode *Botulinum* does exist and could be somewhat effective if given immediately after exposure, or better still, as soon as possible after an upwind attack, where exposure is imminent or threatening but has not yet occurred. For short-term prophylaxis on an emergency basis, I would recommend *Botulinum* 30C, or the *genus epidemicus*, once it is determined, 3 times a day for 3 days, followed by 1 dose twice a week until the emergency passes.

Once neurological signs have appeared, suitable remedies could also be a useful adjunct to antitoxin therapy, with its attendant danger of serum sickness, and even more so where supplies of antitoxin are running low or unavailable, since there is no other conventional treatment aside from mechanical ventilation and other supportive care.

As Dr. Merizalde has said, the choice of remedies under the emergency circumstances of frank botulism is daunting, but his list of possibilities is an excellent place to start. Some others he did not mention were suggested by the following rubrics:

BULBAR PARALYSIS, from *Reference Works* (partial list):

Argentum nit.

Botulinum

Cantharis

Cina

Crotalus cascavella

Cuprum aceticum

Guaco

Manganum oxydatum

Naja
Plumbum
Thallium

Phosphorus
Silica
Zincum

From *Complete Millennium Repertory*,

LARYNX, Paralysis (partial list):

acon. *alum.*, bell., both., canth., **Caust.**, *cina*, *cocc. crot. h.*, dulc., *gels.*, *hyos.*, ip.,
kali i., kali p., **Lach.**, *laur.*, *naja*, nux m., *nux v.*, op., ox. ac., *phos.*, *plb.*, *rhus t.*, ruta, sec.,
seneg., *stram.*

THROAT, Swallowing impossible, from Paralysis (partial list):

alum., *alumn.*, *apis*, ars., arum t., bapt., caust., *cocc.*, cur., *gels.*, lac. ac., lach., lact., lyc.,
nat. m., *nux m.*, *nux v.*, op., phos., phyt., plb., **Stram.**, *tab.*

SPEECH, Thick (partial list):

agar., bacill., bapt., bell., botul., **Cann. i.**, caust., con., **Crot. c.**, dulc., **Gels.**, glon., **Lach.**,
mag. p., *nat. c.*, *nat. m.*, **Nux v.**, *plat.*, *stram.*, syph., tub., *verat. v.*

VISION, Diplopia (partial list):

agar., *alumn.*, *arg. n.*, **Aur.**, bell., botul., cann. i., *carb. s.*, caust., *cic.*, con., *crot. h.*, **Gels.**,
Hyos., *iod.*, *kali cy.*, kali i., lyc., *lyss.*, *merc. c.*, *morph.*, **Nat. m.**, **Nit. ac.**, *nux v.*, op., *plb.*,
rhus t., *seneg.*, *spong.*, *stram.*, *sulph.*, tab., ther., *thuj.*, *verat.*, *verat. v.*, zinc.

Botulinum (excerpts):

The toxin is very active. Its composition is unstable: a temperature of 80°C. decomposes it, as do alkaline solutions. It is insoluble in alcohol and ether, and its action is neutralized by oil and fat; consequently it is the lean and not the fat of infected meat that is dangerous.

Symptoms of poisoning set in 24 to 36 hours after ingestion. Vomiting is usually the first symptom, but the GI tract as a rule is little affected: generally there is constipation rather than diarrhea. A train of nervous symptoms then develops: ptosis, mydriasis, strabismus, paralysis of accommodation, generalized muscular weakness, dryness and hypersecretion of buccal and pharyngeal mucosae, dysphagia, aphonia, and retention of urine. The symptoms last for weeks, even months., mortality varies from 8 to 10 per cent., and death is accompanied by symptoms of bulbar paralysis. There is no fever or impairment of intelligence.

The immediate treatment is to eliminate any unabsorbed toxin by washing out the stomach with slightly alkaline solutions, which destroy the toxin. After immediate measures have been taken, the most obviously indicated remedy is *Belladonna*. *Bryonia*, *Rhus tox.*, *Sulphur.*, *Agaricus*, *Hydrocyanic. acid.*, *Lachesis*, *Antimonium tart.*, *Arsenicum*, *Phosphorus*, and *Tabacum* are all remedies that may find a place in the treatment of one case or another.

-- Wheeler, *Homœopathic World*, 1907, p. 113
(from *Reference Works*)

Naja (excerpts):

Naja is not hemorrhagic or septic, like *Lachesis* or *Crotalus*. It produces a typical bulbar paralysis. The victims of this reptile frequently bear little sign of external injury. Once developed, the symptoms follow a rapid course. A feeling of intoxication is produced, followed by loss of power over the limbs, loss of speech, swallowing, and control over movement of the lips. Saliva is ejected in large quantities, the respiration gradually becomes slower and slower and at length ceases. Remains conscious all the time.

-- Robin Murphy, *Lotus Materia Medica*
(from *Reference Works*)

The organs seem to be drawn together: internal organs feel distant from each other: for example, the ovary and heart. Control of sphincters lost. Affects the medulla and cerebellum: respiration, throat, ovary. Nervous, excited, and tremulous; swooning fits. Sensation of wasting away. Collapse.

-- Vermeulen, *Concordant Materia Medica*
(from *Reference Works*)

Guaco (excerpts):

Acts on nervous system: bulbar paralysis. *Spinal irritation*. Paralysis. Spinal disorders. Strokes. Tongue, paralysis of. Tongue heavy, difficult to move. Larynx and trachea constricted; difficult deglutition. *Paralysis of lower limbs*.

Compare: *Ox. ac.*, *Lathyr.*, *Caust.*, *Alum.*

-- Robin Murphy, *Lotus Materia Medica*
(from *Reference Works*)

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