IB. FAMILY SPIROCHAETACEAE

Borrelia burgdorferi
Treponema pallidum
Treponema pertenue

BORRELIA BURGDORFERI

Scientific name Borrelia burgdorferi Johnson et al. 1984
Family Spirochaetaceae
Homeopathy Borrelia burgdorferi
Borrelia nosode
Lyme nosode

FEATURES

- Named after W. Burgdorfer, the physician who isolated the spirochaete from a deer tick in 1981.

BORRELIA is also known as: LYME DISEASE

- Flexible, spiral-shaped, Gram-negative spirochaete propelled by an internal arrangement of flagella, bundled together, that runs the length of the bacteria from tip to tip.
- Microaerophilic, i.e. requires oxygen but less than is present in the air.

HOST
Parasitic in animal mucosa

- Parasitic on many forms of animal life; found on mucous membranes.

VECTOR
Ixodes scapularis - a tick [found on deer]

- Transmitted by tick bites.
- The lipid components of Borrelia are unusual in that they include cholesterol, a substance found in only one other bacterial genus, Mycoplasma.
- Also one of the very few bacterial species having linear DNA [typical of organisms with nucleated cells] instead of circular DNA.

Can camouflage itself in humans; can exist in suspended animation until conditions are favourable for it. Hence it is a relapsing condition.

- B. burgdorferi is a slow growing [division time is estimated to be 12-24 hours], fastidious organism that requires a complex liquid medium and an optimal temperature of 33-35° C for growth, due to which it is extremely difficult to culture *in vitro*.
- Glucose provides its major energy source and lactic acid is the predominant metabolic end product.

- Readily adapts to various hosts and "can enter the tissue that is optimal for its survival, and it may evade the immune system and antibiotics by hiding inside certain types of cells. … It is for certain that its ability to kill B-lymphocytes evolved as part of a defence mechanism to evade its own destruction. The observation that it can use the B-cell's own membrane as camouflage indicates that it may be able to go undetected by our immune system. The way our immune system is supposed to work is that it recognizes foreign invaders as being different from self, and attacks the infection. … The most intriguing fact about Borrelia spirochaetes is their well documented ability to change the shape of their surface antigens when they are attacked by the human immune system. When this occurs, it takes several weeks for the immune system to produce new antibodies. During this time the infection continues to divide and hide." [Grier]
- "Like other spirochaetes, such as those that cause syphilis, the Lyme spirochaete can remain in the human body for years in a non-metabolic state. It is essentially in suspended animation, and since it does not metabolise in this state, antibiotics are not absorbed or effective. When the conditions are right, those bacteria that survive can seed back into the blood stream and initiate a relapse." [Grier]

NOTE: While it was first thought that B. burgdorferi was the only species causing Lyme disease, it has since been determined that any number of the different species in the genus Borrelia might be capable of this feat.

LYME DISEASE
SYMPTOMS
STAGE ONE
Rash, large red splotches, maybe bull's-eye, wandering.
Flu symptoms
Glands involved
STAGE TWO
[may last a year]
Less rash
Fatigue
Hypoglycaemia
Glands
Headache
Joint pains
Facial palsy/cranial nerves
Carditis
STAGE THREE
Arthritis - large joints
Carditis
CNS problems - numbness, delusions
Brain fog.
Dementia

The different manifestations of Lyme Borreliosis do not show an even geographical distribution. This is partly due to the uneven distribution of the different genospecies of B. burgdorferi sensu lato, some of which seem to be associated with particular symptoms. Only one of them, B. burgdorferi sensu stricto, has been implicated as the cause of disease in North America, mainly causing arthritis [60%], but in Europe three genospecies, B. afzelii, B. garinii and B. burgdorferi sensu stricto, are known to be pathogenic. … B. afzelii seems to be associated with a degenerative skin condition, acrodermatitis chronica atrophicans, and B. garinii with neurological symptoms. However, these associations are not clear-cut and there

is considerable overlap. B. garinii seems to predominate in western Europe and B. afzelii becomes more prevalent in northern, central and eastern regions, while there is some evidence that B. burgdorferi s.s. has been introduced from the west.
[European Union Concerted Action on Lyme Borreliosis, 1997-2003]

LYME BORRELIOSIS

Borreliosis or Lyme disease occurs in the north temperate zone. It is the most commonly reported tick-borne infection in Europe and North America. A multi-system disorder, borreliosis can affect a complex range of tissues including the skin, nervous and musculoskeletal systems, and to a lesser extent the eyes, kidneys, and liver. [Predilection for the latter three organ systems is more specific for Leptospira.]

The term Lyme disease was first used following investigation into a geographical cluster of juvenile rheumatoid arthritis in the town of Old Lyme, Connecticut, USA, in the mid 1970s. Subsequent studies led to the isolation from the deer tick, Ixodes scapularis [dammini] of a gram-negative spirochaete, which was named Borrelia burgdorferi. The disease has, however, been known in Europe under a variety of names [including erythema migrans, acrodermatitis chronica atrophicans, Bannwarth syndrome*] since the 1880s. In 1909, Afzelius had associated a red rash [erythema migrans] with the tick, Ixodes ricinus.???36
In 1948, spirochaetes were observed in erythema migrans [EM] biopsies and in 1951 a Swedish clinician, Hollström, successfully treated EM infected patients with penicillin. Also in 1951, it was suggested that EM, with associated meningitis, was probably the result of an infection by a tick- or other insect-borne bacterium. … However, EM was considered a relatively harmless condition with no connection made between the lesion and subsequent symptoms caused by the same bacterium.
[European Union Concerted Action on Lyme Borreliosis, 1997-2003]

The clinical presentation of borreliosis can be divided according to its progress. Borreliosis runs its course in three stages. The early stage presents in up to 70% of cases with erythema migrans, an expanding red maculopapular rash that can reach a large size in diameter and typically clears from the central area ["bulls-eye rash"]. The rash can be circular, triangular, and

cover large portions of the body. Vague or pronounced flu-like symptoms and sometimes glandular swelling accompany the rash.
During the second or disseminated stage, which may last for over a year, the spirochaete spreads gradually to other tissues via the bloodstream and lymphatics. Manifestations of this stage may include erythematous patches [usually smaller than the initial lesion], fatigue, headache, muscle and joint pains, facial palsy or other cranial nerve lesions, and, rarely, carditis. Progression to the third stage, late borreliosis, involves Lyme arthritis, commonly restricted to the large joints, acrodermatis chronica atrophicans, and neuroborreliosis.
Erythema migrans, the characteristic rash which may appear some days to weeks following infection, is the most common manifestation, next comes arthritis, then neuroborreliosis, while carditis is rare. Some studies report higher disease incidence rates for males, although a recent Swedish study on recurrence of erythema migrans showed the majority of cases to occur in middle-aged women.
In addition, acrodermatitis chronica atrophicans [indurated, erythematous plaques, bluish-red, commencing on feet, hands, elbows, or knees, and gradually progressing to epidermal atrophy with thin, shiny, papery appearance of the involved sites] reportedly occurs mainly in elderly women, whereas bilateral facial palsy is a frequent manifestation in children. The number of cases of Lyme disease reported in the United States is about 17,000 per year, but the actual incidence is estimated to be some 10 times higher. According to a WHO report, the number of European cases approaches 60,000 annually.

* Bannwarth syndrome or Garin-Bujadoux syndrome ["paralysie par les tiques," tick-induced paralysis] is characterised by intense pain, mostly in the lumbar and cervical regions, and radiating to the extremities, accompanied by migrating sensory and motor disorders of the peripheral nerves, including such symptoms as facial paralysis, abducens palsy, paraesthesias, anorexia, fatigue, headache, diplopia, and erythema migrans.

THE IMITATOR'S NEW CLOTHES

Syphilis was known as the "great imitator" because its multiple manifestations mimicked other known diseases. Lyme borreliosis, likewise, has now entered the stage as "the new great imitator." P.H. Duray concedes: "Initially thought to be a disorder beginning in the skin and progressing to involve the

joints, Lyme disease is now ranked as one of the great mimickers of other diseases, in a manner similar to that once ascribed to syphilis." Sir William Osler remarked that "to know syphilis is to know all of medicine."

Lyme Disease has been misdiagnosed as:
Arthritis
Rheumatoid arthritis
Juvenile arthritis
Fibromyalgia
Chronic Fatigue
Multiple sclerosis
Lupus
Amyotrophic lateral sclerosis
Altzheimer's disease
Crohn's disease
Irritable bowel syndrome
Post traumatic Stress Disorder
Dementia

Homeopathy knows the major syphilitic remedy, Mercurius, as the "great masquerader." Judging by the close family connection between both spirochaetes, it does not come as a surprise that one of very first cases of borreliosis, in 1922 in France, had a weakly positive syphilis test and thus was treated with arsenicals, the then current treatment for syphilis. Making another connection with Mercurius, it is interesting that the writer Amy Tan, a Borrelia sufferer, refers to the disease as "the terrorist in my body". She has trained her dogs to "sniff out bin Laden" - using them to tell her whether the enemy she sees is real or one of her many violent hallucinations.

There are great differences in how borreliosis manifests in Europe versus in the USA. The major presentation of early neuro-borreliosis in the USA is facial palsy, whereas it is encephalomyelitis in Europe. In Europe, the erythema migrans lesion is quite indolent and sometimes hardly noticeable, while US patients have intense inflammatory cutaneous reactions with early dissemination. Acrodermatitis chronica atrophicans is only seen in Europe. Conversely, arthritis is uncommon in Europe, but extremely common in the USA in untreated patients. Neuroborreliosis overall seems to prevail in Europe. These differences are attributed to the distribution of the various Borrelia species.

There is a wide range of symptoms associated with Lyme borreliosis. Symptoms vary greatly, one or more systems may be involved, and new manifestations continue to be described. Like syphilis, Lyme borreliosis may remain latent and asymptomatic for a long period of time; progress for many years through successive stages; or fluctuate dramatically and unpredictably.

Many Lyme patients were first diagnosed with other illnesses such as arthritis, juvenile arthritis, rheumatoid arthritis, fibromyalgia, chronic fatigue syndrome, multiple sclerosis, lupus, early ALS [amyotrophic lateral sclerosis], early Alzheimer's disease, Crohn's disease, irritable bowel syndrome and various other more nondescript illnesses.

So bewildering is the range of symptoms that a borreliosis patient conceded that "while one misguided doctor writes in his book on Lyme that the more

widespread and peculiar the symptoms are, the more likely the complaint is psychosomatic, I'd have to say that the more widespread and peculiar the symptoms are, the more likely that the problem is Lyme disease."
Diagnosis is controversial; some believe the disorder to be "over-diagnosed," others think it is "under-diagnosed" and again others speak of frequent "mis-diagnosis." The virulence of the spirochaete is equally poorly understood. Involvement of immunological host factors have been proposed, whereas the remission of even psychiatric disorders after antimicrobial treatment is deemed proof that it concerns merely a bacterial infection.
Tracking the culprit, the new elusive spirochaete, is riddled with problems, considering that there are asymptomatic seropositive patients, seronegative patients with intractable symptoms, patients with persisting symptoms despite the standard two-to-four-week IV antibiotic treatment regimen, seropositivity despite antibiotics, and so on.
Patients may have one or all of the stages, or the illness may not become symptomatic until stage 2 or 3. What initially was held for "Lyme Hysteria" turns out to be linked with long-term, chronic problems. Yet, there is, as one author put it, "chronic persistent denial of chronic persistent infection in Lyme Disease."

TICK-STRICKEN

Borrelia is transmitted by ticks belonging to the genus *Ixodes*. The two-year life cycle of the tick consists of four stages: egg, larva, nymph, and adult. Between each stage the tick needs a blood meal in order to mature. It usually becomes the host for the Borrelia spirochaetes during its larval stage, when it feeds on small animals such as rodents or birds. After its blood meal the tick drops off the host to transform over a period of months into the next instar. Because off-host ticks are vulnerable to desiccation, an environment with high humidity is required to maintain a stable water balance.
Temperate deciduous woodland with patches of dense vegetation and little air movement coupled with high humidity constitute ideal conditions. Here Ixodes will be encountered, usually in the spring, the season that warrants sufficient humidity. Animals or humans brushing through the vegetation may pick up ticks, then commonly in their nymphal stage, involuntarily assisting in the completion of their life-cycle.
While gorging, ticks increase salivation and with the saliva the spirochaetes which resided in the tick's digestive tract pour out. Ticks are slow feeders, so

that spirochetal transmission usually happens after the tick has been feeding for 24 hours. Prompt removal of the attached tick is therefore believed to prevent infection.

Given time, the tick needs to strike only once. That such a relatively short, though unwelcome visit has such devastating long-term effects seems incredible. Although a history of exposure to a tick-endemic area is essential to support the diagnosis of Lyme borreliosis, about one-third of patients do not recall a rash or tick bite "because the nymphal stage of the tick is so tiny and many rashes in body hair and in discrete areas go undetected."

The dazzling array of borreliosis symptoms has prompted disbelief. One explanation is that the tick simultaneously delivers other parasites such as Ehrlichia canis [ehrlichiosis], Coxiella [Rickettsia] burnetii [Q fever], other rickettsias, Staphylococcus aureus, and Babesia species [babesiosis].

Rather than using the broad spectrum of symptoms as the main guideline, a medical system that so strictly bases its treatment on diagnosis and identification of causative agents is likely to fail. Psychiatrist Robert Bransfield writes: "There has been a recent trend to incorrectly view so called 'objective' signs and symptoms as more valid than those which are 'subjective.' Often a machine or laboratory test is perceived as giving validity to these 'objective' signs. Many of these 'objective' tests are far less valid and are based on questionable techniques, faulty assumptions, and flawed logic. On the other hand, 'subjective' complaints are sometimes viewed with excessive suspicion. … In an effort to create predictability, reliance upon cookbook medicine has given us a recipe for disaster."

The commonly used ELISA test [enzyme linked immunoassay], although having a 90% specificity, delivers an unacceptable amount of false negatives as its sensitivity level is only 65%. The Western blot test is more sensitive. Allopathic treatment by ten days of anti-biotics is insufficent in long term sufferers when the spirochaete is already comfortably ensconced in the brain. And Thomas Grier says: "Too often, I have seen the word *cured* used in Lyme Disease Studies, only to find that the researchers have redefined the word cure to mean seronegative. Seronegativity is not synonymous with cure. The numerous culture positive cases in recent years should have negated that kind of logic years ago, and yet, in 1997, researchers are still publishing studies that use antibodies and PCR as the end point for cure. It's time to ask the patients one simple question: How are you feeling?"

SYPHILITIC MIASM

We cannot fail to see the close resemblance between Lyme borreliosis and the syphilitic miasm with Syphilinum as its prototype. The correlations even go beyond the symptomatology, encompassing such elements as controversy, denial, stigmatisation, blame, and banishment. Hardly any other subject creates as much alienation as the syphilitic miasm in all its disguises.
With the exception of a few symptoms, borreliosis appears to be a spitting image of the syphilitic miasm in general and Syphilinum in particular, as is evidenced by Boericke's and Clarke's summary of the latter:

≈ Utter prostration and debility in the morning.
≈ Fears the night, and the suffering from exhaustion on awakening.
≈ Shifting rheumatic pains.
≈ Chronic eruptions and rheumatism.
≈ Alcohol.
≈ Loss of memory [names, dates, etc.]; remembers everything previous to his illness [i.e. short-term memory deficit].
≈ Hopeless; despair of recovery, does not think will ever get better.
≈ Cross, irritable, peevish.
≈ Violent on being opposed.
≈ Feels as if going insane or being paralysed.

The theme of insanity pervades the borreliosis picture. Pains are described as maddening; patients are labelled as crazy by medical practitioners; patients go out of their minds from their complaints falling on deaf ears.
Descriptions of the mental state induced by Borrelia depict the despair and darkness, the forceful removal of hopes and dreams:
≈ "In this darkness that surrounded me, there was no room left to turn or to run. Only to survive. Days passed like an insect caught in tree sap. Enveloping. A strangely warm, amber struggle in slow motion - a quiet resignation to a world that was filled with nightmare images. Trapped in a mind that knew it had gone insane."
≈ "I thought I was slowly going crazy, never knowing what the next day would bring."
≈ "Some days I haven't a clue what I did two days ago or even that morning. This continues to drive me crazy."
≈ "After years of being told that I was crazy and then suddenly that I had

some type of auto-immune connective tissue disease …"
≈ "I was trying to make sense of it myself, I was grasping at straws for an explanation of what was happening to me. … I felt as if the self I knew was dissolving."
≈ "Sometimes one can't hope for better. One can only hope for different. Death is definitely different."
≈ "When I looked in the mirror I saw someone I didn't recognise."
≈ "In essence, I was dropping out of life."
[Citations extracted from the Personal Stories collected on the website Lymealliance.org]

MATERIA MEDICA BORRELIA

Sources
Non-existent in homeopathy to date, the extensive literature on Lyme borreliosis provides a fine opportunity for the creation of a provisional yet strong symptom picture.
The numbers behind the symptoms refer to the sources below from which the symptoms were collated.

SYMPTOMS

MIND

General picture
≈ "In one U.S. study of 27 patients with late neuroborreliosis, 33% were depressed based on their scores on the Minnesota Multiphasic Personality Inventory. 89% of these 27 patients also had evidence of a mild encephalopathy, characterised by memory loss [81%], excessive daytime sleepiness [30%], extreme irritability [26%], and word finding difficulties [19%]. Controlled studies indicate significantly more depression among patients with late Lyme borreliosis than among normal controls and other chronically ill patients."[2]

≈ "A diagnostic tip in favour of Lyme disease as the cause of the depression and irritability might be concomitant memory loss, word finding problems, or a concomitant polyneuropathy."[2]

Hypersensitivity.

Light.

≈ Photophobia [keynote]; must wear sunglasses or glacier glasses, even indoors, even at night.[3]
[Massimo Mangialavori lists this as one of the features of the Parasites group of remedies.]

≈ Feeling of faintness or dizziness form exposure to fluorescent lights, making it difficult to go to supermarkets or other public places.[3]
[DD: Bird remedies]

≈ Panic attacks triggered by light stimulation, esp. flickering bright lights.[3]

≈ Nausea from flickering bright lights, fluorescent lights, TV or computer screens, strobe lights during EEG testing or the headlights of cars moving in the opposite line of traffic.[3]

Sound.

≈ Ordinary conversation perceived as deafening; wears head phones and puts pillows over his head to block out the sound.[3]

≈ "To one woman even the sound of another person's breathing seemed unbearably loud. In her case, the sound sensitivity also included vertigo, nausea and nystagmus in response to sounds. Any sudden sound, like the phone ringing, and certain household sounds, like the running of tap water, could cause her to fall or retch. This peculiar short-circuiting of the inner ear's auditory and vestibular functions is known as the Tullio phenomenon. This phenomenon has been deemed pathognomonic for syphilis but, as it appears, can occur in Lyme disease as well, and thus provides one more example of the 'new great imitator,' Lyme disease, imitating the old 'great imitator,' syphilis."[3]

Smells.

≈ Smells seem overly intense and noxious.[3]

Taste.

≈ Foods taste abnormally sour or bitter.[3]

≈ Or the reverse: loss of taste *on left side of tongue*.[1]

Touch

≈ Regional or generalised hyperaesthesia of skin to touch or temperature.[1]

≈ Sensitivity to touch; "the bed sheet resting lightly on my toe would make

the toe ache, like a toothache."[11]
≈ "Even the thinness of a sheet was too painful for my legs."[11]

Vibrations.
≈ Abnormally heightened vibration sense, eg, thinks car was vibrating with unusual violence.[3]

Emotional lability / mood changes / irritability.

≈ Accompanied by headache and neck stiffness.[3]
≈ Sudden, intense irritability from sensory stimulation [sound, touch, light] or occurring unprovoked and inexplicably.[3]
≈ Sudden, unprecedented fits of violence.[3]
- Uncontrollable outbursts. "A woman, typically reserved and eager to please, became uncontrollably irritable one day at work and found herself yelling at her boss in a most uncharacteristic fashion."[3]
≈ Sudden bursting into tears from trifles.[3]
≈ Fluctuations from marked agitation to severe depression with suicidal threats.[8]
≈ Rapid mood swings [from grandiosity to sudden tearfulness].[8]
≈ Violence; striking children and breaking furniture.[8]
- Homicidal ideation, urges, and behaviour occur in some of these patients. Some adult patients describe struggling to not act on these urges. When these patients act on a homicidal urge, more commonly it is a child becoming assaultive to a sibling. Dissociative episodes sometimes occur with these patients, occasionally accompanied by aggressive behaviour and loss of memory.[9]

Cognitive impairment - Lyme Fog

≈ Short-term memory problems, word-finding difficulties, dyslexia, problems with calculations or inability to concentrate.[1]
Many Lyme patients state "I feel like I have become dyslexic." Impairment of reading comprehension is an earlier sign with the later addition of auditory comprehension difficulties. Acquired left/right confusion is seen with some of these patients displaying what appears to be an acquired Gerstmann's syndrome or some variant of this syndrome.* They have problems with calculations and often complain of errors when trying to calculate their checkbooks. Fluency of speech is a very significant problem. When interviewing these patients, this is a

clearly evident symptom. Stuttering is seen in many of these patients.[9]
[Boy aet. 5] "I would mix up stories and get cranky. I tried to tell Mom that my brain was 'sticky', but she didn't know what I meant. It didn't hurt, it just wouldn't work. I would climb up on the sink and put a wet washcloth on my head. On those days, my behaviour was hyperactive and I would stutter."[11]

"The kicker, though, was the virtually unexplainable difficulty in writing, typing, speaking, and thinking. I'd use the wrong letters, hit the wrong keys, stutter, reverse things, and find myself unable to say the right word. Everyone does this occasionally, but this was consistent and unrelenting. I felt like something poisonous had taken over my brain."[11]

On interview, patients with Lyme encephalopathy tend to be vague and disorganized in the presentation of the history of their illness. This is despite their close attention to their symptoms and having recounted them many times before. Although in most cases memory of discreet events - tests, dates, diagnoses, responses to medications — is intact, the patient is unable to recall them spontaneously or organize them in temporal order. They may be unclear as to their chief complaint. They may completely lose track of what they were saying, sometimes repeatedly, or of what the question was. They may get off on a tangent and have trouble re-orienting themselves. Frequent prompting and refocusing will be necessary. Beginning the interview with an open-ended question like "Tell me what the problem is" will allow these qualities to become clear.
However their experience is different from that of ADD, in that rather than having the experience that there are many thoughts competing for attention, the Lyme patient has difficulty bringing any thought into clear focus. They experience difficulty thinking. One patient described it as the universe ending six inches from his face. He can't process information that is not immediately apparent, immediately experienced. Another said that when he tries to think about something, or figure something out, all he can do is repeat the question - he can't get to the meaning. One patient, a physician, described it as a "mental intention tremor" — the more she tries to focus on something the more out of focus it becomes.[14]

≈ Brain fog. Problems with facial recognition.[1]
≈ Spaced out, as if in a fog.[3]
≈ Difficulty remembering details such as names or appointment times.

Engaged in new compensatory behaviour, such as daily list-making.[3]
≈ Compensatory compulsions are common in an effort to compensate for the memory deficits.[9]
≈ These [Lyme disease] patients generally come to the office disorganised [despite a supreme effort to be organized], unable to give a coherent history. They will bring copious notes, which are invariably in the wrong order.[7]
≈ I used to have a quick mind and a good memory, now I was dependent on notes plastered everywhere so I could remember things.[10]

Mistakes in speaking and/or writing

≈ "Patients with no prior history of dyslexia have found themselves writing letters backwards, reversing numbers or routinely reversing the first and second letters of a word."[3]
≈ Mistakes in time: says "tomorrow" instead of "yesterday" and vice versa.[3]
≈ Garbled speech, substituting like-sounding but nonsensical words.[15]

Spatial disorientation - sense of position ["**spatial dyslexia**"]

≈ Loses his way in well known streets.[3]
≈ Difficulty with spatial awareness of where front and back doors are in one's own house.[9]
≈ Disturbed sense of position. "Repeatedly bumps into things on the left side of her body, drops things from her left hand despite having no weakness in that hand and occasionally places objects several inches short of a table edge with the result that they fall to the floor."[3]
≈ Disturbed sense of position, esp. in hands; grasps the air when reaching for objects.[6]
≈ "Everything around me looked strange. The people sounded like cackling geese. Everyone looked like they were in fast motion, like someone had sped up the projector. Every time I turned, I was dizzy and disoriented. I was sweating, and completely lost."[11]
≈ "I was getting lost driving to places that I had been to hundreds of times."[11]
≈ "I was getting lost in my own neighbourhood when I tried to drive."[11]
≈ "I forgot where I was on my way home."[11]
≈ "Difficulty 'recognizing' things when driving - familiar landmarks lost their meaning; I stopped at green lights, made wrong turns or drove past my destination, even in territory close to home."[11]

≈ "In New York once, I wandered aimlessly for an hour in a snowstorm, just two blocks from home, because the blanketing of white rendered the terrain unfamiliar."[15]

Hallucinations

≈ Musical hallucinations with a sudden onset and taking the form of patriotic or operatic music.[1]
≈ "I was hallucinating both visually and auditorily. I heard phones ring when there were none. I saw shadows twist into menacing shapes. I heard voices talking. At night, I saw flashing lights fill my vision, and my ears were constantly buzzing with static and ringing. I felt for the first time that I might be truly going mad."[11]
≈ [Upon awakening in the night] "A skeleton hallucination in black and white, looking at me, grinning a very toothy smile, head cocked, propped up by one arm."[11]
≈ "The hallucinations always occurred when I had just awakened from sleep. Before me would spring the embodiment of my nightmares, the incarnation of my imagination ...a corpse lying next to me, or a pudgy poodle dangling from the ceiling, or a woman in a white dressing gown standing in a garden, a carnival barker playing a circus organ."[15]

Intrusive thoughts/images

≈ Intrusive obsessional thoughts with checking; horrific images of killing others; excessive bathing.[8]
≈ Intrusive images which are more commonly of an aggressive nature but sometimes can be of a sexual or other nature. Occasionally these images are of a homicidal nature.[9]
≈ "My mind was a hopeless jumble of uncontrolled thoughts - images and sounds that haunted me. It was as if several minds had been merged into one, and there was no way to sort the images."[11]

Fears
≈ Chronic morbid dread of vomiting [without actual emesis][6].
≈ Panic attacks in sleep.[11]
≈ "I woke up several times in pain and experiencing panic attacks."[11]

* Gerstmann's syndrome: inability to perceive a stimulus applied to the fingers, impairment of the ability to write, inability to do simple mathematical problems, and confusion of laterality of body.

CHILDREN

The majority, over ninety percent, of the children that we have treated complain of headache. The headache, in a few cases, has been very acute accompanied by papilloedema [oedema of optic disc] but in the majority of cases the headache comes on gradually, becomes quite persistent and does not respond to over-the-counter analgesics. In addition to the headache, the children complain of photophobia, dizziness, a stiff neck, backache, somnolence and, those that are in school, have problems with memory and difficulty concentrating. Some patients have developed progressive weakness.

The parents complain that pre-schoolers develop mood swings and become very irritable and they see a personality change. Among school age children and those who are in adolescence, chest pain is a very frequent complaint. At least seventy percent have complained of chest pain. About fifty percent have complained of abdominal pain. More than half the children have arthralgia usually involving the knee and sometimes also the wrist. Other complaints include palpitations, tingling, numbness, rashes that come and go, usually malar [cheek] rashes, and sore throats that are excruciatingly painful.

It is easy to see how this long list can be very non-specific and many of these children are thought to have functional problems.[13]

GENERALS

Typical combination of features

≈ Joint pain + major cognitive dysfunction [esp. short-range memory] + major sleep disturbances + terrible fatigue + sensory hyper-acuity.

Alternating states

≈ Perplexing fluctuation in symptoms. Spry and energetic one day, drained and confused the next day. May be brought on by exertion, stress, or exposure to sensory stimuli, or come without apparent cause. Cannot make plans due to the unpredictable nature of the fluctuations.[3]

≈ Days of near normality alternate with days of profound debility.[1]

≈ The symptoms shift in kaleidoscope fashion from one hour to the next in the same patient and seldom present identically in two different individuals.[6]

≈ "Days of hope and black despair coupled together."[11]
≈ "I thought I was slowly going crazy, never knowing what the next day would bring."[11]

Suddenness
≈ These patients can become suddenly suicidal.[1]
≈ Sudden worsening of symptoms.[2]
≈ Sudden inability to remember how to transfer calls [in a woman who had been a telephone switchboard operator for 20 years].[2]
≈ Worse by any sudden sound.[3]
≈ Sudden intense irritability.[3]
≈ Sudden soreness of sinuses and throat, then disappearing, then sore again in a seemingly rhythmic way.[6]
≈ Sudden, complete inability to swallow.[6]
≈ Awakened in the middle of the night by severe arthritic pains over entire body. Pain sudden, dramatic, and excruciating. Pain gone when waking the next morning.[6]
≈ Sudden changes in stool consistency from normal to putty-like, to constipation [stools have to be removed mechanically], etc.[6]
≈ Sudden arrhythmia.[11]
≈ Sudden falling to the ground.[1]
≈ Sudden paralysis. "As I stood in front of the bathroom sink brushing my teeth, I suddenly lost the use of my right arm and hand. A quivery, ticklish feeling travelled like lightning from the shoulder to the fingertips; paralysed, the arm dropped down into the sink, hit the enamel hard and broke the skin."[11]

Neurological
≈ Left-sided hemiparesis when waking up.[1]
≈ "The left side of my face was paralysed with the numbness extending to the left side of my tongue and down my throat. Also, my left side felt weaker and my left lung felt somehow affected - cold and heavy."[11]
≈ Intermittent paraesthesias.[1]
≈ Nerve pains severe, *burning*, tearing, migrating, with characteristic exacerbations at night.[3]
≈ Clumsiness; "ataxia is common in these patients who are often clumsy, which leads to frequent accidents."[9]
≈ The close resemblance between neuroborreliosis and certain neurological

conditions has been explained thus: "When the human brain becomes inflamed, cells called macrophages respond by releasing a neurotoxin called quinolinic acid. This toxin is also elevated in Parkinson's Disease, MS, ALS, and is responsible for the dementia that occurs in AIDS patients. Quinolinic acid stimulates neurons to repeatedly depolarise. This eventually causes the neurons to demyelinate and die. People with elevated quinolinic acid have short-term memory problems."[4]

Energy

≈ "Too fatigued and sore to even think about moving around."[10]
≈ "The best description I can think of for the misery of acute Lyme disease is a combination of debilitating mononucleosis and severe arthritis in the knees and elbow."[10]
≈ Debilitating fatigue & periodic attacks of left-sided paralysis.[10]

Sleep - Night aggravation

≈ Excessive daytime sleepiness.[1]
≈ Falling asleep while talking with others.[6]
≈ Falling asleep at work.[11]
≈ Narcolepsy. "At first, I would fall asleep spontaneously and unpredictably a few times a week, but over the next three months it climbed to four hundred times a day. I would fall when this happened."[11]
≈ Can not sleep at night, can not wake up during the day.[11]
≈ Apnoea - a sudden 'gasping' for air just before falling asleep.[11]
≈ Sleeping disorder. "He [13 year old boy] would thrash around at night disrupting his bedding, knocking over lamps and rearranging things during the night. I never actually saw any of these episodes but saw the result of them in the morning."[12]
≈ "When I did sleep, it was a tortured sleep where I would toss and turn and tear at my covers. I despised warmth and craved cold. My bed in the morning would look like a war zone."[11]
≈ "In the beginning, I was horrified to awaken knowing that I was still alive and had not died in my sleep. What a great cop-out, I would think, except the nightmares were actually worse than reality."[11]
≈ "Woke up angry in the night that I hadn't just died."[11]
≈ "I experienced night terrors, where friends that had died in the last twenty years gathered around my bed nightly, smiling and waving for me to come with them. … I hated to go to sleep at night because of my dead friends

appearing."[11]
≈ Early morning insomnia with nightmares.[11]
≈ Sleeplessness due to pain in kidneys.[11]
≈ Sleeplessness from stabbing pain in feet.[11]
≈ "I could sleep for only two or three hours before being wakened by a sensation I described as "Dolby-Digital syndrome," a constant vibration within my body, which felt as though someone had installed in me a souped-up megabass system for stadium-strength rap music." [15]

Pains
≈ Burning [pain] seems quite specific [to neuroborreliosis]; the patient describes a sensation that a blowtorch is burning the skin.[9]
≈ Feeling as if muscles and nervous system were on fire.[6]
≈ "The burning pain in my spine was so bad that I broke out in sweats day and night."[11]
≈ Sharp shooting or stabbing pains.[1]
≈ "My left arm, which had been numb down to my forefinger, now developed an icy-burning sensation. I'd had a similar problem with my right arm two years before."[15]

Food & Drink
≈ Anorexia.[1]
≈ "Eating disorders are common. Invariably these patients either gain or lose weight. Sometimes massive weight gain is also seen."[9]
≈ Increased thirst.[1]
≈ Intolerance for alcohol. "Most patients state, 'I don't drink any more'."[9]
≈ Exaggerated symptoms or worse hangover from alcohol.[3]

Temperature
≈ Great chilliness.[1]
≈ Low body temperature [slightly below normal].[5]
≈ Profuse sweating.[1]
≈ Unexplained sweats. Night sweats. Sweating even in cool temperatures.[5]

Weather
≈ Symptoms worse in low pressure weather systems.[5]

Miscellaneous
≈ Lymphocytoma [small solitary bluish-red plaque or nodule], particularly at ear lobes or nipples.[1]
≈ Delayed development, failure to thrive in infants.[5]

LOCALS

Vertigo
≈ Sensation of whirling motion of oneself or of external objects.[1]
≈ Ménière's disease.[1]
≈ Vertigo with drop attacks of the Tumarkin type.[1] *
≈ Motion sickness.[5]
≈ Balance severely off; would fall when closing eyes.[11]
≈ Vertigo from even slightly turning head; "the world would swim if I just moved my eyeballs."[11]
≈ Floor feels as it were rolling beneath the feet, or as if one were on an elevator or a boat, going up and down in waves.[11]

Head
≈ Headache frontal or occipital; intermittent [duration] and fluctuating [intensity].[1]
≈ Feeling of pressure behind eyes, pain < moving eyes.[1]
≈ Sore/tender areas on skull/scalp area.[5]
≈ Pressure migrating from vertex to occiput when turning head.[11]
≈ "When I would move my head, there was a disturbing gurgle as I heard bubbles move around inside my head."[11]
≈ Daily excessive hair fall in clumps.[15]

Eyes & Vision
≈ Conjunctivitis.[1]
≈ Intermittent diplopia and visual blurring.[8]
≈ Diplopia & vertigo and nystagmus.[1]
≈ Triplopia in right eye.[11]
≈ Sparks, spots, waves, floaters before eyes.[5]
≈ Sensation of a foreign body in eye[s] [keratitis].[1]
≈ Twitching.[5]
≈ Bloodshot eyes.[5]
≈ Vision reduced to a circle directly in front of eyes; peripheral vision just a

blurry swirling mess of lights and images.[11]
≈ "Seeing 'trails' of objects, i.e. my own moving limbs or doorways I walked through."[11]

Hearing
≈ Impaired hearing [bilateral] & fatigue, headache, or arthritis.[1]
≈ Hearing loss & tinnitus.[1]

Face
≈ Bilateral facial nerve palsy.[1]
≈ Muscle twitches in face.[4]
≈ Pain in face, teeth, articulation of jaw, and masticatory muscle.[1]
≈ Swelling around eyes.[1]
≈ Facial redness.[5]
≈ "My chin hurt, and felt 'ticklish' - as if something were blowing on it."[11]
≈ Audible clicking of jaw when speaking or eating.[11]
≈ "Around my mouth, all around the lips and down into the chin, a vibrating, biting, humming itch, as though there were a thousand bees swarming over my lips and the majority of them were stinging."[11]

Mouth
≈ Numbness/tingling of face or tongue.[1]
≈ Weakness tongue.[1]
≈ Sore spots on tongue.[5]
≈ Speech; slow and laboured; slurred; poorly articulated.[1]

Throat
≈ Must drink in order to swallow food.[11]

Urogenital
≈ Irritable bladder; trouble starting/stopping; frequent urination; voiding dysfunction.[1]
≈ Urinary retention followed by paralysis of lower limbs.[1]
≈ Numbness genitals.[5]

Chest
≈ Short stabbing pains in chest lasting only seconds.[1]
≈ Dry, non-productive cough.[1]

≈ Awakening in middle of night with chest pains and pain and tingling down my left arm.[11]
≈ Sensation as of hot water were being poured into lungs.[11]

Back
≈ Stiffness of nape of neck & headache, pain in joints and/or muscles, or fatigue.[1]
≈ Weakness nape of neck.[1]
≈ Tired feeling between shoulder blades, as if neck wouldn't support weight of head.[11]
≈ Jabbing pain in the back as if being kicked in the kidneys.[11]

Extremities
≈ Wandering joint/muscle pains [without swelling]; lasting only hours or days in a given location.[1]
≈ Pain in joints only on motion.[1]
≈ Joints sensitive to pressure.[1]
≈ Localised joint pains/swelling involving mostly the knee[s], and to a far lesser extent the ankles, shoulders, and elbows.[1]
≈ "I kept looking down at my upper arms to brush off the hair or cobwebs on them, and realised there was nothing there."[11]
≈ Sensation as of a band pulled tightly around [right] lower arm halfway between wrist and elbow.[11]
≈ Tendon problems - hands/fingers temporarily lock into unusual position.[5]
≈ Carpal tunnel syndrome; & numbness of fingers < during sleep or using hands.[1]
≈ Intention tremor hands.[11]
≈ Fingers on both hands fumble and cannot pick up small objects.[6]
≈ White spots on fingernails; ridges; brittle nails.[5]
≈ Deep, aching, burning pains in the hamstring muscles when sitting; sits on the very edge of a seat; cannot bear touch or slightest pressure on hamstrings.[6]
≈ Leg joints give out or wobbly, rubbery legs. Unable to walk.[5]
≈ Sensation of a tourniquet wrapped around right leg.[11]
≈ Restless legs at night in bed, resulting in sleeplessness.[6]
≈ Throbbing pain in ankles and in long bones in calves and shins; "not an ache, but a feeling that someone had scraped the skin away, thrown salt into the raw tissue, then set it on fire."[11]

≈ Severe pain in balls of feet; painful to put any weight on feet.[11]

Skin

≈ Warm, wet or cold sensations on skin.[5]
≈ Regional or generalised hyperaesthesia of skin to touch or temperature.[1]
≈ Excessively itchy skin. Urticaria.[5]

* During Tumarkin's episodes or Tumarkin's otolothic crisis patients suddenly fall to the ground without prior warning and without losing consciousness. Thought to be caused by a sudden change of the otolithic organs in the ear, the condition is not uncommon in the later stages of Ménière's disease.

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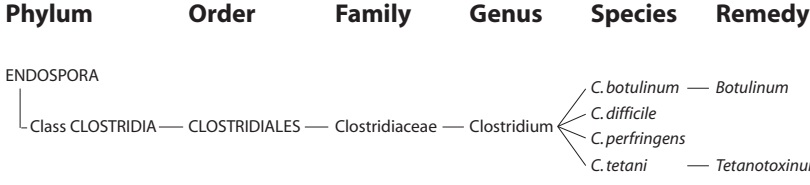
CLASS CLOSTRIDIA

I. ORDER CLOSTRIDIALES

I A. Family CLOSTRIDIACEAE

I A. FAMILY CLOSTRIDIACEAE

Clostridium botulinum
Clostridium difficile
Clostridium perfringens
Clostridum tetani



CLOSTRIDIUM

FEATURES

- Members of the genus Clostridium are Gram-positive, obligate anaerobic, motile, spore-forming rods.
- Ubiquitous saprophytes in nature; especially found in soil.
- Clostridia play a vital role in atmospheric nitrogen fixation and converting it to the ammonia-like side chain of amino acids, nucleotides, and other organic compounds.
- Opportunistic pathogens.
- Form endospores within parent cells that are resistant to heat and desiccation and which may survive for years without water and nutrients.
- Employ butyric [relating to butter] fermentation pathways for energy production.
- Produce end products such as butyric acid, acetic acid, butanol and acetone,

and large amounts of gas during fermentation of sugars. A variety of foul-smelling compounds are formed during the fermentation of amino acids and fatty acids. [Butyric acid is an acid of unpleasant, rancid odour occurring in butter, cold liver oil, sweat, and many other substances. It is also present in the intestines and in gastric juice.]

- Four clinically important species are distinguished:
  - Clostridium botulinum - associated with botulism.
  - Clostridium difficile - associated with pseudomembranous colitis.
  - Clostridium perfringens - associated with gas gangrene [wound infection] and food poisoning.
  - Clostridium tetani - associated with tetanus [lockjaw].

CLOSTRIDIUM BOTULINUM

Scientific name Clostridium botulinum (van Ermengem 1896) Bergey et al. 1923
Family Clostridiaceae
Homeopathy Botulinum - Botul.

FEATURES

- Worldwide distribution in soil, freshwater and saltwater sediments, household dust, and on the surfaces of many foods.
- Survives harsh conditions due to formation of spores.
- Colonises the gastrointestinal tract of fish, birds and mammals.
- First described in 1895 by Van Ermengem, who isolated the organism from raw salted ham in a food poisoning outbreak in Belgium. Van Emergem likened the outbreak to sausage poisoning and proposed the name *Bacillus botulinus* [from L. botulus, sausage] for the causative organism.
- Different strains of botulism-causing organisms produce 7 types of neurotoxins, which are designated A through G. Types A, B, E, and F cause human disease, the first two being most virulent since they are resistant to breakdown by gastrointestinal enzymes.
- Botulinum toxin is a *zinc*-containing endopeptidase that blocks the release of the neurotransmitter acetylcholine, without which muscles are unable to contract, resulting in flaccid muscle paralysis. [The venom of various snakes in the cobra family also inhibits acetylcholine release; hence the similarity between the symptoms of botulism and those of Naja.]
- Foodborne outbreaks of botulism are most often caused by type B, followed by type A and type E. [Reverse in the USA: type A most frequent, followed by type B.]
- C. botulinum spores are heat-resistant, whereas the toxins are readily destroyed by heat.
- Animals susceptible to botulinum include chickens, ducks, wild birds, mink, cattle, and horses; dogs, cats, and pigs are relatively resistant to it.

CATEGORIES OF BOTULISM

The WHO* recognises five clinical categories of botulism, according to the mode of acquisition:

• Foodborne botulism.

Home-prepared and home-preserved foods [often inadequately pasteurised vegetables] in North America, and fish, uncured ham or sausages in Europe are the most frequent cause of poisoning. Home-preserved foods containing fish, vegetables, or potatoes are often involved in outbreaks of botulism, in particular low-acid [i.e. higher pH] vegetables such as beans, peppers, carrots, spinach, asparagus, and corn. Non-acidic foods need to be pasteurised twice, at 24h intervals, to kill the bacteria generated from the surviving spores.
When C. botulinum types A and B grow in low-acid foods of bland taste, a foul and rancid odour [butyric acid, etc.] is generally observed.

The CDC suggests attention to the following cardinal features:

≈ Patient is afebrile unless another infection is present.
≈ Patient demonstrates symmetrical [descending] neurological symptomatology.
≈ Clear mentation; patient remains responsive.
≈ Patient has a normal or slow heart rate in the absence of hypotension.
≈ Signs typically are not accompanied by sensory deficits, with the exception of blurred vision.

• Wound botulism.

Associated with trauma, surgery, subcutaneous heroin injection [notably "black tar" heroin], and sinusitis from intranasal cocaine abuse.

A review of 40 cases of wound botulism showed that most of these cases involved puncture wounds, open fracture, lacerations, crush injuries, shotgun wounds, drug abuse [abscesses], and surgical incisions. Gastrointestinal manifestations are absent.

• Infant botulism.

This is caused by the absorption of toxin produced by C. botulinum that

colonise the intestinal tracts of infants under one year of age. It is in 15% of cases [but unknown in 85%] associated with ingestion of raw honey [may contain C. botulinum spores] and the first clinical sign is usually constipation. After a few weeks, progressive weakness and poor feeding are observed. The weakness is symmetrical and descending. It evolves over hours or several days. The infant is afebrile and has a weak cry, has either absent or diminished spontaneous movements, decreased sucking, floppy head and decreased motor response to stimuli. The autonomic nervous system manifestations include dry mucous membranes, urinary retention, diminished gastrointestinal motility, fluctuation of heart rate, and changes in skin colour.
Infant botulism progresses for 1-2 weeks and stabilises for 2-3 weeks before recovery begins. The average length of a hospital stay for infants is approximately 1 month, although excretion of toxin and organisms may continue for more than 3 months following discharge.

Adult intestinal colonisation botulism has been identified recently. Similar in pathogenesis to infant botulism, this form occurs in older children and adults in the presence of colitis, with a recent history of bowel surgery, or in association with other conditions that may create local or widespread disruption in the normal intestinal flora.
Predisposing factors for intestinal botulism: achlorhydria; chronic antibiotics; gastrectomy; intestinal surgery; Crohn's disease.

• Adult infectious botulism.

Occurs as a result of intestinal colonisation with C. botulinum and in vivo toxin production in a manner similar to that of infant botulism. These patients often have a history of abdominal surgery, achlorhydria, Crohn's disease or recent antibiotic treatment. The disease may simulate Guillain-Barré syndrome.
This rare disease should be suspected in patients with some abnormality of the gastrointestinal tract who develop cranial nerve autonomic dysfunction, and muscular weakness.

• Inadvertent botulism.

This has been reported in patients who have been treated with intramuscular injections of botulinum toxin. Marked clinical weakness is observed as well as electrophysiologic abnormalities. [*See* below.]

All categories of botulism display basically identical neurological signs and symptoms: an acute, afebrile, symmetrical, descending flaccid paralysis beginning in bulbar musculature and successively affecting the upper extremities, then the respiratory muscles, and finally, the lower extremities in a proximal to distal manner.

• Clinical differentials.

Botulism resembles:
* Diphtheria.
* Encephalitis.
* Guillain-Barré Syndrome.
* Cerebrovascular Accident.
* Hypermagnesemia.
* Hypocalcemia.
* Lambert-Eaton Myasthenic Syndrome.
* Myasthenia Gravis.
* Congenital neuropathy or myopathy.
* Mushroom [muscarine] poisoning.
* Atropine poisoning.
* Shellfish poisoning or puffer fish poisoning.
* Organophosphate poisoning.
* Poliomyelitis.
* Tick paralysis.

* World Health Organisation, International Programme on Chemical Safety, Poisons Information Monograph 858, Bacteria, Clostridium botulinum.

FOODBORNE BOTULISM

Described in the old homeopathic literature as food poisoning from "bad sausages," the first accounts by Kerner of sausage-poisoning date back to the 1820s. Spoilage was noted in the 230 cases of sausage poisoning described by Kerner; hence the illness became known as "Kerner's disease" and warnings were issued against consumption of spoiled sausages.
A lengthy yet first-rate review of case reports from the 19th century is given by Boehm [incidentally disclosing a striking similarity with the Gelsemium drug picture]:

The putrefied sausages, or portions of sausage, when recently cut across, have a dirty, greyish-green colour, and a soft cheesy-like, smeary consistence. They diffuse a very disagreeable smell of putrid cheese; the taste is disgusting, and sometimes causes smarting or soreness in the throat.

… The course of botulismus is, as a rule, subacute and very commonly chronic. Cases running a very sudden course are rare. Under all sorts of circumstances poisoning by sausages is more tedious than most cases of poisoning by other well-known poisons. Even a fatal termination, as a rule, seldom closes the sickness in less than five or six days.

The first symptoms of poisoning occur in the majority of cases in from eighteen to twenty-four hours after taking the injurious food.

… The gastrointestinal symptoms do not invariably precede the nervous symptoms; often enough both occur simultaneously. As a rule, however, the sufferers complain at first of general discomfort and nausea, pain and sense of weight in the region of the stomach, quickly followed by diarrhoea and vomiting. Very often colicky pains, which disappear and then return again after a while, are the first symptoms, the severer symptoms not setting in till some days after. Sometimes also the scene commences with violent vomiting and retching, vertigo, cloudiness of vision, and difficulty in swallowing; lastly, the gastro-intestinal symptoms may be entirely absent, and the difficulty in swallowing, disordered vision, muscular weakness, and general prostration constitute the disease.

Dyspnoea and feelings of suffocation [precordial anxiety] have been especially mentioned as being not infrequently some of the early symptoms.

Although this condition is often protracted for several days with indefinite disorders, partly gastric and partly nervous, during which the patient very commonly goes about his usual business or occupations, in the majority of cases there is very soon so much weakness that they cannot long keep out of bed. The vomiting, often so troublesome at first, and sometimes, though rarely, persisting in the form of tormenting feelings of choking and retching, the diarrhoea and the colicky pains all recede into the background, and give place to the nervous symptoms.

These are in part of a general nature, and in part limited to special regions and nervous tracts. Consciousness and thought, and all the special qualities of soul which are called the higher faculties, remain, with but few exceptions, intact all through the whole course of the attack, although giddiness, headache, and an apathetic comatose condition in many cases indicate anomalies in the functions of the brain.

Any definite paralysis of the voluntary muscles or of sensation has never been noted, any more than clonic or tonic spasms. It is rather extreme muscular weakness - which limits to the most minimal degree the exercise of the voluntary muscles, but never till just before death renders it impossible - than an actual paralysis. Any marked disorders of sensation are also absent, although the sensibility of the tips of the fingers is said to be diminished, and sometimes the patients complain of crawling and painful feelings in the extremities and back. Moreover, it is expressly declared that sleep generally occurs in a perfectly normal way.

The visual apparatus suffers in a very extraordinary way in sausage-poisoning. The first complains of the patients point to diminished visual power, and are sometimes complained of as a cloud or mist before the eyes, sometimes as sparks, and sometimes as mere weakness of sight. Very soon there is double vision, with diminished acuteness of vision; the powers of the ocular muscles are greatly limited, and sometimes quite abolished, and one of the most constant symptoms is paresis of the levator palpebrae superioris [ptosis]. The pupil is dilated, but does not become quite insensible to light; finally, the faculty of accommodation seems considerably lessened. Indeed, in some cases total blindness has been observed.

Whilst, then, all the remaining nerves of sensation preserve their faculties unimpaired, some of the nervous apparatus subservient to respiration appears to undergo very extensive changes. This is indicated by the more or less perfect aphonia of those poisoned, with the varying degrees of general difficulty of breathing, and the frequently noted tormenting, and sometimes croupy cough, which, however, may very seldom really stand in close connection, as to their true cause, with the difficulty of swallowing [dysphagia], so that when nourishment is being taken, whether food or drink, a portion may easily find its way into the air passages.

The disorders in the domain of the glosso-pharyngeal nerve are expressed in the almost pathognomonic symptom of dysphagia, which sometimes culminates in perfect aphagia or complete inability to swallow. The tongue also appears more or less hampered in its movements, and speech becomes stammering and unintelligible.

The remarkable dryness of the mouth and fauces indicates anomalies in the secretion of saliva. The mucous membrane of the mouth and pharynx shows either speckled or diffused redness, sometimes one, sometimes the other; sometimes there are also swelling, and aphthous formations; the tongue has a whitish coat. Lastly, the constipation which is constantly observed in the later stages, and

the less constant retention of urine, must be considered as nervous symptoms. The signs of need of nourishment are often rather more manifest than is usually the case; some patients complain of hunger, the above-named difficulty of swallowing making it almost or entirely impossible to take nourishment. Thirst is mentioned only in a few cases.

The organs of circulation appear greatly weakened in their functions. The pulse, which at first is feeble and slower than usual, vanishes sometimes altogether. Indeed, authors maintain that it is impossible in the later stages to make out the sounds of the heart. Accordingly, we find the skin pale, and the mucous membranes of a livid colour. The failing energy of the circulation is shown by the coldness of the skin. The rapid decrease of the nutrient powers, the great emaciation, are the unavoidable result of the want of power to take food, and the disordered functions of the digestive organs.

The organism, thus condemned to hunger, may, however, last a remarkably long time, unless the introduction of food into the air passages, by causing oedema of the lungs, brings life to a more rapid end. As a rule, notwithstanding the long-continued depression of the circulation, there is not generally any oedema, with the exception of a few cases in which the formation of marasmic thromboses may give rise to it. Death generally occurs without any specially violent symptoms; it is preceded by a comatose or soporific condition, sometimes with slight general convulsions, from one day to three weeks after the poisoning.

Those cases which end favourably are often marked by a very slow convalescence, in which the disorders of vision, and the difficulty in swallowing often persist for a long time, and the patients' strength returns to them very slowly and gradually. In some cases desquamation of the epidermis has been noted.

[cited in von Ziemssen 1878]

FROM BIOWEAPON TO BIODRUG TO COSMETIC CRAZE

Because botulinum toxin carries a high morbidity and mortality, it is considered a biological warfare agent. It is classified by the CDC as a category A threat to national security due to its easy dissemination.

Development and use of botulinum toxin as a possible bioweapon began at least 60 years ago. The head of the Japanese biological warfare group [Unit 731] admitted to feeding cultures of C. botulinum to prisoners with lethal effect during that country's occupation of Manchuria, which began in the 1930s. The US biological weapons program first produced botulinum toxin during World

> War II. Because of concerns that Germany had weaponised botulinum toxin, more than 1 million doses of botulinum toxoid vaccine were made for Allied troops preparing to invade Normandy on D-Day. … After the 1972 Biological and Toxin Weapons Convention prohibited offensive research and production of biological weapons, signatories Iraq and the Soviet Union subsequently produced botulinum toxin for use as a weapon. … Four of the countries listed by the US government as "state sponsors of terrorism" [Iran, Iraq, North Korea, and Syria] have developed, or are believed to be developing, botulinum toxin as a weapon. After the 1991 Persian Gulf War, Iraq admitted to the United Nations inspection team to having produced 19,000 L of concentrated botulinum toxin, of which approximately 10,000 L were loaded into military weapons. These 19,000 L of concentrated toxin are not fully accounted for and constitute approximately 3 times the amount needed to kill the entire current human population by inhalation.
> [Arnon et al., Botulinum Toxin as a Biological Weapon; Journal of the American Medical Association, 2001; 285 (8): 1059]

Arnon et al. find it "regrettable that botulinum toxin still needs to be considered as a bioweapon at the historic moment when it has become the first biological toxin to become licensed for treatment of human disease."
In the United States, botulinum toxin is currently licensed for treatment of cervical torticollis, strabismus, and blepharospasm associated with dystonia. It is also used 'off label' for a variety of conditions that include migraine headache, chronic low back pain, stroke, traumatic brain injury, cerebral palsy, hemifacial spasm, writer's cramp, spasticity in cerebral palsy in children, stammering, spasmodic dysphonia, voice tremor, urinary retention, as well as excessive sweating.
There are two toxins in use: botulinum toxin type A, brand name Botox, since 1990, and botulinum toxin type B, brand name Myobloc, since 2001. Both are applied by local intramuscular injection, temporarily paralysing the muscle. Improvement is not long lasting, so that treatment is usually repeated every 3 to 4 months.

In April, 2002, the FDA approved the employment of botulinum toxin type A as "Botox Cosmetic" to "temporarily improve the appearance of moderate to severe frown lines between the eyebrows." In placebo-controlled, randomised clinical trials involving a total of 405 patients with moderate to severe frown lines who were injected with Botox Cosmetic the severity of the

frown lines was reduced somewhat for up to 120 days for those patients who received the toxin. Because "the overall result can be a more symmetrical appearance," and "furrowed brows become smooth, squinting eyes relax and the years seem to recede," the cosmetic treatment has caught on to the extent that now in the USA "Botox parties" are thrown, a development frowned upon by the medical establishment. Such parties have the future for wrinkles have a habit of returning. Legions of people line up to restore their fading beauty, desperate to look younger at any cost rather than growing older gracefully. What an irony that an intoxicating social delusion of looks being everything is maintained with a neurotoxin pronounced as "Beau-Tox."
Repeated treatments may result in atrophy or thinning of muscles, leaving the face expressionless, mask-like, an effect known to appear with botulinum. Attempting to bring the ageing process to a standstill requires that one must turn a blind eye on the possible long-term effects of this "safe and effective treatment." Chronic sequelae may still be largely unknown, it won't take much to understand in which direction they will be going.

Adverse effects
Side-effects of the fastest-growing cosmetic procedure in the USA appear to be limited to minor discomfort and short-lived local reactions. Documented and undocumented case reports, however, tell a different story.
Blockade of neurotransmitter release at peripheral cholinergic nerve terminals is permanent; recovery only occurs when the axon sprouts a new terminal to replace the toxin-damaged one.
The most common adverse events following injection of botulinum toxin type A were headache, respiratory infection, flu syndrome, droopy eyelids, neck pain, and nausea. Less frequent adverse reactions [less than 3% of patients] included pain in the face, redness at the injection site and muscle weakness. These reactions were generally temporary, but could last several months. [FDA Talk Paper T02-20]
Complications are more common when Botox is used in the lower face, including drooling, an asymmetrical smile, and repeatedly biting the inside of a flaccid cheek. With injections into the platysma muscle, difficulty in swallowing and changes in vocal pitch may occur. [The platysma muscle depresses the lower lip, and wrinkles the skin of neck and upper chest.]
Studies of the side effects of botulinum toxin type B in 570 subjects showed that dry mouth and dysphagia were the most frequently reported adverse events.

The following additional effects were reported by at least 5% of patients treated with type B botulinum:

≈ Neck pain [17%].
≈ Headache [11%].
≈ Dyspepsia [10%].
≈ Nausea [8%].
≈ Flu syndrome [8%].
≈ Torticollis [8%].
≈ Joint pain [7%].
≈ Back pain [7%].
≈ Cough increased [7%].
≈ Myasthenia [6%].
≈ Asthenia [6%].
≈ Dizziness [6%].
≈ Rhinitis [5%].

In 2% or greater of patients participating in any of the clinical studies these reactions occurred:

≈ General: allergic reaction; fever; headache; chest pain; chills; hernia; malaise; abscess; viral infection.
≈ Musculoskeletal: arthritis; joint disorder.
≈ Cardiovascular: migraine; vasodilation.
≈ Respiratory: dyspnoea; lung disorder; pneumonia.
≈ Neurological: anxiety; tremor; hyperaesthesia; somnolence; confusion; vertigo.
≈ Digestive: gastrointestinal disorder; vomiting; glossitis; stomatitis.
≈ Urogenital: urinary tract infection; cystitis; vaginal moniliasis.
≈ Special senses: amblyopia; otitis media; abnormal vision; taste perversion; tinnitus.

[Data from: www.rxlist.com.cgi/generic2/botulinumtoxin_ad.htm]

Allergan Inc., the manufacturer of Botox, states that "there have been rare spontaneous reports of death, sometimes associated with dysphagia, pneumonia, and/or other significant debility, after treatment with botulinum toxin." And: "There have also been rare reports of adverse events involving the cardiovascular system, including arrhythmia and myocardial infarction, some with fatal outcomes. Some of these patients had risk factors including

cardiovascular disease. The exact relationship of these events to the botulinum toxin injection has not been established. The following events have been reported since the drug has been marketed and a causal relationship to the botulinum toxin injected is unknown: skin rash [including erythema multiforme, urticaria and psoriasiform eruption], pruritus, and allergic reaction. … Dysphagia and symptomatic general weakness may be attributable to an extension of the pharmacology of Botox resulting from the spread of the toxin outside the injected muscles. … Inducing paralysis in one or more extraocular muscles [in the treatment of strabismus] may produce spatial disorientation, double vision, or past-pointing. The incidence of ptosis was 0.9% after inferior rectus injection and 37.7% after superior rectus injection."

MATERIA MEDICA BOTULINUM **Botul.**

Sources

[1] Proving British School of Homoeopathy [Anthony Bickley], 2004; 12 provers, placebo [1 prover, no symptoms], 12c [2 provers], 30c [2 provers], 200c [2 provers], 1M [2 provers], and 10M [3 provers]; single dose. Extracts/summaries of symptoms by Lisa Mansell and Debbie Schofield. [LD]

[2] Fragmentary description by Boericke, based on a food poisoning from canned spinach. [B]

[3] Botox intoxications.

Eye symptoms, ptosis, double vision, blurred vision. Difficulty in swallowing and breathing, choking sensation; weakness and uncertainty in walking, "blind staggers," dizziness, thickening of speech. Cramping pain in stomach. Mask-like expression of face, due to weakness of facial muscles. Severe constipation. [B]

Indications

The classical triad of botulism in combination with the various D's of cranial nerve palsies can serve as a guideline for Botulinum:

1. Absence of fever.
2. Clear sensorium.
3. Symmetrical, descending flaccid paralysis with prominent cranial nerve palsies.

≈ Dizziness.
≈ Drooping eyelids.
≈ Diplopia.
≈ Dysarthria.
≈ Dysphonia.
≈ Dysphagia.
≈ Dryness mouth.
≈ Diminished gag reflex.
≈ Dyspnoea.

Clinically, Botulinum can be considered for myasthenia gravis, which is characterised by muscle weakness chiefly in muscles innervated by cranial nerves: drooping eyelids [ptosis], diplopia, dysarthria, dysphagia. Sensory modalities and deep tendon reflexes are normal in both myasthenia gravis and botulism.

Individual symptoms - Botox intoxications
Statistical assessments of adverse reactions give an indication as to affinities and general symptoms, while reports of intoxications can be utilised to obtain individual symptoms. For this purpose I have screened websites* for personal accounts of "botox complications" to get an idea of the drug picture of Botulinum.

≈ Sensation as if one is going to die.
≈ [After third injection in three years] … "never had a problem and bam … insomnia, panic attacks and anxiety big time."
≈ Itching skin lesions looking like "raised" comedones on forehead and between eyebrows.
≈ Eyebrows arched and raised up high; expression of being "overly surprised."
≈ Diplopia, appearing suddenly; extreme; inability to drive a car.
≈ Sensation as if eyes were swollen.
≈ Muffled hearing accompanied by tingling of ears and face.
≈ Slurred speech.
≈ Numbness and stiffness of jaw and external throat; burning at back of tongue, extending down the arms and legs.
≈ Severe chronic contraction of entire nape of neck; atrophy of neck muscles.
≈ Nape of neck stiff and painful.
≈ Weakness of nape of neck; can hardly hold up head.
≈ Continuous tremor of arms and hands, making all activity very difficult.

≈ Hands weak, clumsy and tingling.
≈ Numbness, tingling and burning sensation left lower limb.
≈ Inability to walk.
≈ Sleeping problem, "it feels as if I am falling and then I jolt [which wakes me up]."
≈ Tremor all over body and dizziness; bedridden.
≈ Sudden feeling of illness; must lie down for a few hours.
≈ Numbness left side of body.
≈ Flu-like symptoms [without fever]; "I was in bed for 4 straight days with horrible body aches, sore throat, nausea, and my lungs feel as though I can't breath."
≈ Urticaria ["itchy welts"], coming up around 9 p.m. or at night, either on stomach region and forearms or on back and legs, disappearing in morning around 10 a.m.
≈ Intensely burning pains < slightest touch.

* [1] Botox Forum at www.secure-practices.com/forum/; [2]www.botoxusers.com.; [3] legalnewswatch.com/

Repertory
Synthesis 9.1 lists 36 symptoms for Botulinum, most of them in large, non-descript rubrics, with the following in rubrics containing less than 50 remedies:

≈ Head, Paralysis of brain, Medulla oblongata [= bulbar paralysis].
≈ Eye, Complaints of eyes.
≈ Eye, Paralysis, Lids, upper.
≈ Face, Expression, mask, immobile like a.
≈ Face, Expression, mask, immobile like a - from weakness of facial muscles.
≈ Face, Stiffness, paralytic.
≈ Face, Weakness, Muscles.
≈ Mouth, Speech, thick [= slurred].
≈ Throat, Choking, sensation of.
≈ Respiration, Difficult, when talking.
≈ Extremities, Awkwardness, Lower limbs.
≈ Extremities, Weakness, Lower limbs, while walking.
≈ Generals, Brucellosis, chronic.
≈ Generals, Food and Drinks, spinach agg. [Should be canned spinach!]
≈ Generals, Paralysis, after diphtheria.
≈ Generals, Uraemia, chronic.

PROVING SYMPTOMS

THEMES

Excitation - Inhibition

"Going back to the biological explanation of the effect of Botulinum resulting in Inhibition or to Excitation. From what we've seen so far, this action really sums up the overriding theme of the substance. Disturbances of *inhibition and excitation* were seen throughout the body resulting in unusual sensations, tightening, uncontrollable twitching of some muscles and the release of the muscles of the tongue enabling the prover to roll it. There was an increased tolerance to alcohol - which normally reduces inhibition, whilst appetites were described as being 'out of control'.

This theme of tightening and release was seen very clearly on the mental level. In particular, many provers experienced a release from control - and very specifically, from the control that their *inhibitions* would normally hold over them and as a result they manifested a far more '*excited*' response than usual. This was experienced in terms of feeling less inhibited in social situations, less inhibited sexually and less inhibited in situations of conflict or confrontation where they lost their normal self-control and said what they really thought. Interestingly, many specifically used the word 'inhibitions' or 'inhibited' to describe these experiences. For some this was a positive response, in that the reduced inhibition freed them from the control they had exercised before. Others felt less comfortable with being out of control." [LD]

Substance seemed to remove my inhibitions for a short while.
A layer of veneer has been scraped of my tight control, feels as if inhibitions have been lowered
Happier and have reduced inhibitions, more relaxed, laughing a lot.
Less inhibition, less control and less self suppression.
Far more spontaneous than normal.
Was the opposite of inhibited. It had to come out. I articulated clearly and was very focussed.
Feel more comfortable with emotions and able to express them more, don't bottle them up like usual. Social life very active. Not as negative, selective or shut as usual.
Unable to control emotions regarding the past which had been previously suppressed.

Desire to grope opposite sex.
Libido out of control.
Far too busy indulging excessive libido to notice any other symptoms.

Time sense
"An area where these symptoms of control and release were seen was that of *Time.* Provers' time management was noticeably affected, with them becoming more organised or more disorganised. Several reported increased efficiency in doing their homework and found that they sat down to do it straight away on the Sunday evening they returned from college. Provers' perception of time was affected - they lost track of time, misjudged how much time had passed - either underestimating or overestimating. Several overslept - waking up quite a bit later than usual but - to use the words of some of them - they 'couldn't give a shit'!" [LD]

No sense of time.
Planned to meet friend after class and felt I'd been waiting for hours but it had only been 5 minutes.
Time felt more normal, but cooking proved it is still slipping. I was watching the grill but left the sausages too long and burnt them.
Time just disappears.
Talked for what seemed like 20 minutes, but when I looked at my watch it had been nearly 2 hours.
Time is out of sync. When I went to fetch my son from school, I couldn't remember if I had dropped him off in the morning.
Woke very late - 11 a.m. - unusual for me.
Woke up thinking it was an hour later than it was which would have made my son late for school but I didn't care.
Time-keeping unusually important to me. Very irritable if delayed.
Sense of time different. Time went more quickly because more focussed.
Don't normally juggle timings well when cooking. However, managed to keep all balls in the air without a second thought.
Looked at clock non-stop.
Constantly aware of time. Want to be ahead of time.

Short memory deficits

"*Memory Power* was severely impaired – especially short term memory. One prover managed unfortunately to lose all recollection of her birthday - her friends had arranged to take her out - she knew that she went out and that she had a nice meal, but had no recollection of it. Something that must surely be an SRP is that a number of provers recorded being totally unable to remember the content of the days' lectures! A couple noted the sensation of being on autopilot - they knew they got where they did or did what they had done, but were unaware of actually doing it." [LD]

Made mistakes at work - went to the Post Office but forgot to post the parcel.
Only vague memories of the days' lectures. I don't remember driving home or cooking the evening meal, but I know I did.
Can't remember if I've eaten or not. Always hungry, but if I ask, I have eaten.
Forgot to prepare a report for a meeting. Forgot to prepare copies of accounts. Went back and got them and then when handing them out, realised they were the wrong ones. Couldn't remember which drawer they'd come from so couldn't put them away. Couldn't focus on the substance of the meeting. Wasted time on unimportant things.
Sat through lectures but not really hearing anything. Couldn't remember.
Forgetful - keep forgetting to take things with me and have to run up and down stairs for forgotten items.
Cannot remember words - can visualise the item but not its name.
Mislaid my eldest son - I forgot he was going to the hairdressers after school.

Parenting

"The theme of *Parenting* was a striking issue. Provers recorded feelings of guilt and inadequacy as parents. There were also overwhelming feelings of love for their children and other family members, plus a readiness to fight if necessary to protect them." [LD]

Felt I was a terrible parent.

Feeling a lot of guilt around not having properly attended to the children. Have become acutely aware of it since yesterday. Feel neglectful.
I feel very passionate about my children. Want to hold them, reach out. Tears come into my eyes when I think about them. Bursting with love for them. This feeling came on suddenly.
I'm normally stubborn - unusually I relented towards my son and felt better for it.

It's my place to protect my daughter. I'm her mother and it doesn't matter a scrap that she's nearly 25 and can look after herself.
I was going to fight for my husband. This remedy has made a huge difference to my desire to speak.

"This theme of parenting was reflected in some of the dreams. Provers dreamt of their children dying, yet in their dreams were apparently unaffected by their deaths." [LD]

Cats
"When we were researching Botulinum, we discovered that there are three animals that are relatively resistant to it, one of which is the cat. We don't know whether or not there is any connection, but cats featured quite prominently in the proving." [LD]

Was accused of stalking like a cat.
My partner commented that I made cat-like sounds in my sleep.
Dream of two cats in boxes on desk, cats were squashed, prover doesn't like cats.
My cats have become obsessive about touching me, nuzzling and rubbing my face and hands. They seem particularly fascinated by my mouth, snifffing repeatedly at my lips particularly happens when I am writing up my diary as if to prevent me. Standing on the diary, chewing the pen, getting on my chest between the diary and my face so that I couldn't see. Abnormal behaviour for them.
Dream about a kitten eating marshmallows.
During the proving cats from the neighbourhood started to accompany me on walks with the dog. Sometimes up to 6 cats, number diminished as the proving symptoms abated.

GENERALS

Pains
≈ As if *bruised.*
≈ *Sharp* [as from a sharp piece of glass behind eye; needle-like in right wrist joint; as if with a very fine stiletto (period pain); like a little sharp pinball shooting around and going down little tubes (period pain)].
≈ *Sudden.*

Sensations

≈ *Tightness* [top of head; nose (sinus pain as if tight); throat; abdomen; rectum; legs (as if swollen and tight); skin of finger; skin of back; skin of feet].

≈ Other sensations:

As if a worm were burrowing in head.

As if a taut elastic band were pulling on brain, on turning head to right.

As if had been beaten across the back of the head.

As if arms were too long.

Food

≈ Ravenous hunger [4 provers].

≈ Increased thirst [3 provers; one prover felt thirsty after drinking tea].

≈ *Cravings*: Bananas; carbohydrates; chocolate; crisps; eggs; ham; pizza [for breakfast]; salt.

≈ *Aggravation*: Grapes.

Sides

≈ There was a tendency for symptoms to move from *left to right.*

Fluid balance

≈ *Weight* fluctuations and changes in waist measurement. Abdominal distension and oedema.

Abdomen really bloated, feels like a water filled balloon.

Waist measurement can fluctuate by up to 2 inches through the day.

General feeling of being bloated especially in waist.

Bloated during menses, sensation as if abdominal walls thicker with fluid [not air].

Feel enormous heavy and big weight fluctuations - not normal - increased by 2lb in one day.

Weight increased by 6lb in one week.

Left leg won't bend because of swelling; sensation as if tingly, swollen and tight.

Left eye swollen mainly underneath and slightly above, fluidy puffy bag under eye.

Left eyelid swollen right up to the eyebrow.

Hands very puffy and swollen.

Urine concentrated and is constipated as if all fluid in the body was in the wrong place, in puffy extremities rather than in the gut.

Menses

"One area in which there was a marked influence was Menses. There were many cured concomitants such as pain, diarrhoea, pmt, headache, menorrhagia, breast tenderness. Six provers had their periods start up to two weeks early and for most of these the flow was different - usually lighter, fewer clots, intermittent, watery. In fact, one of our provers thought that she was unlikely to experience proving symptoms as she felt she wasn't very sensitive - however, the pattern of her menstruation which had been secure for 25 years changed dramatically." [LD]

LOCALS

Vision difficulties

Strange focus as looked out of window shortly after taking substance, a 3D effect.
Vision is worse today - like everything is in soft focus.
Ongoing visual disturbance. Started with left eye and now right, at the edge of my vision.
Eyesight poorer than normal hard to read printed text.
Seeing small mouse type things out of the corner of the eye.
Odd visual experience as if going to get a monster headache.
Eyes terribly sensitive to light. Feel disorientated by bright light, can't see.
Couldn't focus on small print during the day, couldn't adjust eyes to small from large print, feels as if eyes have aged 10 years.

Dry mouth and difficulty swallowing

Throat feels as if closing up within minutes of taking substance, swallowing seems an effort.
Sensation of tightness in throat.
Pain in right side of throat < swallowing.
Sensation of lump in throat.
Sticky lump hard to swallow.
Mouth feels dry all afternoon.
Tongue much drier than usual.
Mouth dry, but not thirsty.
Dry sensation in mouth but dribbling excess saliva all over pillow and in waking too, pools of it coming out. Dribbling in sleep.

Speech and tongue

"The aim in Botox injections is to inhibit facial expressions. In terms of the voice, it was interesting to read that some supervisors noted that their provers' voices had sounded flat and monotonous." [LD]

Voice noticeably higher and a little husky.

Voice breaking and clearing throat with a little cough.

Mistakes with words, keep getting tongue tied, words get muddled or I can't remember the word at all. Total aphasia.

Tongue and brain don't always seem connected, making mistakes with words.

Strong tingling on the tongue immediately after taking tablet.

Very aware of tongue, can feel it tingling at the tip.

Tongue at back of lower teeth felt tingly like a very mild electric shock.

Noticed tongue trembling, looking much more mobile. Tried to roll my tongue and to my amazement I rolled it into a deep tube with no difficulty

[This affect on the muscles of the tongue was extraordinary as the ability to roll the tongue is genetically determined you can either do it or you can't. She has since returned to normal.] [LD]

Peculiar particulars

≈ Muscle under right eye twitching intermittently then upper lid of left eye twitching, < thinking about it.

≈ Sudden taste of strawberries in mouth.

≈ Stomach uncomfortable while in bed; soreness in epigastrium, < lying down, > eating.

≈ Gastritis-type of gnawing pain as if stomach were digesting itself, < lying on side, > lying on back.

≈ Nape of neck feels delicate and breakable, > drinking wine.

≈ Coldness moving up and down extremities while talking.

≈ Left leg cold, heavy, and as if swollen; very cold behind knee.

≈ Right hand much colder than left.

≈ Tingling in shape of bands around ankles then spreading into feet.

≈ Feet and lower legs warm inside but cool outside - as if surrounded by cold air.

≈ Coldness of leg felt internally - not cold to touch.

≈ Woke with fingers [not thumbs] feeling stiff; felt as if fingers were made of wood with only one hinge where larger joint is.

≈ Hands numb on waking - couldn't turn off alarm clock. Quite extreme - like having sausages for fingers - > hand clapping, rubbing, flexing fingers.

Numbness started in base of thumb and first two fingers then throughout hands and fingers. Numbness < flexing wrists inwards.

CASE

(1) The drug is to be thought of use in hydrophobia, bulbar paralysis and allied affections, diphtheritic paralyses, and the dyspnoeic attacks and coma of diabetes. Paroxysmal dyspnoeas occurring in various diseases, in so far as they are central in origin, should be aided by Botulinum , and it is interesting to note that it is precisely repeated attacks of dyspnoea that Dr. Schepens [who was the first to record any use of botulinum as a remedy] has found himself able to cure with the drug. His first recorded case is that of a lady of 70, with arterial sclerosis, slight albuminuria, and a small pleural effusion, who suffered from nocturnal dyspnoeic attacks of an alarming kind.
Phos., Ars., Lach., Spong., and Hyos. all did little or nothing. After fifteen days Botulinum 30 was given, one dose. Short aggravation followed by amelioration ensued. The dose was repeated in two days' time, and the same phenomena occurred, but the improvement was more marked. In another two days another dose, and no more, was required. Nine days from the first dose the effusion had disappeared, and albuminuria and attacks of dyspnoea followed suit.
The second patient was a man of over 50. An erysipelatous eruption of the right leg disappeared under Apis, Iodum, and Kali iod., but when the patient returned to work he was at once attacked by paroxysms of dyspnoea, preventing him from lying down and causing great distress. Traces of albumen were found in the urine. Rhus and Lachesis did little. Botulinum 50 - two doses - with an interval of two days, caused amelioration; after two days more, Botul. 30, one dose. The next day the albumen had disappeared. One more dose after four days was all that was required, and the patient returned to work restored fully to health.
Dr. Schepens' last case is that of a lady of 50, with tubercular family history, a sufferer from neuralgias and minor nerve troubles. Dr. Schepens was called to her one night, and found her anxious and labouring for breath, somewhat cyanosed, with a dry cough and weak and irregular pulse. No fever, a few moist sounds at the lung bases, a good deal of flatulence, and symptoms relieved by belching. Causticum 12 and 6 relieved a little. Cactus 6 and 3 carried relief further, but dyspnoea on the least exertion confined her still to bed. Finally Botul. 50 was administered, and then Botul. 30 at infrequent intervals. There was a rapid improvement after the first two doses, then after three days without medicine a slight set-back. Great relief followed four doses more of Bot. 30, given during

eight days, and by this time the patient was up and doing her ordinary duties, but with a tendency to slight paroxysms of dyspnoea on exertion. After a dose of Tub. 100, Botul. 20 was given. All tendency to dyspnoea now disappeared, but for a day or two there was great sensation of weakness in all the limbs.

There is little comment to add to Dr. Schepens' brilliant applications of the therapeutic possibilities of this poison. It is obviously a remedy of power, and there should soon be a number of cures to set to its credit that may define its sphere of usefulness, and give it a permanent position in the materia medica.

[Wheeler, *Botulism and Botulinum*; Homeopathic World, 1907; RefWorks]