Schwarze Witwe - Black Widow

Latrodectus

"Even in the absence of a known history of spider bite or sting, an excruciating pain spreading over the entire body and becoming especially severe in the abdomen, legs and back, accompanied by nausea, vomiting and constipation, and a board-like rigidity of the abdomen, without definite abdominal tenderness, together with a low-grade fever, leucocytosis, and high blood pressure and spontaneously subsiding within a few days, form so constant a clinical picture as to justify a strong suspicion of arachnidism, or poisoning by the bite of the *Latrodectus mactans*."

(Emil Bogen and Phoebus Berman, 1927)

“This remedy should prove efficacious in la grippe, malarial fevers, anginas, syphilis and zymotic diseases. Seldom we find a remedy that at once attacks with such violence the three planes of man, physical, mental and moral.
This spider should be proven in the higher potencies to bring out the moral symptoms.“

(William H. Schwartz, 1930)

“Subsequently, the toxicology of *Latrodectus mactans*, the black widow spider, was studied. It was rather embarrassing to find that even the crude toxicological symptoms, as far as they are known, represent a perfect replica of this patient´s condition. From the very beginning, even from the toxicological picture, the remedy would have been indicated had this picture only been known to the prescriber. Unfortunately, however, *Latrodectus* had been mentally associated with angina pectoris and nothing else, a very unhomoeopathic mental attitude indeed!”

(Edward C. Whitmont, 1950)

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1843 - La malmignatte en Corse - Pierret
1856 - La Malmignatte et le Scélotyrbe - Charles Ozanam
1954 - The Health Problem of Arachnidism - Z. Maretic and M. Stanic

Latrodectus katipo

1870 - On the Katipo, a poisonous Spider of New Zealand - F. W. Wright
1871 - On the Katipo, or Venomous Spider of New Zealand - Walter Buller
1873 - A Case of Katipo Spider Bite - E. J. Fraser
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The Genus Latrodectus

“This is one of the two genera of the Theridiidae occurring in our fauna in which the lateral eyes of each side are widely separated. This genus is distinguished from the other (*Episinus*) in having the abdomen globose. They are comparatively large spiders, the females being the largest of the Theridiidae.

This genus, as has been well stated by F. P. Cambridge "comprises those very interesting spiders which, under various local names, have been notorious in all ages and in all regions of the world where they occur on account of the reputed deadly nature of their bite." It may be added that this belief is not shared by students of spiders, and has probably been suggested by the strongly contrasting colours of the more common species, which make them appear venomous to the credulous observers. Two species occur in our fauna.

The Black Widow, *Latrodectus mactans*. - This is a coal-black spider marked with red or yellow or both. It varies greatly in its markings; the most constant mark is one shaped like an hour-glass on the ventral aspect of the abdomen. The female, when full grown, is often one half inch in length, with a globose abdomen, marked with one or more red spots over the spinnerets and along the middle of the back; these spots, however, vary greatly in number and size and may be wanting entirely. The male is much smaller than the female, measuring about one fourth inch in length, and is even more conspicuously marked, having in addition to the marks of the female four pairs of stripes along the sides of the abdomen. It is a curious fact that immature females are often marked like the males.

This species is very common and widely distributed in the South. It is found under stones and pieces of wood on the ground, about stumps, in holes in the ground, and about outbuildings. It spins an irregular web like that of *Theridion* but of much coarser silk; in fact its web can be recognized, in most cases, at a glance by the coarseness of the thread.

Although it is essentially a Southern species, it occurs in Indiana, Ohio, Pennsylvania, New Hampshire, and doubtless other of the Northern states. I base the New Hampshire record on the presence in the collection of Dr. W. H. Fox, now in the museum of Cornell University, of fifteen immature females taken at Mollis, Hillsborough Co., N. H., from a nest of Sphex; it also occurs in California.

The belief in the venomous nature of the bite of this species is very widespread. An intelligent negro, who saw me collecting the spider in Mississippi, told me that its bite is poisonous. And Dr. C. Mart Merriam in his volume, *The Dawn of the World, Myths and Weird Tales told by the Mewan Indians of California*, (´10) states that the Northern Mewuk say "Po'ko-moo the small black spider with a red spot under his belly is poison. Sometimes he scratches people with his long fingers, and the scratch makes a bad sore." Doctor Merriam adds, "All the tribes know that the spider is poisonous and some of them make use of the poison."

In a letter received from Doctor Merriam he makes the following statement: "Whenever I have questioned Indians about it (this spider) in California they uniformly rank it with the rattlesnake as poison. To poison their arrows they mash the spider and rub the points of the

arrows in it. Sometimes this is the only poison used; at other times it is one of the several things used to make the poison."

Much of the evidence for and against the venomous nature of the bite of *Latrodectus* has been brought together by Riley and Howard in *Insect Life* (Vol. I, p. 204-211, Jan. 1889); and in a later number of the same volume (p. 280), Dr. E. R. Corson gives an account of several cases in his practice in each of which the patient, who suffered greatly, was supposed to have been bitten by a spider. But in none of the cases was the spider seen except in one; and in that case the specimen was lost, and consequently was not determined.

Latrodectus geometricus. - This is a gray species in which the anterior median eyes are distinctly larger than the anterior laterals. It has been found in California."
(John Henry Comstock, The Spider Book, New York 1913, p. 357-359)

Life history of Latrodectus mactans - A. W. Blair

"In spite of the clinical importance of the bite of the Latrodectus mactans no complete study of its life history has so far been made. In view of this fact and since it is the only spider found in this country the bite of which has definitely been proved capable of causing severe and, in some cases, fatal systemic reactions in man, observations on its life history are of interest. The observations presented are based on a two-year study of this spider as found in the vicinity of Tuscaloosa, Alabama. It includes observations of the spider both in its natural environment and as raised in captivity.

Appearance

The full grown female Latrodectus mactans has a large, globose abdomen attached by a slender pedicle to the much smaller cephalothorax. The body of an average-sized adult female is ½ inch (1.27 cm) in length. The abdomen is 3/8 inch (0.95 cm) in length and practically the same in width in the posterior third. When distended with food or eggs it overhangs the cephalothorax. The cephalothorax is 1/8 inch (0.32 cm) in length and approximately the same in width at its broadest point. The slender, pointed legs when fully extended have a span of from 1 ½ to 2 inches (3.81 to 5.08 cm). Laterally, they have a spread of 1 ½ to 1 ¾ inches (3.81 to 4.45 cm).

The legs and body are a glossy black and as seen under the microscope are covered with short black hairs. On the ventral surface of the abdomen there is a red marking consisting of a rectangular bar from the center of which rises an inverted triangle. It is shaped somewhat like an hour-glass and stands out in striking contrast to the surrounding black. Dorsal to the spinnerets in the midline of the convex surface of the abdomen is an additional red marking.
These two markings constantly seen on the otherwise shiny black body are characteristic of the adult female and readily serve to distinguish this from other species of spiders. In immature females a broken row of red spots up the midline of the back is a constant finding. With the exception of the one above the spinnerets these gradually become suffused with black pigment and eventually disappear, though traces of them may remain in an apparently full grown female.

Habitat

The species Latrodectus mactans is found in North, Central and South America from New Hampshire south through Central America and along the west coast of South America to Tierra del Fuego. Of particular interest, however, is its widespread distribution throughout the southern half of the United States. It is very common throughout central Alabama. In this region the spiders are found in the angles between the roots of trees, beneath rocks, around old stumps, in holes in the ground and around houses and outbuildings. They have been

found in the greatest numbers in the vicinity of human habitations. Occasionally they have been found in dark corners and in clothes closets in dwellings. In general they prefer dry, dimly lighted places.

Web

The web is so distinctive that once it has been seen it may be recognized again at a glance. It is composed of very irregularly arranged, coarse threads which crisscross at various angles and in different planes. It is always found built in relation to a crevice or corner into which the spider, frequently by means of a poorly formed tunnel of silk, hurriedly retreats when disturbed. The web is relatively very strong and serves to entangle insects many times the size and weight of the spider. On many occasions I have observed large wood and water beetles and, in one case, a young mouse becoming entangled, swathed in silk and suspended in the web by these spiders. The web spun by the male is always smaller and weaker than that of the female.

Feeding habits

When an insect becomes entangled in the web of the Latrodectus mactans, the spider, if not already fed to satiety, rushes out into the web to the immediate vicinity of the struggling victim. It then turns its back and, keeping at a safe distance, commences enswathing its prey in a mantle of silk. This is accomplished by the use of the long hindlegs which, in a rapid, alternate fashion, pull forth strands of silk from the spinnerets and cast them over the struggling insect. In the early stages of the struggle viscid silk [(1)] is used, which by its viscosity and elasticity prevents any immediate escape. The victim's movements having then been further hampered by the addition of strands of finer silk, the spider approaches and seeks a point at which it may insert the claws of its chelicerae. This may be in the leg, the antenna or the body of the victim. The claws having been inserted and the venom thereby injected, the spider retires to await the result. In the space of a few minutes the struggles cease. The spider leisurely returns, completes enswathing the victim in silk and hoists the body to the desired position in the web. Fastening its mouth parts to some portion of the body the spider then proceeds to suck the body fluids. A small insect, such as a fly, may be sucked dry in a little over an hour. A larger insect, such as a water beetle, may be fed on for a day or two. The dry, skeletal husk is then cut out and dropped from the web. The abdomen of the spider after feeding may be twice its original size.

(1) Viscid silk, a transparent semifluid material, is characteristic of the family Theridiidae. It is thrown over the victim by the comb on the hind tarsi and is supposed to be derived from the lobed silk glands which have been found only in this family (J. H. Comstock, The Spider Book, New York 1913, p 333).

These spiders are capable of going without food for over a month with no recognizable harmful effect. Their fluid requirements are supplied by the body fluids of their victims. They seem to prefer to feed at night, though when hungry they feed at any time. They do not attack or feed on insects immediately preceding, during or immediately following a moult. On its completion they are, however, voracious and feed until the abdomen swells up to double its previous size. While awaiting their prey they are usually found hanging in their web with the ventral surface uppermost. They are cannibalistic, feeding on each other whenever the opportunity presents itself. The common nickname "black widow" given to the female of this species arose from her habit of capturing and feeding on the much smaller male.

Mating

Though the actual process of impregnation has not been observed it apparently occurs in the fall or early in the spring. This conclusion is based on two facts. First, mature males are most plentiful in the fall, becoming progressively less so during the following winter, spring and summer. Second, many females captured in the fall and kept alone in captivity over the winter

lay fertile eggs the following spring. This suggests that, in most cases, the male impregnates the female in the fall and then dies or is killed during the following winter and spring.

Egg sac

The egg sac is a globular or pyriform case of silk in which the eggs are loosely deposited, The laying of the eggs and the formation of the egg sac invariably took place at night. As a consequence the first steps in the formation of the egg sac have not been observed. In the early stages, however, it consists of a delicate, transparent mesh of silk through which the enclosed mass of eggs may be seen. The wall of the sac is then thickened and rendered opaque by a closely knit weave of fine viscid silk. The deposition of this viscid silk is accomplished by a rapid tapping action of the abdomen which brings the spinnerets
situated at its tip into contact with the surface of the egg sac. The viscid silk hardens on drying, fixing the contour of the sac and producing an outer semirigid wall. The whole process from the laying of the eggs to the completion of the egg sac occupies less than twenty-four hours. The color of the egg sac is usually a creamy white when first formed, but darkens to a light tan with age. It hangs firmly suspended in the web by silken cords. The mother is usually found close by, with one or more legs placed protectively on its surface.

The female Latrodectus mactans does not die after laying a mass of eggs and forming an egg sac. If well fed she may form a second egg sac filled with fertile eggs within nine days of the first. One female formed three egg sacs while under observation in captivity. Since one egg sac may contain over six hundred fertile eggs, the number of spiderlings which may arise from one female may number thousands. There is wide variation in the size of the egg sacs and the number of eggs contained.

Eggs

The eggs are round, translucent and approximately 1 mm in diameter. The color of the eggs varies from a creamy white to a pale mauve. The cause of this variation was not determined and has no apparent significance for the course of future development. The eggs have a hard covering protecting the semifluid content and when dropped on a hard surface bounce and roll with no apparent injury. The number of eggs laid at any one time varies from less than one hundred to more than six hundred. The chief egg-laying season is spring and early summer, though so long as the weather remains warm, fresh egg sacs continue to be formed by newly matured females.

The eggs of Latrodectus mactans are very poisonous. Two eggs crushed and emulsified in a drop of saline solution were found sufficient to kill an adult white mouse when injected intraperitoneally. A few drops of a saline emulsion of eggs injected intravenously kills a rabbit in two minutes.

Development

The eggs when first laid are speckled with flecks of a white flocculent material lying in the semifluid egg contents immediately beneath the transparent egg covering. During the next few days this material coalesces to form a white, discoid mass near the upper surface of the egg. Approximately ten days after the eggs have been laid this mass suddenly enlarges and projects as a knob from the globular surface of the egg. The membranous covering of the egg becomes wrinkled in this region, and beneath it the outlines of the cephalothorax and appendages become clearly discernible. By the following day the enlarging cephalothorax has split the membranous egg covering. The split enlarges, and in twenty-four hours the spiderling emerges. During the hot summer weather ten or eleven days is the average period for hatching Cold weather, however, lengthens the period, and if the cold is sufficiently severe or prolonged, hatching may never occur.

Subsequent development of the newly hatched spiderlings is marked by a series of moults accompanied by a gradual increase in size and in pigmentation. The early modification of the palpi to form secondary sex organs serves to differentiate the male from the female.

After hatching the spiderlings remain in the egg sac. There they undergo their first moult approximately five days later. Prior to this movements are feeble, hairs are absent, and pigmentation is scanty. Following the first moult the spiderlings become increasingly active and finally, after making a pinhole opening in the egg sac, emerge one by one, spinning a fine web as they go. In warm weather this process takes place about twenty-five days after the eggs are laid. The second moult takes place outside the egg sac a few days after the spiderlings have emerged. When they first emerge from the egg sac they cluster in their finespun web, but after the second moult they commence to separate and seek a home for themselves.

Prior to the second moult nourishment for their growth is provided by that already present in the globose abdomen. After the second moult, however, this source is depleted as evidenced by the shrunken abdomen, and they commence to attack and to feed on one another unless more accessible food is available. The mother of the brood makes no attempt to provide them with food and may herself feed on them. The mortality rate is thus very high.

Six moults are usually required for complete development. The interval between moults varies with the amount of food available. In the early stages of development the food supply being nearly equal for all the interval is correspondingly more uniform. Later, however, the wide variations in the food supply of each spider produce a corresponding irregularity in the moulting intervals. In the early stages the interval is usually from fifteen to twenty days, but later it may be a month or more.

The cephalothorax and appendages of the newly hatched spiderling are crystal white. The globose abdomen may be creamy white or reddish grown. It is flecked with white flocculent masses which early become collected on the ventral surface, down the midline of the dorsal surface and in stripes on the side of the abdomen. As growth proceeds an orange and later a red color appears in these regions. The rest of the body in the meanwhile becomes gradually suffused with a black pigment. This pigment first appears on the region of the ocular tubercle, the region around the spinnerets, the tips of the chelicerae and mouth parts, down the midline of the dorsal surface of the cephalothorax and on the tips and joints of the appendages. Prior to the fourth moult no indication of the sex of the spiderling is furnished by the color markings or external structures. The color markings of the spiderlings are retained in large measure by the adult male. Thus the male has, in addition to the red, ventral, abdominal marking, common to both sexes, a row of orange red spots down the midline of the dorsal surface of the abdomen, three orange-yellow side stripes on the abdomen and clear straw-colored bands on its legs. All these color markings arc likewise possessed by the immature female. Later, however, they arc lost in a general suffusion of black pigment, only the ventral red marking and that over the spinneret remaining in the adult female.

At the fourth moult the tibia of the palpi of a male spiderling suddenly expands to form a yellowish or olive-green bulbous structure. This swelling involves to a lesser extent the tarsus and the patella. The tarsus appears as the pointed extremity and the patella as the expanded cap of the bulb. After the fourth moult, though the color markings of male and female may be similar, the modification of the male palpi to form secondary sex organs serves as an infallible guide to the sex of the spider. At the fifth moult the secondary sex organs of the male undergo a second remarkable transformation. In place of a rounded bulbous structure a complex structure with a spiralled cuplike opening appears. It is used for the storage and later the transference of seminal fluid to the spermathecae of the female at the time of mating. With its appearance the male may be regarded as an adult, though further increase of size occurs. The development of these adult sex organs is attained in from two to three months. The maturation

of the male is somewhat more rapid than that of the female.

Span of life

The life span of the female is approximately one year. If hatched early in the spring the spiderling may, if the food supply is adequate, mature by late summer, live over the winter, lay its eggs the following spring and die during the summer or fall.

The life span of the male is usually less than a year. If hatched early in the spring it matures during the summer mates and dies during the fall or winter.

Danger to man

In man the bite of Latrodectus mactans is followed, with dramatic suddenness, by a characteristic and alarmingly severe systemic reaction. The full-grown female, particularly when distended with eggs, appears from experiments with animals, to be the most poisonous. It is, however, a timid creature and when disturbed makes every attempt to escape. This explains the relatively small number of bites in spite of the prevalence of these spiders in this section. When cornered or compressed, as between the skin and clothing, the spider bites in self-defence. Bites about the genitals are frequent on persons using an outdoor privy across the seat of which one of these spiders has spun its web. The frequency with which "the black widow" is found around and in human habitations constitutes a potential danger. The male, though also poisonous, may, on account of its size, greater timidity and scarcity, be ignored as an etiologic factor of any importance in Arachnidism.

(A. W. Blair, M.D., Life history of Latrodectus mactans, Archives of internal medicine, vol. 54 (1934), p. 843-850)

Giftwirkung und Bissfälle / Toxic effects and cases of bites

Giftwirkung und Bissfälle / Toxic effects and cases of bites

Übersicht / Overview

1875 - Effects of the spider bite in 5 cases - Wm. Semple

"Spider bites are of rare occurrence in this vicinity, but are generally productive of very grave symptoms. I will report all that have occurred to me in a practice of 40 years:

CASE I. - September 4, 1853. I was called to see Mr. D., at Old Point, who had been bitten by a small, black spider on the prepuce. whilst on the privy seat, at 12 ½ o'clock. The bite at first caused only itching of the prepuce, with a little redness of the part, but in less than half an hour nausea, followed by severe abdominal pains, ensued. A messenger was despatched in haste on horseback for me to Hampton, three miles off. Before I reached the patient, at 2 ½ o'clock, violent praecordial pains extending to the axilla, and down the arm and forearm to the fingers, with numbness of the extremity, had succeeded, attended by apnoea. In consequence of the violence of the symptoms, Dr. Stineca, surgeon of the post, had been sent for, who had given two doses of laudanum of 3j each, and two of rectified whiskey of 3ij each, and being in ill health and unable to remain, had ordered his hospital steward to apply 4 dry cups over the praecordia.

This had just been done when I arrived. I saw the blood, thin and florid, fill the cups like water oozing through muslin. When the cups were removed, the blood, emptied into a basin, did not coagulate; and blood continued to ooze slightly from the surfaces to which the cups had been applied until the next morning, though a solution of tannin was applied. I found the patient suffering extremely from the most violent praecordial pains and from apnoea, and also violent pain in the left arm, which was almost paralysed. His pulse 130 and very feeble, his skin cold as marble, and his countenance expressive of the deep anxiety he felt and expressed in words. The laudanum and whiskey seemed to have produced no effect - the nausea and abdominal pains having subsided before they were administered. There was no pain, inflammation or swelling where the bite was received. Even the itching of the part had subsided. I gave the patient every half hour for several hours 3j of aromatic spirits of ammonia, and as much whiskey and water as he could be induced to take, and afterwards gave them every hour; also pediluvia of hot mustard and water, frequently repeated, until the next night.

8 A. M. - The symptoms continued unabated ; indeed, the patient grew worse until 2 ½ o'clock, 26 hours after he was bitten, for his pulse had then become so frequent that it could not be counted, and so feeble that it could scarcely be felt. He then vomited black vomit copiously - a quart or more. Soon afterwards re-action set in, his pulse gradually regained force, and became less frequent, the pain subsided and the respiration improved. At 8 P M., the pulse had gained considerable force, and the patient slept until some minutes after 12, when he awoke; his pulse was pretty full at 1.10; his surface warm and perspirable, and he felt almost free of pain. After a short interval he again fell asleep, and slept quietly until morning, when he awoke - his respiration healthy, pulse 80, regular and with sufficient force, and

entirely relieved of pain. He soon afterwards had two pretty copious evacuations from the bowels, similar to the black vomit he had vomited. After this, he said he felt quite well, and took a light breakfast and dinner, and returned that evening to his residence in Portsmouth, and in a few days went-to work at his trade.

In 36 hours from the time he was bitten, he took three and a half quart bottles of the best rectified whiskey - about three quarts without showing the least symptom of intoxication.

CASE II, I report from memory. About June 20th, 1861, on a scout with a party of cavalrymen under command of Major Hood (afterwards Gen. Hood), in a woods about 4 miles northwest of Newport's News, a man belonging to Captain Goode's' (Mecklenburg) troop, about 3 ½ A. M., just as the order to saddle was given, cried out that he was bitten by a spider, and called for me. He was bitten in the groin, and complained of only a slight pricking and itching at the spot where he was bitten, but was complaining of severe abdominal pain, with nausea, and a sinking sensation at the epigastrium; and his pulse, in a few moments after the bite, had already become quick and thready, and the skin very cold. I immediately commenced the administration of aromatic spirits of ammonia and whiskey, as in the other case. He was moved on horseback with the party about a mile and a half, a good pallet of blankets was made for him in a thick shade, and he was rendered as comfortable as possible. The symptoms followed the same course as in the first case, but amendment commenced about 12 M., when all my supply of whiskey - one and a half quart bottles of the very best of my own private store - and all the supply of spirits of ammonia were exhausted; but the commencing reaction was sustained by a pint of whiskey procured (the last he had) from a friend of mine hard by, and by 5 o'clock he was well enough to be taken to Cockletown, some 10 or 12 miles off, in a spring wagon, where he arrived quite well, after an upset going down Harwood's mill, hill. There were no symptoms of intoxication in this case.

The spider which inflicted the wound in this case was killed and examined by the patient, and proved to be a small, black spider. Each of these two patients was a healthy man in the prime of life; exact age not known.

CASE III. - I was called about 10 A. M., Oct. 6, 1867, to see young W., 18 years old, who had been bitten by a spider of the same sort the night before, about 7 o'clock.. The bite in this case was on the back of the left hand. There was no pain, but only itching and redness at the part bitten at first; but violent pain soon commenced there and extended in a short time up the arm and forearm to the shoulder, and thence to the praecordial region. Plantain and some other domestic remedies were applied to the part without relief. When I saw him the symptoms were grave enough to excite the apprehensions of his parents, and to produce very great suffering in the patient, but, though like the two former cases, were by no means so severe. Milk punch, in which form alone the patient would take whiskey, was given freely, and 10 grains of bromide of potassium and 10 of bromide of ammonia, with 3 of iodide of potassium and 3j of aromatic spirits of ammonia, were given in water every hour for 4 hours, when the patient was quite relieved.

CASE IV. - A quadroon mulatto woman called on me about 12 o'clock, the night of Sept. 23d, 1874, to visit her daughter, a tauney woman, healthy, about 22 years old, the mother of two children, who she said was suffering very greatly from pain in the right arm and shoulder, caused by the bite of a spider, small and black, which she killed when inflicting the bite about 7 P. M. Being in a copious perspiration following a fever from cold, I declined to visit the patient, but prescribed for her as in the last case. One dose of the medicine and punch was given, but the patient growing worse, the mother would give no more. She called me up soon after day, begging me to go immediately to see her daughter, whom she thought was dying. I found

her apparently moribund; her skin as cold as marble; violent pain extending from the bite on the right wrist up the forearm and arm to the shoulder, and thence up the neck to the back of the head on the right side; more violent pain in the praecordia, extending thence to the shoulder and axilla on the left, and down the arm and forearm to the ends of the fingers, and this extremity partially paralysed; added to this, apnoea was extreme; the respiration only occasional - gasping; the pulse could not be felt in the left radial, and I was not sure that I felt it in the right. Having seen accounts of Halford's practice of injecting aqua ammonize into the veins for the bites of Australian serpents, and satisfied that no other treatment of which I had any knowledge would act promptly enough to avail anything in this case (though I could not remember of what strength Halford used the ammonia) I determined on its use; and as the water to be had in the house was charged with salt, alum and other impurities, to inject the strong aqua ammonia: undiluted, a small vial of which I had taken with me. The superficial veins of the patient were very irregularly distributed. One, the largest in the arm, ran up the middle of the belly of the biceps. Charging my hypodermic syringe with 13 minims of aqua ammoniae, I introduced the point carefully into the vein, about the middle of the arm, holding the syringe almost parallel to the vein, and satisfying myself, by lifting the point, that it was certainly in the cavity of the vein, I injected about two minims, and, waiting an interval of about a minute, about 2 minims more, until I had injected ten minims. I was then about to withdraw the syringe, when the patient gave a spasmodic jerk of the forearm, pressing my right arm forward, and so pressing the point of the syringe through the vein into the cellular tissue, and sending home the piston, injecting the remaining three minims into the cellular tissue. I withdrew the syringe and placed my finger on the pulse, where I held it about five to ten minutes. Feeling that the pulse constantly grew stronger and the skin warmer, I walked across the small room, washed out the syringe. and replaced it in the case, when, turning and looking at the patient, I was astonished at the calm and painless expression of her countenance, so lately expressive of extreme anxiety and pain. On examining her pulse, it was full, regular, and beating only 77. The skin was warm and perspirable, and the respiration natural. She seemed to have been snatched *articulo mortis* and restored to health. To my question, How do you feel? she replied, The most I have to complain of is the smarting where you stuck me in the arm. On examining it, I found a blister there as large as my thumb nail. A slough took place in a few days as large as a nickel cent, which almost healed up kindly until she irritated the small remaining healthy ulcer while carrying a child on the arm to a picnic.

Though a slough was the consequence of the injection in this case, yet it conclusively proves that dilute aqua ammoniae may be safely injected into the veins; that it is only necessary to take care that none be injected into the cellular tissue, since no inconvenience followed the mingling of the strong ammoniae with the blood in the vein, but only from its injection into the cellular tissue. To guard against such accidents, it is only necessary to open the vein to be injected with a lancet, and use a bulb-pointed syringe.

CASE V. - September 28, 1875. I was called at 7 in the evening to see Miss D., a healthy young girl, 13 years old. At about 5 ½ o'clock she had thrust her right hand through a spider web into a rose bush to pluck a rose. She felt a stinging sensation on the wrist, accompanied by itching and redness at the spot. For several minutes there was but little pain, but in half an hour a painful sensation began to be felt at the spot, which quickly extended up the arm to the shoulder, and, in the course of an hour, along the neck to the back of the head. Several domestic remedies were applied to the spot supposed to have been bitten by a spider, but none affording any relief, and pain in the praecordial region, with apnoea coming on, I was sent for. When I arrived, she was screaming fearfully with pain, and frequently exclaiming she should lose her breath and die. The pulse had become thready and the surface cold. I had the bitten part rubbed with volatile liniment, and gave her at once the bromides of potassium and ammonium, and iodide of potassium with aromatic spirits of ammonia, and 3jss of whiskey, with

water. Soon after swallowing the whiskey and water, she said she felt a glowing sensation in the stomach, and not long after a general glow. The skin became warmer, and the pulse grew stronger, with considerable abatement of the pain.

At 8 P. M., a second dose was given ; reaction continued to be developed, the pulse and respiration to improve, and the pains to abate. Just before 9 P. M., she fell asleep, and when I visited her in the morning, had gone to school quite well.

The question arises, to what was the prompt recovery due in this case? Was it to the local application? Perhaps so; but more probably to the ammonia compounds finding from some cause an unusually ready admission through the portal into the general systemic circulation, not being eliminated in the bile by the liver, to be re-absorbed and required to go this round several times perhaps before gaining admission into the systemic circulation. That this is not unfrequently the case in regard to our remedies, is rendered probable by what I have often observed in the treatment of pneumonia with the carbonate of ammonia, and which, I doubt not, others have also observed, viz., that after having been administered for 24 to 36 hours without apparent effect, it will suddenly produce its best effects on the pulse and respiration. Tb what other cause can this be attributable than that I have mentioned? But if aqua ammoniae can be safely injected into the veins, and produces the same effect we seek to procure by the administration of carbonate of ammonia in pneumonia, in increasing the force and diminishing the frequency of the heart's action, why should we not resort to the injection of the former in the treatment of pneumonia, and in all cases in which the same effects are desired?"
(Cases of Spider Bite. By G. Wm. Semple, M. D., Hampton, Va. Virginia Medical Monthly vol. II (1875-1876), p. 633-638)
[Note: This report was the base for an article of Samuel A. Jones, which appeared in The Homoeopathic Recorder, July, 1889 - later reprinted in "New, Old and Forgotten Remedies", by E. P. Anshutz. The author therein hinted to the striking similarity between the effects of the spider bite and the clinical picture of angina pectoris, and suggested the use of it in such cases. With the paper of S. A. Jones began the clinical use of Latrodectus mactans in angina pectoris. A short time later appeared the first clinical confirmations of the suggested relation.]

1888 - A fatal case of spider bite

"The evidence for and against the possibility of a fatal bite from any of our common spiders is sufficiently confusing. We have, on the one hand, a widespread impression among people at large that such fatal bites are frequent and a large number of poorly-authenticated newspaper records of cases. On the other hand, we have a general incredulity among entomologists and arachnologists, who require absolute proof before accepting what seems probably untrue, judged from the statements of naturalists who have allowed themselves to be bitten without bad results, not only by many different spiders, but by the very species said to be venomous.

Under these circumstances any well-authenticated case of poisoning is of value, and we place the following facts on record for what they are worth:

In January, 1886, we received for identification from Col. Thomas B. Keogh, of Greensborough, N. C., a specimen of the common *Latrodectus mactans*, a rather large brown spider, with a red spot on its abdomen, with the accompanying statement that a specimen of the same species had killed a man at Greensborough. We publish our reply in full, as it drew out the interesting statement which follows:

Your letter of the 7th instant, with specimens of spider supposed to be identical with a species which has fatally bitten a man in your neighborhood, came safely to hand. I am glad to get this specimen, the habits of which you can so accurately describe, and am much interested in the instance which you report. Such instances have been placed upon record in several papers, but there has been so far no accurate scientific evidence of the power of this insect to inflict a fatal wound. For this reason I should be very glad to hear from you of the circumstances

connected with this instance. In the first place, are you certain that the spider which bit the man belonged to this species (the scientific name of this spider is *Latrodectus mactans*, but it has no common name)? (2) Was the spider *seen* to inflict the wound or was it found upon the wound immediately afterward? (3) How long did the man survive the bite? (4) Was the wound a punctured one, and how large was the orifice? (5) What were the symptoms, aside from the spasms which you mention; what was the character of swelling? (6) Was the man healthy and strong, and what was his susceptibility with regard to other poisons, as the Poison Ivy, for instance? (7) At what time of the year did this occur, and what was the man doing when bitten; was he in a profuse perspiration or not?

The answers to all these questions bear upon the interest attached to it, and you will greatly oblige me by answering them as fully and as accurately as possible. Our best arachnologists would deny the possibility of a fatal bite from these spiders were it not rendered uncertain by such positive accounts as these of yours. In view of this fact the importance of accurate investigation will be readily seen by you. We propose, as soon as opportunity offers, to experiment as to the poison of this and several allied spiders upon rabbits, and thus to approximate a solution of the question.

On receiving this letter, Colonel Keogh handed it to Mr. John M. Dick, who was the employer of the man in question, and whom Colonel Keogh states to be a "very intelligent and well-informed young farmer," who resides about half a mile from Greensborough. Mr. Dick´s statement is as follows:

In reply to your questions, asked Colonel Keogh in your letter of January 11, I will make the following statements:

(1) No one was with the man when he was bitten. All we know is his own statement. He said he felt something crawling on his neck; as he brushed it off it stung or bit him very severely. As the pain was very great, he looked the see what had caused it. He described the insect as a black spider with a red spot on it.

(2) He was bitten about 8.30 o´clock a. m. and died between 10 and 11 o´clock p. m., about fourteen hours intervening.

(3) I examined his neck and found about ten little white pimples, all of which could be covered with a one-dollar silver coin. I saw no puncture of any kind.

(4) There was no swelling at all, but his neck and left breast and arm became very hard, so much so that I could not make an impression in the flesh with my thumb.

(5) The man had been living with me for nine years, and was perfectly healthy. Had no disease.

(6) He could handle poison *oak* or *ivy* with impunity.

(7) He was bitten on the 19th of October, 1887. He was handling wood at the time. It was a damp cold morning and he could not have been overheated. As soon as the sensation of pain had passed off the man felt no further inconvenience till towards the middle of the day. (He described the pain from the sting as somewhat similar to the sting of a wasp.) About half past 11 o´clock he came to the house and told me that he had been bitten by a spider. I treated the matter lightly, thinking he would have been dead by that time if it was going to hurt him at all, but he complained of pains running through his whole body. Finally, he went to town (only 1 mile distant), saying he was going to get whisky. About 1 o´clock he came home. Said he felt no better. Said the pain had settled in his bowels. In a short time while he commenced to have spasms. (He told me he had only bought 5 cents´ worth of corn whisky.) When the spasm came on I was greatly frightened. As I knew of no remedy but whisky, I gave it to him. In all, I gave him three half pints. He seemed relieved of pain about 3 o´clock, and did some work

about the barn. About 4 o´clock the pains came on again and the spasms with them. He had only two spasms. He never recovered from the second one, but remained in a state of unconsciousness till his death.

I have another man working for me who was bitten by one of the spiders about three years ago. I showed him the spider which Colonel Keogh forwarded to you, and he recognized it at once as being exactly like the one which had bitten him. As this man´s experience with a spider bite is rather peculiar, I will give it to you as he has told me. He was at work in a corn field about the middle of June. It was the afternoon of the day. He went to a spring nearby for a drink of water. While resting a moment at the spring the spider bit him on the ankle. He spit tobacco juice on the sting and soon felt no pain. (He describes the pain from the sting as more like a brier scratch.) He resumed to work, but in an hour or so felt a sudden shock or pain run through his whole body. As one shock would pass off another would come on. He unhitched his horse and attempted to ride home, but soon fell off the horse in an unconscious condition. His employer found him by the roadside and had him taken home. This gentleman has since told me the negro seemed perfectly crazy. He told what had bitten him between spasms of pain. The only remedy he knew of was whisky. He gave the negro three pints, and it has no intoxicating effect. The negro had spasms one after another for several days. It was three weeks before he stopped having them, and it was two months before he was able to do any work. He has not entirely recovered yet. Whenever he becomes overheated he has to stop work. He has a numb sensation pass over him. His ankle did not swell at all. These same kind of pimples which I noticed on the neck of man that died appeared on his ankle, and break out afresh every time he becomes overheated from exercise."
(A contribution to the literature of fatal spider bites. Insect Life, Periodical Bulletin of the U. S. Department of Agriculture, Division of Entomology. Vol. I, July 1888 to June 1889, p. 204-206

1915 - A man was bitten on the penis while sitting in an outcloset - E. H. Coleman

"Patient B. came to my office one morning at 8.15 o´clock, showing signs of an acute poisoning of some sort.

The glans of the penis had been bitten by a spider while the patient was sitting in a outcloset. The only thing felt was a sharp sting. (This spider was captured so there is no doubt as to the species; it was a female of *Latrodectus mactans*.) In about ten minutes there appeared dizziness and weakness of the legs, followed by cramps in the abdominal muscles.

The patient left the field where working and started to walk to town, a distance of a little over a mile. The pains grew worse and the penis started to swell and turn red. When the office was reached, the pains, of a cramp-like character, in the abdomen, were intense, also around the heart and thighs. Physical examination showed the heart to be running at the rate of 40 per minute, of small volume but regular. The respiration was labored. The pupils were dilated and face very red and congested. The penis was swollen to a great size, fully 3 inches in diameter at the glans, and the color was a mottled purple. The contractions were clonic in character, giving the greatest pain in the chest and abdomen. There were no pains below the knees or elbows.

The treatment consisted of hypodermic injections of strychnine 1/40, followed in ten minutes by nitro-glycerine 1/100. Local applications to the site of bite of the crystals of potassium permanganate. The heart went to as low as 27 beats to the minute. After three hours´ work, using repeated injections of strychnine, the heart-rate was increased to 45. The pains were not quite so severe and the patient was taken home. The administration of strychnine was stopped and the use of brandy hypodermically was substituted, a dose of 10 mm. being given every hour. Heat was applied to the feet and back. At 5 p. m., or about nine and one-half hours after the first symptoms, the heart-rate had raised to 55 and then as the pains were still severe, a ¼

morphine with 1/150 atropine was given. The pains eased up and the patient dropped in sleep.

The next morning a fine rash appeared all over the body, accompanied by some itching. The penis had returned to nearly normal in size. The heart-rate was 60, the respiration 18 and deep, temperature 100. The rash disappeared in four days. The patient was troubled with insomnia for several days, and a stubborn constipation that took a very active purge to affect.

Three years have relapsed and the patient has a heart-rate of about 64. No history of what it was before poisoning. Troubled with attack of insomnia and a marked bulimia."
(Vernon L. Kellogg, Stanford University, Cal., Spider Poison, The Journal of Parasitology Vol.1, March, 1915, p. 108-109; Observation by E. H. Coleman, M. D.)

1926 - Report of Cases of Spider Bites admitted at the Los Angeles General Hospital - Emil Bogen

Report of a Typical Case

"One late summer evening, a young Mexican laborer, while sitting down in an infrequently used outdoor toilet in a suburb of Los Angeles, felt a sharp prick on the end of the glans penis. On looking down he saw a coarse web spun across the hole in the seat of the toilet, and a shiny black spider with a red spot on its belly scurrying to a corner of the web. After the first momentary stinging he felt no further pain in the penis, but about ten minutes later he began to feel a cramping, aching pain in the groins which rapidly spread over the abdomen, legs, back and chest, increasing in intensity for about an hour. He arrived at the Los Angeles General Hospital about six hours after the bite, writhing in agony, and complaining of nausea, vomiting, and of some difficulty in breathing.

The face was flushed, the pupils somewhat dilated, the respiration accelerated, and the knee jerks and other reflexes overactive. The abdominal wall was extremely rigid, suggesting the boardlike rigidity of a perforated gastric ulcer, although there was no marked local abdominal tenderness. A tiny red spot, barely discernible, marked the spot where he had been bitten. The temperature was normal on admission, but rose to 100.6° F by the next afternoon, while the pulse, which was 100 on admission, fell to 64. The blood pressure was 160 systolic and 90 diastolic, but fell to 130 systolic and 80 diastolic within twenty-four hours. A trace of albumin and a few hyaline casts were found in the urine. The patient had no bowel movements until after he had been given a cathartic on the second day, and he had some difficulty in voiding urine on the first day. The white blood count was 15,000 on admission, with 80 per cent of polymorphonuclear leukocytes, but this dropped to 9,000 by the third day, with 70 per cent of polymorphonuclears. The red blood count was normal, with a color index of 1.

Several hypodermic injections of morphine were given before the patient secured any relief from the pain, and an interrupted restless sleep followed the additional administration of 3 grammes (0.1 Gm.) of phenobarbital. The morning after admission he was bathed in a profuse cold sweat, and complained of more pains in the feet and legs, and a numbness that persisted for several days in the soles of the feet. By the second day he was able to sit up, and four days after the onset of symptoms he left the hospital, walking but still weak and afflicted by a little numbness and tingling of the feet.

The Los Angeles General Hospital Series

Fifteen patients have been treated for poisonous spider bites at the Los Angeles General Hospital in recent years. They were all males, ranging in age from 2 to 65 years, but more than half were young adults. Five were Mexican, one negro, two foreign born, and the other seven native whites. Six were common laborers, eight skilled workers, and one was an infant. Five of the bites occurred within the city of Los Angeles, the other ten in the suburbs. Most of them happened in the evening or early morning in the summer or early autumn. Thus, five

occurred between 8 and 9, and four between 9 and 12 p. m., and one occurred at 3 and four between 8 and 11 a. m. There was only one instance each in April, May and October, but two patients were bitten in June, five in July, two in August and three in September. The spider was located in a toilet in eleven instances, in a factory once, and in bed once. Most of the patients had seen the actual spider, which they described as black and shiny, and several mentioned a red spot in its belly.

The bite occurred on the penis in ten patients, the scrotum in two, the back in two, and the abdomen in one. Local signs consisting of one or two tiny pink or red spots, were found at the site in eight cases, and local symptoms in that region, after the first momentary prick, were complained of in five. The chief symptom in every instance was pain. This was described by seven patients as severe, by three patients each as continuous or aching, by two patients each as sharp, dull, stinging, cramping, or doubling up, and by others as considerable, great, burning, throbbing, cutting, tingling, shooting, rheumatic or generalized. The pain was located in the legs in eleven cases and in the abdomen in nine, but was also in the chest, back, arms and penis in five cases each, and in the groin in three cases and all over in four.

Perspiration, restlessness and vomiting were complained of by seven patients, constipation by six, nausea by four, difficulty in breathing by three, dizziness, chills, urinary retention, incoordination and edema of the face and of the legs by two, and hiccough, thirst and cough by one patient each. Thirteen patients appeared to be in agony on admission, cyanosis was seen in five, the pupils were dilated in two, were small once and irregular once, and a heart murmur was heard in one. The abdomen was rigid in twelve patients, but tender in only three. The knee jerk and other reflexes were overactive in seven cases, tremors and twitching were found in four, and priapism was noted once.

The pain appeared immediately in six cases and with a quarter of an hour in six others. It reached the maximum severity within a quarter of an hour in three cases, in an hour in five cases, in two hours in three, and in four hours in two. Three patients were seen at the hospital within two hours after the bite, four within six hours, five within twelve hours, and the others within forty-eight hours. The diagnosis was not made definitely at the time of admission in the first five cases admitted, perhaps because we were not then familiar with the condition, for there has been no hesitancy in recognizing the fact the last ten cases, eight of which occurred within the year 1925. The differential diagnosis included infection followed insect bite, an acute surgical abdominal condition such as ruptured gastric ulcer or acute appendicitis with peritonitis, renal colic, food poisoning and lobar phenomena.

Eight patients had a subnormal temperature at the time of admission, but in nearly all a mild fever developed during their hospital stay, in six instances reaching 100° F or more, but in no case going above 101.6° F. The pulse was generally retarded as compared with the temperature, being below 75 in half the patients on admission and falling below 66 in the majority during the first days in the hospital. The respiratory rate was generally slightly accelerated on admission, but soon came down to 20, which was the average rate during the remainder of their stay in the hospital. Two patients had urinary retention, requiring catheterization on the day of the bite, and almost all were constipated, going one, and in six cases two, days without a bowel movement.

Hypertension was found in every patient examined, the blood pressure averaging 150 systolic and over 87 diastolic on admission. Repeated readings, however, showed a rapid drop, the systolic averaging only 136 on the day after admission. Urine analysis showed a trace of albumin in three cases, with hyaline of granular casts in four, pus cells in three and indican and blood in one case. Stool examination revealed blood in one case. The Wassermann test was four plus in two cases, two plus in one, suspicious once and negative results eight times. Leucocytosis was present in almost every case, averaging 14,761 in the nine cases examined on

the day of admission, 11,600 in the five cases examined on the second day, 10,720 in the four cases examined on the third day in the hospital, the highest count being 21,000 on admission, and the lowest 5,900 several days after the bite. There generally was a relative polymorphonuclear leucocytosis, averaging 80 per cent in the eight cases recorded. The red blood cell count was not constant, averaging 5,000,000 in the seven cases recorded, with an average hemoglobin estimation of about 85 per cent. Altogether more than sixty physicians saw these patients while they were in the hospital.

The treatment at the hospital consisted mainly of sedation, with morphine or codeine in ten cases, barbital compounds in seven, hot applications in four, atropine and salicylates in two, and chloral and bromides in one case each, of stimulation, with aromatic spirits of ammonia in three cases, caffeine in two and strychnine once, and of elimination, with magnesium sulphate or citrate in seven cases, castor oil, sodium bicarbonate or enemas in three, and calomel or gastric lavage in one case each.

About six months ago it was felt that, even though we have not yet had a fatality at the Los Angeles General Hospital, it would be advisable to seek some more efficient mode of treatment, since these patients respond so poorly to opiates and require such large doses to give them relief. The use of convalescent serum was suggested, and accordingly 20 cc. of blood, taken from a patient who had recovered from a severe poison spider bite inflicted ten days before, was given intramuscularly to a man who had just entered the hospital in the agony of pain from a spider bite. Since he seemed to be quite improved after the injection, a quantity of blood has been taken from all patients who recover from poisonous spider bites since then, and the serum separated and kept on ice for use in succeeding cases. Only four cases have been so treated up to the present time, but in each of these the relief was felt within a few hours after the injection, and comparative ease was afforded in a much shorter time than would have been expected."

(Emil Bogen, M. D., Los Angeles, Arachnidism - Spider Poisoning, Archives for Internal Medicine vol. 38 (1926), p. 623-632)

A brief summary of the cases treated at the Los Angeles General Hospital

"CASE 1 - A Mexican laborer, age 29, while sitting in an outdoor toilet at Palo Verdes was bitten on the penis by a spider. He had severe pain and muscle spasms, which lasted about two days.

CASE 2 - A Mexican laborer, age 25, was admitted, doubled up in acute pain in the abdomen, legs and arms, with a tentative diagnosis of acute appendicitis. The abdomen was rigid but not tender, and the temperature was 101 +. He stated that he had been bitten on the side of the abdomen by a black spider, and in two days was discharged as well.

CASE 3 - A Hungarian laborer, age 37, while sitting in an outdoor toilet in Los Angeles was bitten on the penis by a black spider. The severe pains which followed spread up the inguinal region on each side into the abdomen and thighs. On admission he was writhing in pain, cyanotic, the abdomen was rigid although not tender, and the knee jerks were hyperactive. He vomited several times and had urinary retention requiring catheterization. The systolic blood pressure was 170, with white blood count 13,750. Although the most severe pains had diminished within twenty-four hours, it was five days before he was able to leave the hospital.

CASE 4 - An American acetylene welder, age 42, was admitted with a tentative diagnosis of acute appendicitis. A severe pain, starting in the scrotum and lower right quadrant, had spread over the entire abdomen, which was of a board-like rigidity, but showed no areas of tenderness. Profuse perspiration, respiratory distress, urinary retention requiring catheterization, obstinate constipation, a fever of 100 +, and a leucocytosis of 21,800 with a trace of albumin in the urine complicated the picture, and the suggested diagnoses varied from lobar pneumonia

to food poisoning, ruptured gastric ulcer or acute appendicitis. However, the symptoms soon subsided, and the patient remembered that five minutes before the onset of the pain he had been bitten on the end of the penis while in an outdoor privy. Several days later he was discharged completely recovered.

CASE 5 - An American watchman, age 51, was bitten on the penis by a spider while in an outdoor toilet in Baldwin Park. Severe pain was felt in the lower abdomen, extending into the thighs and accompanied by vomiting, hiccoughing, and marked nervousness. The blood pressure rose to 165 systolic, the stool contained blood, the urine a trace of albumin, and the temperature went up to 100. Al symptoms subsided, and the patient was discharged three days later.

CASE 6 - An American cowboy, age 22, was bitten between the shoulders by a black spider. Pain arose in the back and spread to the chest, abdomen and legs, and he became dizzy, cyanotic, short of breath, and vomited repeatedly, remaining in the hospital for nearly a week.

CASE 7 - A Mexican laborer, age 25, while sitting in an outdoor toilet was bitten on the penis by a spider. He complained of severe abdominal pain ad his abdomen felt very rigid, but was not tender. The white blood cell count was 13,6000. He perspired freely and by the next day was able to leave the hospital.

CASE 8 - A Mexican laborer, age 18, was bitten on the penis by a black spider in an outdoor toilet. Severe pain radiated down his legs and up over the abdomen, and speech and even breathing became difficult. Other symptoms included profuse perspiration, vomiting, cyanosis, constipation, and a temperature of 100. The abdomen became very rigid but not tender, reflexes hyperactive, systolic blood pressure 152, white blood cells 18,7000. The patient remained in the hospital nearly a week.

CASE 9 - A Mexican laborer, age 38, while sitting in a outdoor toilet in Belvedere was bitten on the penis by a small black spider. When seen an hour later he was doubled up with pain in the abdomen, chest, legs, arms, and back of the head. Nausea, vomiting, temperature 100, profuse perspiration and intense thirst followed. The abdomen was markedly rigid throughout but not tender, the knee jerks were hyperactive, and the scrotum was contracted and penis erectile. The blood pressure was 154 systolic, the white cell count 16,000 with 89 per cent polymorphonuclears, and the urine contained numerous casts. The most acute pain began to subside within twenty-four hours, but the patient remained in the hospital for more than a week.

CASE 10 - A negro laborer, age 36, was bitten on the penis while in an outdoor toilet. This was followed by a severe cramping pain in the groins and legs, later spreading to the chest and arms. The abdominal wall was very rigid but not tender, the scrotum contracted, and the body covered with a profuse perspiration. The systolic blood pressure was 150, the white count 12,400, the urine contained a trace of albumin and occasional casts, and the temperature rose to 100. Twelve hours after the bite he was given 44 cc. of whole blood taken from the previous patient, intramuscularly, and within a few hours was feeling greatly relieved, and left the hospital on the third day.

CASE 11 - A German painter, age 49, was bitten on the scrotum by a spider in an outdoor toilet in Los Angeles. Pain gradually spread over the groins and back and became very severe in the chest and legs. The abdomen was markedly rigid, the knee jerks hyperactive, and the white blood cell count was 16,400. The pain diminished within twenty-five hours, and the patient went home the next day.

CASE 12 - An American carpenter, age 45, was bitten on the penis by a spider while in an outdoor toilet in Monterey Park. A sharp pain spread from the groins over the entire body, and was accompanied by chills, nausea, vomiting, fever up to 100, and drenching sweats. The abdomen was rigid and tender, the systolic blood pressure was 150, the white cell count 14,600

with 94 per cent polymorphonuclears, and the reflexes were hyperactive. Fourteen hours after the bite, 15 cc. of convalescent serum was injected intramuscularly, and the next morning the patient was feeling much better, but he stayed in the hospital for three days.

CASE 13 - An American factory worker, age 16, was bitten on the back by a black spider while at work. Aches and pains in the arms, legs and back, increased until the boy was doubled up in agony, the abdomen became rigid and the body was covered with perspiration. The systolic blood pressure was 150 and the white blood cell count 12,600. Seven hours after the bite he was given an intramuscularly injection of 15 cc. of convalescent serum, and soon felt much relieved, leaving the hospital the next morning.

CASE 14 - An American laborer, age 65, was bitten on the scrotum by a black spider in an outdoor toilet. Severe pains, especially in the back, were followed by numbness and tingling in the hands and feet and general weakness. He came to the hospital several days later, bringing the spider, al Latrodectus mactans, and was treated in the outpatient clinic for a number of days, complaining of marked weakness.

CASE 15 - An American boy, age 14 months, was bitten by a black spider while sitting on a wicker stool. He cried out and continued to moan in pain, even after he had been rendered stuporous by heavy doses of chloral and morphine, and developed urinary retention, board-like abdominal rigidity, and edema of the legs. Six hours after the bite he was given an injection of 20 cc. whole blood from a convalescent patient, and soon after dropped to sleep and the next day was practically recovered."
(Poisonous Spider Bites, with especial Reference to the Latrodectus Mactans. By Emil Bogen and Phoebus Berman, California and Western Medicine vol. 27, March 1927, p. 339-340)

1926 - The Clinical Symptoms from the Bite of Latrodectus Mactans, from a Review of the Literature - Emil Bogen

"More than 150 cases of poisonous spider bites have been reported by thirty-three physicians in the United States during the last century. Two thirds of these occurred in California, but the others were scattered over more than a dozen states, including Florida, Virginia, Georgia, North Carolina, Alabama, Texas, Oklahoma, Maryland, Pennsylvania, Tennessee, Ohio, West Virginia and Arkansas. More than 80 per cent of the victims were males, and the majority were bitten on the penis or adjacent parts while sitting in an outdoor toilet, others on the hands, feet or other exposed parts. All ages have been reported. A minister and a college professor have not been spared, but most of the victims were farmers or rural laborers, as might be expected from the habitat of the spider. Most of the bites occurred either in the early morning or in the evening in the summer or autumn, but this was not the invariable rule, as cases have been known in almost every month of the year. The spider actually causing the bite was captured and identified by arachnologists in about a dozen cases, but usually it was described as a shiny black spider, and the red spot on the abdomen was frequently mentioned.

A stinging or sticking sensation was noted at first, but this soon disappeared, and except for a tiny red spot sometimes seen, there was no mark or swelling to indicate the location of the bite. In less than half an hour, however, the characteristic pain appeared, increasing in severity for several hours. It has been vividly described as intense, violent, agonizing, exquisite, excruciating, griping, cramping, shooting, lancinating, aching and numbing, and was either continuous and incessant or paroxysmal and intermittent. It was felt in the abdomen and generally also in the legs, back, chest and "all over", less often in the head, shoulders and arms. The pain spreads from the site of the wound by continuity, thus the patients bitten on the penis usually have pain in the groin and then in the abdomen, while those bitten on the wrist have pain in the arm and then the chest before it reaches the abdomen, suggesting that the venom spreads by the lymphatics and acts in the muscles rather than in the central nervous system.

The final distribution of the pain, disregarding the order of development, however, appears to be fairly uniform, irrespective of the site of the initial lesion, and the pain in the abdomen and legs follows bites of the wrist or back just as regularly as it does those of the penis or ankle.

In addition to the acute pain, which was evidenced in most cases by writhing, rolling, doubling up, muscle spasms and paroxysmal contractions, many other symptoms were described. The most common, in the order of frequency, include profuse cold sweats, restlessness, anxiety, difficulty in breathing, anorexia, nausea and vomiting, constipation, cyanosis, delirium, prostration, shock, insomnia, speech disturbances and acute urinary retention. Tremors, twitching, paralyses, convulsions, localized swelling of the bitten part, or of other tissues, chills, dizziness, priapism, jaundice and a macular skin eruption were also encountered.

An extreme boardlike rigidity of the abdomen was the most striking physical finding, but abdominal tenderness was rarely mentioned. Circulatory disturbances, evidenced by cyanosis and an unduly slow or rapid pulse were often noted, but actual figures were lacking. The patients were usually seen by the physician within a few hours after the bite, but the diagnosis was not always made at once, and in several instances the patient was operated on by mistake for an acute appendicitis or other acute surgical abdominal disease, while biliary or renal colic, acute pancreatitis, ruptured gastric ulcer and various forms of poisoning were suggested in others. The most acute symptoms lasted a number of hours, no relief being felt for more than six hours in half the cases reported. The pain then generally subsided in from twelve to forty-eight hours after the onset, but complete ease was often not secured for more than a week, and many complained of weakness and recurring pains for many weeks thereafter.

Seldom in medicine will one find a greater diversity of therapy than in the recorded cases of spider bite. More than seventy-five different remedies have been administered, each with the greatest apparent confidence that this was the best line of treatment. Morphine, whisky or brandy, aqua ammonia or spirits of ammonia, atropine, magnesium sulphate, hot baths and fomentations, enemas, blood-letting, opium or tincture of opium, strychnine, camphor and potassium permanganate have been most commonly employed. Among the other medications mentioned we find amber, arsenic, antimony, acetylsalicylic acid, aconitine, boneset, calomel, cantharides, cocaine, castor oil, Dover´s powders, Darby´s fluid, Echinacea, edgeweed, elaterium, glonoine, hyoscine, hoarhound, ipecac, lavender, mustard plasters, milk, magnesium phosphate, mercuric chloride, belladonna, nitro-glycerine, olive oil, potassium acetate, iodide and carbonate, phenol, plantain, rue, quinine, sinapisms, spirits of turpentine, squirrel´s ear, senna, sodium chloride, tansy, tartar emetic, tobacco poultice, valerian, volatile liniment, and Wizard oil.

There is a widespread impression that *Latrodectus mactans* may cause death, and indeed this is not improbable. The closely allied species, *Karakurt* in Russia, *Malmignatus* in Spain, and *Scelio* in New Zealand, have all been reported as causing considerable loss of life, and in South America many lethal cases have been reported. About ten deaths have been definitely ascribed to the bite of *Latrodectus mactans* in the United States, but only a few of them, as the cases of Dick in North Carolina, Reese in Oklahoma, and Clark in California, have been described in detail. Here the symptoms appear to have been the usual ones, perhaps a little more severe, and death ensued in from fourteen to thirty-two hours. Heavy dosage with alcohol may have helped to bring on this fatal termination in certain cases, as has been stated, but this will hardly account for all. One victim had been bitten twice by the spider. However, no patient with spider bite has ever died at the Los Angeles General Hospital, nor can we find any record of a case coming to necropsy in the United States."

(Emil Bogen, M. D., Los Angeles, Arachnidism - Spider Poisoning, Archives for Internal Medicine vol. 38 (1926), p. 623-632)

1930 - Spider bite simulating diffuse peritonitis, in a boy of six - W. Lowndes Peple

"The patient was a strong, robust, healthy boy of six, who, except for the diseases of childhood, had had no previous illness of consequence. On May 1, 1929, he was perfectly well, ate breakfast and dinner but went to bed supperless because he fell asleep. At about seven o´clock on the morning on May 2nd, 1929, he ate breakfast consisting of bacon and eggs, bread and milk, and seemed perfectly well. Shortly after breakfast he got on his pony and rode with his father to a nearby field where his father had ploughing to do. The boy got off of the pony and began playing about in some newly cleared land. About eleven o´clock he ran to his father crying and said a bee had bitten him on his thumb. He went to the house and had his mother wrap a rag around it and was back in three-quarters of an hour. After playing a while on the edge of the field he began to cry with pains, first in his back and then in his abdomen. The pain grew worse so rapidly that the father took him to the house and sent for Dr. W. W. Wilkinson who saw him at 12.20 p. m. just one hour and twenty minutes from the time the insect had stung or bitten him, and not over thirty minutes after the onset of symptoms.

The doctor stated that he found the child with agonizing pain in the abdomen, which was distended and of boardlike rigidity. The tenderness was general but not marked. His temperature was normal, his pulse was 120, and he soon became nauseated and vomited. The thumb was neither tender, red nor swollen and he only found out about the insect bite by asking why the thumb was wrapped up. Dr. Wilkinson said the case looked like one of diffuse peritonitis from some such cause as a ruptured appendix or perforated ulcer of the duodenum. As the distension became greater and the rigidity more marked an S. S. enema was given but with only slight result and no relief of symptoms. It was then decided to bring him to Richmond for consultation, and one-tenth of a grain of morphine was given to relieve the pain which was excruciating. He was nauseated throughout the trip and vomited repeatedly, the vomitus consisting of the undigested egg and bread he had eaten for breakfast. When he reached St. Luke´s Hospital, about 4 p. m., his pain had been almost entirely relieved by the morphine from which he was quite drowsy. His temperature was 99, his pulse 110. He had 20,000 leucocytes with 89 polys. He was tender all over the abdomen and was quite rigid with moderate distention. The rigidity seemed a little more marked on the left than the right side. Dr. Wilkinson stated that the whole picture had been greatly modified by the morphine, as neither the rigidity nor distention were anything like so marked as before it was given. A specimen of urine could not be obtained.

Upon close questioning as to the kind of insect which had bitten him the child insisted that it was a bee but said it was a black bee that had no wings and that he had picked it up off the ground. Here was a robust child perfectly well and in an hour and twenty minutes presenting a picture of diffuse peritonitis. Children do not have duodenal ulcers so it would have to be a volvulus, and intussusception or a ruptured appendix. The onset was too violent and the development of the symptoms too rapid for any of these. It was decided that the insect was a black spider and not a bee and the case was one of arachnidism and not peritonitis. He was given glucose and soda by rectum; also every four hours 5 grains of calcium lactate and 2 teaspoonfuls of milk of magnesia.

Next morning, May 3rd, his nausea and vomiting had stopped, his abdomen had gone down and lost its rigidity and tenderness. His white count had dropped to 12,000 and his polys to 82. His urine, gotten for the first time, showed acetone and diacetic acid but was otherwise negative. On the followed day, May 4th, he left the hospital apparently perfectly well.

Arachnidism or the poisoning from spider bite is neither well known nor is its prevalence appreciated in this part of the country. My recognition of this case was due to having heard of two soldiers with similar symptoms who were brought to the Memorial Hospital in Richmond, from a nearby camp, about twelve years ago, during mobilization. I had also heard Dr. J. Bolling Jones, of Petersburg, Va., in discussing a symposium on abdominal pain say that

one very important cause had been omitted by all the essayists, and that was spider bite. He then reported the case of two colored men with violent abdominal pain as a result of spider bites on their genitals, received while using an outdoor privy. I also recalled a report of one or more cases, in a journal of recent date which I could never locate, of operations on cases of arachnidism, believing them to be diffuse peritonitis." […]

"The safeguards in avoiding a tragic mistake in diagnosis are the precipitate onset; the lack of marked tenderness, and its failure to localize; the low or absent febrile reaction." […]

"From conversations with a number of doctors from Virginia and North Carolina, I am convinced that this condition is far more prevalent than one would believe, and that case reports and discussions would be helpful in making it generally understood."
(W. Lowndes Peple, M.D, Richmond, Va., Arachnidism. Report of a case simulating diffuse peritonitis. Virginia Medical Monthly Vol. 56 (1930), p. 789-791)

1930 – A man aged 55 was bitten on the glans penis – William H. Schwartz

"In 1926 the Associated Press reported six or eight deaths from a single town in California, caused by spider bite. All were traced to an infected area around a certain woodyard which was finally destroyed with no more fatalities.

From the *Houston Press* of August 27, 1927, I copied the following new item:
"Caldwell, Texas - Funeral services were held at the Catholic Church here Thursday for Henry Fleckenstein, 45, who died Wednesday as a result of having been bitten by a spider just 24 hours previously."

In the issue of April 26, 1929, another fatal case of spider bite is recorded:
"Edinburg, Texas – Funeral services were held here Monday for Miss Omer Dreydry, 14 high school student, who died Saturday from a spider bite on the neck on Wednesday."

A third fatality in Texas is copied from the *Houston Chronicle* in its issue of Tuesday, May 14, 1929:
"A spider bite, one week ago, resulted in the death of Mrs. L. L. Roberts at Wallar, Texas, on Monday."

Considering the small amount of venom that it is possible for a small spider to possess, and even less inject, we are considering for study one of the most violent of all poisons, the product of the N. O. Araneiae, which vies with hydrocyanic acid in the intensity of its action.

Our materia medica already includes fragmentary provings, mostly by accidental bite, of the *Tarentulas* (*hispanica*, *lycosa*, *mygale cubensis* and *mygale lasiodora*) and the *Latrodecti* (*katipo*, *mactans* and *theridion*).

The astounding cure of an insane woman with *Tarentula hispanica* by Dr. James Tyler Kent, reported by Dr. A. W. McDonough, in the *Homoeopathician* for October, 1913, and partly recorded in Clarke´s *Dictionary*, opens up a most wonderful and promising sphere of action for the spider poisons. It is a pity that some of the great endowments are not used to further homoeopathic provings including the spider venom. They would, no doubt, prove priceless to the human race; far more valuable than the mediocre results achieved in laboratory experiments on animals, often conducted so inhumanely.

Let me present to the Texas State Homoeopathic Medical Society the record of a most remarkable proving from the accidental bite of a spider, probably the Latrodectus mactans. I am not quite certain that it was this particular spider as a specimen, secured and sent to one of our universities was lost before it was classified, but from my description it was thought to be the one named. It was a small spider, about five-sixteenths of an inch in length of body including the head but not including the legs. It was hairy, rather dark, with a stripe down both sides of

its back. There was either a red dot, or the stripe may have been red, I am not quite sure which, as I failed to make a written description on the record at the time.

Mr. Joe Trinkle, 55, was bitten on the glans penis about 6 a.m., July 12, 1927. He immediately felt so deathly faint that he could hardly get to his house. They at once arranged to take him to Houston for medical treatment, a distance of about fifteen miles. On the way he collapsed and was taken to a farmhouse along the way. Here he remained until evening when he was brought to Houston, but I did not see him until the following morning about 9 o´clock, when I elicited the following symptoms: No pain or swelling; no subsequent ulceration at point of bite; stinging sensation as though a wasp had stung him at the time of bite; within several hours the inguinal glands began to swell with much aching pain that extended up the back to the upper lumbar region. “It almost knocked me down”, he said. This was followed by an awful aching of the hips, thighs and knees on both sides but worse on the left side. Finally the whole body ached. From the beginning to the end there was repeated nausea and vomiting. The vomited matter was green and watery, and there was much griping and colic like pain in the stomach and abdomen. The terrible pain in the stomach was relieved by the application of hot wet towels. The aching was particularly severe from 9 until 11 a.m. the morning of the bite, and again the following morning somewhat earlier. He could retain nothing in his stomach. There was no desire to eat, but there was considerable thirst for cold refreshing fruit drinks. He was averse to drinking water but did drink pineapple juice which was ejected immediately; there was no diarrhoea. There was pain in the region of the heart, and also in an arm which was once broken; repeated attacks of pain over the kidneys which he described as “striking down pain”; the left toes all felt as heavy as lead, much worse in the left great toe; the right foot was not affected. All his symptoms were violent, with much anxiety and restlessness, constant moving, every ten minutes or so, from bed to chair, and back to bed again, notwithstanding his great weakness. He was afraid he was going to die and constantly repeated as he rocked back and forth, “Oh, Lordy! Oh, Lordy! Have mercy, have mercy”! He described all his symptoms as terrible: Terrible burning inside, terrible aching of all his bones, terrible chill, terrible itching, terrible stinging of the legs. It was so violent he could not keep from “clawing it out”. Copious, ice-cold perspiration poured from his knees to his ankles, accompanied by this awful itching stinging, with desire to claw at his legs. The arms were hot, the feet warm, but the legs, from knees to ankles, were cold and sweating. The feet were dry. From 12 to 2 p.m. he was burning up inside; pains in the stomach at 4 p.m. that “cut off his breath”, relieved by hot wet towels applied to the abdomen; better at 7 p.m.

At 9 a.m., the day following the bite, I found him in a violent chill, shaking all over, even his facial muscles quivered, especially his upper and lower lips. This chill continued from 7 a.m. until he was given a remedy at 9 a.m. He complained of being cold but did not ask to be covered, and as the weather was warm no effort was made to cover him. The burning and stinging of the legs continued with general aching in all the bones. He was unable to sleep, during the entire night and continued vomiting greenish water, but not very copiously. “Oh, give me something to make me sleep”, was his repeated cry. I did but it was not morphine. I have never found it necessary to give morphine, as the homoeopathic remedy in suitable potency will relieve and do it more quickly. I have proved this even in injuries and accidents with *Arnica* or *Hypericum*, or in eye injuries with *Symphytum*.

This man received a dose of *Arsenicum* 10M which was repeated in ten minutes, after which he became calm and dozed off to sleep. He returned to his work on an oil well rig in five days.

The remarkable likeness of these symptoms to those of *Arsenicum* suggests the interesting thought “whether the full range of curative medicines may exist in either of the three kingdoms, mineral, vegetable and animal.”

In analyzing this proving we notice that the velocity is very rapid, and the pace intermittent.

The physical symptoms were restlessness, with relief from motion and from hot applications. Hot drinks might have relieved his stomach symptoms had they been given, for we know, that, while he had a moderate thirst for cold drinks, there was no relief from them. There was no particular dryness of the mouth. In the direction of symptoms there was a left sided tendency, and at first a tendency to extend upward. Perhaps nature later made an effort to throw off the symptoms which then took a downward and natural healing course of direction. The inguinal glands were affected but there was a decided preference for the cerebro-spinal nervous system. This remedy should prove efficacious in la grippe, malarial fevers, anginas, syphilis and zymotic diseases. Seldom we find a remedy that at once attacks with such violence the three planes of man, physical, mental and moral. I doubt whether the man would have lived 12 hours longer had he not received *Arsenicum*. I am of the opinion that without *Arsenicum* he would have died. Physiological medication, physical therapy, and expectant treatment I believe would have been useless, if not harmful. It would be interesting to know whether *Arsenicum* in the 30th potency, or arsenic in the form of cacodylate of soda, 606, or Fowler´s solution would have cured the man. I believe any of the arsenical preparation would have saved him, but I am certain that none of the arsenical preparations could have relieved him any sooner, more permanently, or more gently than the 10M that was given.

It is generally thought that low potencies administered on the same plane of cause, are better antidotes for crude poisons. This may be the case with drugs of less velocity of action, but the spider venom at once attacked the inner man as well as his physical, so I gave him the 10M rather than the 30th potency.

This spider should be proven in the higher potencies to bring out the moral symptoms. There is much work for all of us. The masters spent much time and suffering preparing the way for us, giving us our start in banking, but how few of us ever think of that promissory note, past due, to do our bit. How many additional lives would it help the next generation of physicians to comfort and save?"

(William H. Schwartz, M.D., Houston, Texas, Spider Bite, The Homoeopathic Recorder vol. 45 (1930), p. 20-24. Read before the Texas Homoeopathic Society, October 1929)

Prüfungen / Provings

Prüfungen / Provings

Übersicht / Overview

1915 - Effects of an Extract of the Poison Glands of Latrodectus mactans - E. H. Coleman

“The poison glands of Latrodectus were dissected out. The sac contained a very small drop of liquid of a white viscid character. The sac and contents were macerated in 10 drops of distilled water, called solution No. 1, for several minutes. To this was added 100 grains of pure sugar of milk and the mass triturated for fully ten minutes. This was labelled No. 2. Ten grains of No. 2 was added to 90 grains of fresh milk sugar and triturated, making No. 3. Tests were made with trituration No. 3 or a 1/1,000 gr. of the poison in each grain; and also No. 2 with practically the same results, except that No. 2 was vastly stronger than No. 3.

Using No. 3, I made powders containing 2 grains each and took one powder every hour for ten doses, or 0,002 grain poison per dose. (My condition before starting test was pulse 72, respiration 18, temperature 98, bowels regular daily and no pains or aches.) At the end of ten hours no change could be felt, other than a decrease on heart action to 64. No powders were taken from 8 p. m. until 7 a. m. the second day. When 15 powders were taken, the heart action was 60, and a slight dull occipital headache. The bowels did not move at their regular hour in the morning. When 20 powders were taken, the heart-rate was 54, the occipital pain was quite severe, cramping pains were extending from the chest to the abdominal muscles, the pupils slightly dilated, and some distress about the heart. Again no powders were taken during the night; but I was very restless and could not sleep. Continued the powders on the third day and stopped when the thirty-fifth had been taken. The heart-rate was 48, temperature 99, very severe headache, clonic spasms of the thoracic or abdominal muscles, marked distress about the heart with radiating pains extending to the left arm-pit and down to the elbows; had no bowel action for two days; pupils markedly dilated. It seemed a perfect picture of angina pectoris. The symptoms gradually subsided and in three days felt normal. I allowed a period of two weeks to intervene and repeated the experiment with the same symptom-complex picture. The trial was repeated a third time, which always the same results, as to occipital headache, constipation and clonic spasms of the muscles of chest and abdomen; also the pain and distress about the heart. I was unable to persuade any of my friends to try out the drug, so am limited to my own symptoms for a drug picture in the human species."

(Vernon L. Kellogg, Stanford University, Cal., Spider Poison, The Journal of Parasitology vol. 1, March 1915, p. 109; Observations by E. H. Coleman, M. D.)

1934 - Experimental Study of the Effects of the Bite of the female Latrodectus Mactans - A. W. Blair

"The subject of the experiment, begun on Nov. 12, 1933, was a man (myself), aged 32, weighing 168 pounds (76.2 Kg), athletically inclined and in excellent health. The normal clinical findings in health has been recorded daily for one week prior to the bite. Reaction to bee stings and mosquito bites was normal.

The spider selected for the experiment, a mature female Latrodectus mactans, was found in a rock pile near my residence on October 25. Since then it had been kept in a jar in the laboratory. It was fed last (water beetle) on October 29. On the day of the experiment it was of moderate size, active and glossy black, with characteristic adult markings, and appeared to be in excellent condition.

10.45 a. m. - With a pair of splinter forceps, the spider was gently grasped by the globose abdomen and applied to the medial surface of the terminal phalanx of the little finger of the left hand. The spider bit the moment it came into contact with the skin surface, twisting the cephalothorax from side to side as though to sink the claws of the chelicerae deeper into the flesh. The sensation resembled that of the prick of a very sharp needle, accompanied, however, by a burning sensation which increased in intensity during the biting period. The spider was permitted to bite for ten seconds. On its removal a small drop of a clear, whitish fluid, slightly streaked with brown, was observed at the site of the bite. This was allowed to remain untouched for one minute and was then wiped off with a cotton pledget. No definite marks of skin puncture were seen with the naked eye or with low magnification.

First stage, Lymphatic Absorption. 10.47 a. m. - A bluish, pinpoint mark was seen at the site of the bite, surrounded by an area of blanching, 4 mm in diameter, a hot, burning sensation was present on the finger.

10.52 a. m. - The area of blanching was more marked, the entire terminal phalanx was reddened, there was a throbbing, lancinating pain in the bitten finger.

11.00 a. m. - Dull, aching pain was noted between the fourth and fifth metacarpophalangeal joints of the left hand with a slight numbness along the ulnar side of the hand, beads of perspiration were present at the site of the bite.

11.02 a. m. - Dull aching pain was present on the inner surface of the upper arm in the region of the superficial cubital gland (tenderness of this gland was still present two weeks after the bite), the terminal phalanx of the bitten finger was dark purplish red, slightly swollen and very painful.

11.05 a. m. - Dull, aching pain was present in the left axilla, the whole arm had a dull, aching, slightly numb feeling.

11.07 a. m. - Slight, aching pain was present over the lateral surface of the left side of the chest, pains in the axillary region now commanded more notice than the throbbing, occasionally lancinating pain in the finger.

11.18 a. m. - Slight, aching pains were present over the pericordium.

Second Stage, Vascular Dissemination. 11.35 a. m. - The blood pressure was 106 systolic and 78 diastolic, the pulse rate was 75 and weaker than normal, the respiratory rate was 16, and respiration appeared to be slightly deeper than normal, there was a dull, drowsy, lethargic feeling. This was the first circulatory (general) effect noted.

11.50 a. m. - Slight, transient aching pains were noted in the epigastrium, there was a flushed, headachy feeling, the white cell count was 8,400, with 54 polymorphonuclears, 39 lymphocytes, 6 monocytes and 1 per cent eosinophils.

11.55 a. m. - Definite, aching pains were present in the epigastrium.

12.00 a. m. - Aching pains were present in the muscles of the neck, there was a feeling of general malaise, the blood pressure was 108 systolic and 82 diastolic, the pulse was weak, and its rate 62.

(From this stage on notes were taken by assistants.)

12.10 p. m. - Aching pains were present over the whole abdomen, the latter was tense, there was a flushed, trembly feeling in the legs.

(At this time the subject was driven 3 miles to the hospital. During the fifteen minutes thus taken the abdominal pains became rapidly more severe.)

12.30 p. m. - Severe, aching pain was present in the lumbar region, abdomen and chest, with a feeling of constriction in the latter, speech was difficult and jerky, respirations were rapid and labored, with a sharp brisk expiration accompanied by an audibly grunt, the abdomen was rigid, the heart sounds very slow, regular and normal in character, the pulse was weak and thready, its rate was 60.

(At this time two electrocardiograms were taken. There were found to be normal, differing in no essential from that taken several days prior to the experiment.)

12.37 p. m. - There were agonizing pains in the lumbar region, abdomen and chest, the abdomen was rigid, boardlike, with some tenderness in the epigastric region, the patient stated that it was a torture to lie still on his back while the electrocardiograms were being made.

12.45 p. m. - The pains had spread to the legs, the patient lay on his right side with the legs, arms and body flexed, the respirations were labored, with a gasping inspiration and a sharp, jerky expiration accompanied by an uncontrollable, loud, groaning grunt.

12.50 p. m. - The patient was unable to straighten up or stand, showing almost rigid flexion of the legs, tremor, extreme ashy pallor and cold clammy sweat, with the general appearance of being in a condition of profound shock. He was undressed and placed in a hot bath, he stated that he experienced an immediate, appreciable diminution of pain and sense of general relief. The bitten finger was swollen, cyanotic, tender and painful.

1.04 p. m. - The pain, though partially relieved, was still severe, the respirations were still labored, spasm of the flexor muscles of the forearms and adductors of the thumbs ("accoucheur´s hand") was present, a tingling sensation was felt in the hands and feet, the blood pressure was 75 systolic (no auscultatory diastolic reading was obtainable), the pulse was rapid, uncountable, weak and thready.

1.15 p. m. - The lips were tense and contracted, causing the mouth to assume an oval shape, the patient complained of slight dizziness and throbbing in the head.

(Note by Dr. J. M. Forney: "I saw the patient first at about 1.15 p. m. I found him in excruciating pain, gasping for breath and reclining in a tub of very warm water. I do not recall having seen more abject pain manifested in any other medical or surgical condition. All the evidences of profound medical shock were present.")

1.30 p. m. - The patient was removed from the bath and placed in bed, the face and body were very red, the respirations were still labored but definitely easier than prior to the bath.

1.45 p. m. - The respirations had become increasingly labored and the pains more severe since removal from the bath, the patient writhed about on the bed, hot water bottles were placed to the abdomen and back, giving some relief from pain.

1.52 p. m. - The patient was perspiring profusely, the respirations were less labored, the blood pressure was 80 systolic and 50 diastolic, the pulse was weak, its rate was 120.

Third State, Elimination. 2.05 p. m. - The patient stated that he felt a little better, he was given ¼ grain (0.16 Gm) of morphine hypodermically.

3.40 p. m. - The white cell count was 13,200 with 79 polymorphonuclears, 19 5 [19.5 ??] lymphocytes and 1 5 [1.5 ??] per cent monocytes.

4.05 p. m. - The patient vomited.

5.25 p. m. - A red streak extending up the back of the left hand from between the fourth and fifth metacarpophalangeal joints was noted.

7.45 p. m. - The patient was very restless, he still complained of severe pain in the abdomen, lumbar region and legs and of sharp intermittent pains in the bitten finger. He drank copiously and perspired freely, the eyes were red and watery and the face appeared swollen, the abdomen was still rigid, the blood pressure was 154 systolic and 92 diastolic, the pulse was stronger, its rate was 78, the respirations were shallow and still somewhat labored, the white cell count was 18,200 with 82 polymorphonuclears, 13 lymphocytes and 5 per cent monocytes.

November 13. The temperature which was normal at the commencement of the experiment became from 1 to 2 degrees subnormal during the period of shock. On the afternoon of November 12 and during the night of November 12 and 13 it rose 1 to 2 degrees above normal. It had returned to normal by the morning of November 13 and remained so thereafter.

The blood pressure reached its height the night of November 12. From that point it gradually fell, regaining normal limits by November 19.

6.30 a. m. - The patient was given a dose of magnesium sulphate.

8.15 a. m. - The patient stated that he spent a restless, sleepless, miserable night, perspiring freely and troubled by muscular pains and chilly sensations. Two tablets of a barbital derivative with amidopyrine gave no relief. Several hot baths were given for relief of pain. On one occasion the patient stated that he became so upset mentally that he was afraid if firm control was not exercised he would go insane. Following this ¼ gran of morphine was given hypodermically.

In the morning the patient complained of severe pains in the lumbar region and legs, the face had a swollen, puffy appearance, the eyes were red and watery, the abdomen was tense with slight epigastric tenderness.

9.30 a. m. - The urine showed a trace of albumin, a few pus cells, many red blood cells, epithelial cells and 25 blood and 5 granular casts under low power magnification. The white cell count was 19,150 with 77 polymorphonuclears, 18 lymphocytes and 5 per cent monocytes.

(The polymorphonuclear leukocytes had returned to normal by November 15. No significant variations were noted in the erythrocyte counts or hemoglobin content. Unfortunately no counts were made during the stage of shock and no chemical studies were made on the blood.)

4.10 p. m. - The patient complained of pains in the back and legs, and of weakness and chilliness, the face was flushed and swollen, the tongue was heavily furred, and the breath was foul, the abdomen was tense, tremor of the hands and a papular eruption on the inner surface of the bitten finger and along the ulnar side of the hand were present, the patient had passed several liquid stools

8.00 p. m. - The patient´s condition was much improved, rheumatoid pains in the legs were now the chief complaint, he had drunk large quantities of orange juice all day and perspired freely.

November 14, 8.00 a. m. - The patient stated that he had passed a very restless night, he ate

toast and grapefruit for breakfast.

12.00 a. m. - He stated that he was feeling much better, the chief complaint were rheumatoid pains in the legs and feet, chilliness, sweating and weakness, the face was less swollen, but the abdomen was still tense.

2.00 p. m. - The patient walked to the bathroom unaided, the urine showed a trace of albumin, many pus cells, a few red blood cells and a few granular casts under low power magnification.

(The urinary output was greatly reduced for the first five days following the bite. The effect on the urinary output of the abnormal loss of fluid through intestinal and cutaneous elimination during this period must not, however, be disregarded. The urinary output had returned to normal by November 18, coinciding with the cessation of excessive sweating.)

November 15, 0.00 a. m. - The patient stated that he had slept at intervals during the night, the appetite was returning, rheumatoid pains in the legs and feet, chilliness and sweating of the legs and feet were the chief complaints, the abdomen was no longer tense and the face no longer swollen, the urine showed no albumin, few red blood cells, leukocytes, epithelial cells and numerous hyaline, granular and leukocytic casts.

11.00 a. m. - The patient was removed to his home by ambulance, he spent the remainder of the day in bed.

Final Progress Note - From that time on recovery was rapid. The pain in the bitten finger had disappeared by the evening of the second day following the bite. A small, slightly tender, red papule was present at the site of the bite for two weeks, then disappeared. The rheumatoid pains in the legs and feet had disappeared by November 20. Slight edema of the ankles was noted the first few days on moving about. Urine analyses became normal on November 18. Generalized pruritus was present for some time, and desquamation of the hands and feet continued for about three weeks. All the signs and symptoms had, however, disappeared by November 20. Subsequently the health of the patient had been excellent. No sequelae have been noted to date (February 15, 1934).

COMMENT

A study of the clinical picture in this case indicates three well defined stages in its development. Lymphatic absorption of the injected venom, as evidenced by the proximal progress of pain along the lines of lymphatic drainage, constitutes the first stage. It is characterized by pains in the bitten finger and in the arm and by the absence of general systemic effects.

Passing through the axillary lymph glands, the venom reaches the blood stream via the efferent axillary lymph channels, the subclavian lymphatic trunk and the subclavian vein. This ushers in, secondly, the stage of vascular dissemination which is characterized, clinically, by the explosive onset of widespread agonizing muscular pains and a condition of profound shock. This was, in this case, the most painful and critical stage, and yet no mention of a period of shock in this condition has so far been encountered in the literature. Two possibilities may account for this discrepancy: 1) All persons bitten may not receive a quantity of venom sufficient to induce the degree of shock obtained in this case. 2) The patient may have recovered from the condition of shock before coming under medical observation.

The third stage, that of elimination of the venom or its toxic products, commences with the rapid recovery from shock. It is characterized, clinically, by hypertension, diaphoresis, gradually diminished muscular pain, a slight rise of temperature, polymorphonuclear leucocytosis and urinary evidence of renal damage. This clinical picture, coupled with the slight headache and edema of the face and ankles, is very suggestive of the development at this stage of an acute (toxic) nephritis. The damage to the kidneys probably results from the attempted

elimination of the venom or its toxic products by that route.

The condition of shock, characteristic of the second stage, suggests the possibility of the presence of a histamine-like ingredient in the venom of the spider Latrodectus mactans. Such a possibility is further suggested by the secretagogue action (salivation and lacrimation), evidence of contraction of the bronchial and intestinal musculature and symptoms of acute prostration and collapse which have been noted in certain animals bitten by this spider. It is of interest that certain histamine-like properties of another secretion, crotalin (rattlesnake venom), have been observed experimentally.

The question as to whether the agonizing muscular pains may play a part in the production of shock must also be considered. It is noteworthy, however, that the blood pressure had commenced to fall prior to the development of the acute muscular pains.

Although the mortality rate in this condition is low, I believe, as a result of my experience, that the possibility of a fatal outcome should by no means be disregarded. The second stage is to be regarded as the most critical, particularly in persons with conditions such as diabetes, chronic cardiac disease, alcoholism or renal disease, which predispose to shock.

The development in man during convalescence of any degree of immunity to the venom of this spider remains unproved. I was presented with the opportunity of deciding this point, but lacked the courage the submit myself to a possible repetition of the first experience. Degrees of immunity to the bite of this spider can be developed in animals and, on the assumption that man reacts likewise, convalescent serum has been used therapeutically. The results so far obtained are, however, inconclusive.

Lacking the history of a spider bite, or an acquaintance with the clinical picture which it may produce, one might well be excused for mistaking the symptoms for one of several acute conditions. Thus a perforated peptic ulcer, acute pancreatitis, ruptured extopic pregnancy, tabetic crisis, ruptured appendix with generalized peritonitis and renal or biliary colic may be considered at a diagnosis. Similarity between the clinical picture presented in poisoning by this spider and perforated peptic ulcer, particularly, has subjected the patient, on more than one occasion, to the added risk of surgical intervention."

(A. W. Blair, M. D., University of Alabama, Spider Poisoning. Experimental Study of the Effects of the Bite of the female Latrodectus Mactans in Man. Archives of Internal Medicine vol. 54 (1934), p. 831-843)

Heilungen / Cures

Heilungen / Cures

Übersicht / Overview

1903 - Attacks of Angina pectoris in woman aged seventy - James T. Kent

"Mrs. S., aged seventy, had been suffering for about six months with violent pains in the chest, coming on every evening. Pain in the region of the heart, extending to the shoulders and left arm. Several physicians had recognized it as Angina Pectoris. These attacks had been coming on at about seven or eight o´clock in the evening, and lasting until after midnight. From the best description she should give me, I judged that they were most violent in character and attended which anxiety and fear of death. She broke out into a cold sweat; hands and arms became cold and numb. Her husband told me that he always feared she would never live through the attack, she seemed to suffer so dreadfully. She had taken morphine, quinine, and many other drugs, and had employed Old School and Homoeopathic doctors.

Latrodectus Mactans cured within a week. It is now six months since she had one of these attacks, and she is still perfectly well."
(J. T. Kent, M. D., Chicago, Ill., Clinical Cases: Latrodectus mactans. Journal of Homoeopathics vol. 6 (1903), p. 412)

1950 - Excruciating pains in the right lumbosacral area in a woman aged 36 who never regained her piece of mind after the death of her little son - Edward C. Whitmont

"The case presented in this paper at first defied the best efforts of diagnosis and of prescribing. Failing to respond to the apparently well indicated polychrests, this case furnished valuable, well-defined symptom material for the relatively unproven drug which turned out to be the correct simillimum.

Mrs. S., 36 years. Two years before the onset of the present illness she had lost a little son through an accident. She never regained her peace of mind. During the last preceding months she was under great addition strain, emotionally and physically, caring for her disabled parents. At the end of December, 1948, in a state of utter physical exhaustion and nervous strain she contracted a cold. A few days later, at the exact anniversary of the child´s death, she was completely immobilized by an excruciating pain in the right lumbosacral area. The next day found her unable to void urine and to move her legs at all. Examination showed an area of muscular constriction along the lower spine with somewhat accentuated but normal reflexes and undisturbed skin sensorium. However, the patient was in a state of frenzied restlessness, screaming and crying with pain, unable to lie still, yet aggravated by any motion. There was no urge for stool whatsoever and urination could be induced only by pouring warm water over the perineum. The temperature was between 99.5 and 100. An orthopaedic specialist ruled out a slipped or ruptured disc, though an incipient caries remained a remote possibility. The modalities were: worse at night; very chilly, yet better open air; tearful disposition; restlessness; and the fact that the last period had been extremely scanty, almost completely suppressed. Rx *Pulsatilla* 200. Relief moderate and short-lived. *Pulsatilla* 1m followed by a temperature rise to 101; for a day the pains became somewhat more tolerable. The paralysis, on the other hand, increased. The possibility of a myelitis was considered now, and neurological consultation was requested. The neurologist, one of the best men in his field, at first leaned towards the diagnosis of a myelitis, them learning about the emotional background was more inclined to

consider it a conversion hysteria. Since the family was extremely alarmed, he suggested immediate hospitalization for a diagnostic "work-up". Before she was taken to the hospital the symptoms were reviewed again. Additional features, now, were an extreme drum-like distension of the abdomen, loud belching, nausea, loss of appetite, at times brownish vomiting, a great thirst for cold water which was taken in little sips, an aversion to sweets, an offensive odour from the mouth, and a feeling of heaviness and oppression on the chest. Still tearful with indefinite fears. The pain now cramping and shooting in waves like labour pains. *Phosphorus* 200. Upon arriving at the hospital the next day the pain was somewhat easier and the bladder function gradually became normal but the inactivity of the rectum remained. The patient remained in the hospital for about six weeks with all diagnostic and therapeutic attempts unavailing. She returned home unimproved and without definite diagnosis. However the homoeopathic study of the case could be resumed again. Because now a state of utter exhaustion dominated the picture and in view of *Phosphorus* having done relatively best, though failing upon repetition in the same as well as in a higher potency, *Phosphoric acid* 200 and later 1m was given. For several weeks the patient improved and became able to rise from her bed and move about, slowly and with support. However, the pains were still almost unbearable, particularly during the night, after the first sleep, and with every change of weather towards rain or electric storms. Mentally also she was not better. After a few weeks *Phos. acid* did not elicit any further response. Additional symptoms, were flushes of heat and an inability to concentrate on any thoughts. *Lachesis*, *Sepia*, *Mag. carb*., and *Rhus tox*. gave absolutely no response.

Now, two months after the first onset of her illness, *Latrodectus mact*. 200 was given. There was such an immediate and gratifying relief of all mental and physical symptoms that there can be no doubt but that *Latrodectus* was indicated from the very beginning. Within a few days the patient moved and walked freely and had only slight distress at night. Within two weeks she became practically normal.

Four weeks after this, a sore throat occurred with desire for and better from cold drinks. *Merc. sol*. 200 given with little improvement; 1m improved the throat but brought back the backache with the patient generally worse. *Latrodectus* 200 again removed the whole of the disturbance including the throat. Four and a half months after the onset, heart palpitations, hot flashes and chilliness, back pain on bending, sore throat and clogged up nose, soft bleeding spongy gums, ravenous appetite and thirst again responded to *Latrodectus* 200.

Subsequently, the toxicology of *Latrodectus mactans*, the black widow spider, was studied. It was rather embarrassing to find that even the crude toxicological symptoms, as far as they are known, represent a perfect replica of this patient´s condition. From the very beginning, even from the toxicological picture, the remedy would have been indicated had this picture only been known to the prescriber. Unfortunately, however, *Latrodectus* had been mentally associated with angina pectoris and nothing else, a very unhomoeopathic mental attitude indeed!"
(Edward C. Whitmont, M. D., Polychrest versus less frequently used remedy: additional symptoms of Latrodectus Mactans. Read before Bureau of Clinical Medicine, I. H. A., June 22nd, 1949. The British Homoeopathic Journal 1950, p. 173-175)

Klinische Hinweise / Clinical Hints

Klinische Hinweise / Clinical Hints

Übersicht / Overview

1920 - Acute violent pains in the epigastrium, in a woman aged 50 - Cyrus M. Boger

A laundry worker, aged fifty, was suddenly attacked by a violent transfixion pain in the epigastrium, spreading backward and upward to the cervical spine and along the left clavicle. She sat bolt upright in bed, gasped for breath and was overcome by a deathly agony. There was considerable left ventricular dilatation and a loud mitral regurgitant sound heard over the area. Four doses of *Aconit* dmm. quieted her for twenty-four hours only; then came a relapse with the information that she had drunk much cold water while overheated, but *Bellis* did nothing. Because of the symptom, "Gaps, fears to lose the breath and die," *Latrodectus* was now chosen. The first few doses relieved her greatly and in one day she felt pretty well. This shows what can often be accomplished even in the presence of an irremovable lesion."
(Cyrus M. Boger, M. D., What Homoeopathy Means, The Homoeopathic Recorder vol. 35 (1920), p. 505)

1931 - A very valuable remedy in angina pectoris - Herbert A. Roberts

"It is a very, very valuable remedy. I will not go out without *Latrodectus* in my case, for the reason that when you want it you want it very badly. It will relieve the terrible torture of angina very promptly, and it will hold it for some time. I have used it repeatedly in those cases. Not only does it hold it, but it holds it for a very long while. You very seldom get a repetition of it afterwards, unless it is a natural pathological condition that has destroyed altogether the coronary artery."
(Herbert A. Roberts, M. D., Derby, Conn., The Spider Poisons. Read before the I. H. A., Bureau of Materia Medica, June 1931. The Homoeopathic Recorder vol. 46 (1931), p. 647)

1931 - Dreams of flying - Cyrus M. Boger

"The signature of *Latrodectus* turned up quite unexpectedly in my work. I was reading over one of my cases one day, and I noticed that one of the main symptoms was that the patient was persistently annoyed by dreams of flying. Of course, that is not such an unusual dream, but in a few days the patient came in and her symptoms were not very clear. They did not point very clearly to any particular remedy. I didn´t have the particular spider, but I had the next one, which was *Latrodectus*. I gave that and all the symptoms disappeared.

I frequently do that sort of prescribing. The spider doesn’t fly with wings, but he flies with jumps. I think that one of the great signatures for spider poisoning is a dream of flying. It seems to indicate that this symptom is more or less in common with many of our remedies, remedies from the same natural order, remedies of the same chemical composition. It is well worth remembering."
(Herbert A. Roberts, M. D., Derby, Conn., The Spider Poisons. Read before the I. H. A., Bureau of Materia Medica, June 1931. Discussion: C. M. Boger. The Homoeopathic Recorder vol. 46 (1931), p. 646)

Kommentare / Commentaries

Kommentare / Commentaries

Übersicht / Overview
1931 - Herbert A. Roberts
2011 - Farokh J. Master

1931 - Herbert A. Roberts

"This "Black Widow," as it is called, is a member of the genus *Latrodectus* of the family *Theridiidae*, which bears the name of being the only true venomous family of spiders. However this may be, observations of *Latrodectus* poisonings have been recorded that show it to be a powerful venom, having a direct action on the circulatory system. In fifteen cases observed by Dr. Bogen in the Los Angeles General Hospital, the spider´s bite had been witnessed by the patient, and nearly all these cases developed pain in the legs and abdomen, extreme abdominal rigidity, high blood pressure and high temperature. Had these cases been recorded by a trained homoeopathic physician, how much valuable date we might have gained!

It is significant that the higher types of animal development show the greatest reaction to *Latrodectus* poisoning. Horses and camels have succumbed to the bite, while sheep and pigs can eat the spider without any ill effect, and are used to clear fields of the spiders instead of the more common custom of burning over the fields. Experiments have determined that extracts from the poison gland of the spider will kill a cat very quickly.

The *Latrodectus mactans* is the largest spider of its family. It sometimes attains a length of one-half inch. The abdomen is round and the whole body is a velvety black, except a bright red spot underneath and one or more red spots over the spinnerets and along the middle of the back. The legs of the male are much longer than those of the female, although the male varies in size of body very much, in some instances being only about one-fourth the size of the female. Each joint of the legs is marked with orange, shading to black at the edges of the joint. The male also has four pairs of stripes along his sides, red in the middle and white at the edges.

This spider makes its nest among loose stones, on plants or in houses. Around its hiding place it spins a large funnel-shaped tent that widens into a flat or curved sheet of web, closer in texture towards the tube and more open toward the edges, spreading over two or three feet over plants and stones. It is found all over the United States as far north as Massachusetts and New Hampshire, although its northward spread was by forced means, a professor whose summer home was in New Hampshire carrying some specimens north for experimental purposes, and they escaped from captivity and made themselves at home. Their habitat extends southward through Florida, the West Indies and South America, as far as Chile. It is probably the *Theridion curassavicum* of the West Indies, or a very near relative, for the *Theridion cur*. also has the velvety black body with the spots in the same relative position as the *Latrodectus mactans* (the large spot underneath and the three smaller ones above) but the color of the spots in *Theridion cur*., is not bright red, but yellow underneath and orange-red above, and in size the *Theridion cur*. is about the size of a cherry pit.

Many of the *Latrodectus* symptoms that have been recorded resemble those of *Theridion cur*., although *Latrodectus* has not been thoroughly proven, and *Theridion cur*. was proven by that indefatigable worker, Hering. Had there been a more careful proving of *Latrodectus* by such a master as Hering, we might have noted more similarities.

It is interesting to note that the genus *Latrodectus* will eat almost anything, including

tarantulas, scorpions, woodlice and lizards, and even the Spanish fly, cantharides, all without showing any poisonous effect.

The poisonous effects of the bite of this spider on human beings have given us some peculiar and valuable symptoms, which are almost wholly associated with the action of the poison on the heart. There is disorganization of the blood, with inability to coagulate. We have used this remedy in these critical conditions with prompt and marked effect.

In the mental sphere there are symptoms of great anxiety and fear that dissolution is impending. This is not so much a fear as a foreknowledge of the approaching dissolution, with the attendant fear; and the countenance shows this great anxiety.

The heart symptoms are marked. There are very violent praecordial pains extending to the left axilla, down the left arm to the hands and fingertips. The patient´s left arm seems to become almost paralyzed with the pain, and there is extreme numbness. The pulse becomes very rapid, so that it can hardly be counted, and so weak it is almost imperceptible.

The respiration is slow and gasping. There is great shortness of breath, approaching apnoea.

The surface of the body breaks out into a cold perspiration.

There are severe abdominal pains with nausea and sinking sensations in the epigastrium. Finally there is vomiting of black blood, with dark bloody evacuations of the bowels."
(Herbert A. Roberts, M. D., Derby, Conn., The Spider Poisons. Read before the I. H. A., Bureau of Materia Medica, June 1931. The Homoeopathic Recorder vol. 46 (1931), p. 637-639)

2011 - Farokh J. Master

"I would like to discuss Latrodectus to begin with; there are 3 remedies Latrodectus hasselti, Latrodectus katipo and Latrodectus mactans which I use in my practice. The best article to read about Latrodectus is an article published in July 1889 in Homoeopathic Recorder and reproduced by Dr. Anschutz in ‘New old and forgotten remedies’. The article is written by Dr. Jones and it shows the typical effect of the spider bite which resembles the proving of Latrodectus very beautifully.

When I was a student I was introduced to this remedy for the very first time by Late Dr. Prakash Vakil and later on he stimulated me to read the old articles on spider remedies from Homoeopathic Recorder and various other old journals.

I practically read almost all the articles related to the Latrodectus and the most important thing that I have learned from them is how to apply the symptoms clinically in practice especially the mental symptoms.

Whenever Latrodectus is indicated there is never calmness there is always ‘irritability’ there is always ‘restlessness’, there is always ‘anger’ and in extreme cases you can also have ‘delirium’.

Another most important area that I have seen is the ‘inflammation’. Whenever you see a case of Latrodectus, inflammation has to be there in any part of the body especially in the lymphatic vessels and that makes the Latrodectus go very useful in patients suffering from cancer e.g. after chemotherapy or after radiotherapy when there is marked inflammation of lymph vessel.

I have used this remedy very successfully in cases of lymphangitis due to post mastectomy or lymphangitis due to filarial infection or lymphangitis due to bacterial infection.

Another very important area that I have seen its good use is in the cardiovascular disorders especially cardiac failure, weakness of the cardiac muscles and severe ischemic heart disease

like angina pectoris.

It has a marked action on coronary arteries and endocardium; due to this the patient may suffer from frank cardiac failure, cardiac syncope, myocardial infarction, and carditis.

At the level of skin usually one has urticaria, herpes, and pemphigus. I remember that I have also used this remedy in cases of appendicitis, a worse case of oesophageal spasm, aplastic anemia, Hodgkin's disease and leukemia.

When you examine the patient usually you will see lot of exhaustion, prostration, tiredness, dropsy, edema, distention and a strong mental picture.

With these few observations mentioned above let me tell you an important case that I saw of an old man whose complaint was difficulty in swallowing, he takes some medical treatment from his local general practitioner but he is not better. He is a known case of ischemic heart disease and hypertension but that he developed only in his later part of his life. He had no modality for his chief complaint. What I observed was that he was constantly having chewing motion of his jaw but when I examined his mouth and throat practically there was nothing to diagnose.

His speech was little unclear to me, may be because there were no teeth in the mouth and he had a strong fear of suffocation because he felt that he cannot swallow and may be one day he will have suffocation and he will die due to suffocation. His face was mildly swollen, he had salivation, his tongue was moist, and he was thirsty but usually in night hours. I examined his blood pressure which was 160/95 mmHg. He was constipated and frequently had a problem with his urination. There were days when he cannot pass his urine very clearly.

Based on the above symptoms I gave him Latrodectus mactans 30C which reduced his pain which gave him relief in his urinary problem and his chewing motion of the jaw totally stopped. It took me about three and a half months to produce this kind of result.

The next case I remember was from an OPD where I saw a child who had an enlarged, inflamed tonsils, with white caseous deposit on it, there was severe pain in the throat while swallowing, also there was swelling around the throat. The child looked quite anxious. On observation there was cracked lip, profuse thirst, there were no other modalities related to the chief complaint. The mother said that it all happened after he had a cold drink. It was a summertime and my prescription was Bryonia which did not help. Later on in the next follow up I examined that his neck was getting little stiff and the mother worried the infection may not produce any extra harm to the child.

I once again took the symptoms of the patient; mother also said that his voice has also changed ever since this inflammation of tonsils has taken place. I start giving Latrodectus mactans 30C 8 hourly to the child and within 4 days all the symptomatology of the child disappeared.

Since then Latrodectus became a very useful remedy in my practice for tonsillitis. Usually there is no cough, there are not much respiratory symptoms but Latrodectus is usually prescribed more on the concomitants especially the thirst which is very important, the extreme degree of pain in the throat which is equally important, the stiffness of the neck and the dryness of the lips."
(Farokh J. Master, Spider Group, www.drfarokhmaster.com, Editorial for the month of July 2011)

Leitsymptome und Charakteristika - Keynotes and Characteristics

Leitsymptome und Charakteristika - Keynotes and Characteristics

Übersicht / Overview
1902 - John H. Clarke
1950 - Edward C. Whitmont
1927 - William Boericke

1902 - John H. Clarke

Description. - Latrodectus mactans. N. O. Arachnida. Tincture of living spider.

Clinical. - Angina pectoris. Haemorrhages, watery.

Characteristics. - To the ready pen and luminous insight of S. A. Jones, and to the labours of A. J. Tafel, who furnished data and materials, we owe the introduction of this remedy into the materia medica. In a most interesting article communicated to the *Homoeopathic Recorder* of July, 1889, and reproduced by Anschutz in *New Old, and Forgotten Remedies*, Jones relates the facts concerning this spider and the effects of its bite, recorded by E. W. Semple, M. D., in the *Virginia Med. Monthly* of 1875.

Case 1. A man bitten on the prepuce. At first there was itching; in less than half an hour nausea followed by severe abdominal pains. Soon after, violent precordial pains, extending to axilla and down left arm and forearm to fingers with numbness of the extremities and apnoea. Dry cupping was resorted to and the blood that flowed was thin and florid and uncoagulable. This was before Semple arrived. He then found most violent precordial pains, the left arm almost paralysed; pulse 130, very feeble. Skin cold as marble, countenance expressive of deep anxiety. At eight next morning, in spite of stimulants and pediluvia, the symptoms were worse and continued to increase until 2.30 p.m. Pulse uncountable and scarcely to be felt. Vomited black vomit, a quart or more. Soon after, reaction set in and the man gradually recovered. He had two copious stools like the black matter vomited, and after that felt quite well. In thirty-six hours from the time he was bitten he took 3 ½ quart bottles of the best rectified whisky without showing the least symptom of intoxication.

Jones considers the order of the occurrence of these symptoms of great importance, and notes that the precordial region was the chief *locus* of attack. Linnell (*N. A. J. H.*, Dec., 1890) records a case of angina pectoris, pain in precordial region and left arm, brought on by slightest exertion, cured with Lat. mac. 3.

Relations. - *Compare*: Lat. k. and other Arachnida. Helod. (coldness). Lach., Spig., Act. r., Cact., Kalm., Lycopus, &c. (angina pectoris). Sanguisug. (non-coagulating haemorrhages).

Symptoms

Mind. - Extreme anxiety. Screams fearfully, exclaiming that she would lose her breath and die.

Face. - Expression of deep anxiety.

Stomach and Abdomen. - Nausea followed by severe abdominal pains (1/2 h.). Vomited black vomit copiously; which > (26 h.). Severe abdominal pain with nausea, and a sinking sensation at epigastrium.

Stool. - Two copious evacuations similar to the black vomit.

Male Sexual Organs. - Itching of prepuce (seat of the bite), with a little redness of the part.

Respiratory Organs. - Extreme apnoea. Respiration only occasional, gasping.

Heart. - Violent precordial pains extending to axilla and down, left arm and forearm to fingers with numbness of the extremity and apnoea. Later, most violent precordial pains and pain in left arm, which was almost paralysed. Pulse 130. Pulse so frequent it could not be counted and so feeble it could scarcely be felt (26 h.). Pulse quick and thready (in few minutes). Pain extends from bitten right hand to back of head; more violent pain in precordia, extending thence to left shoulder and axilla, down arm to finger-ends, left arm partially paralysed; left pulse extinct, right pulse doubtful. Pain in precordia with apnoea; screaming fearfully, exclaiming that she would lose her breath and die.

Upper Limbs. - Violent pain extending from bite on right wrist, up forearm and arm to shoulder, thence up neck to right back of head and precordia; thence down left axilla and arm to finger-tips, left arm partially paralysed. Stinging in right wrist, which itching and redness of bitten spot; in ½ h., painful sensations extended up arm to shoulder, in 1 h. along neck to back of head; later, pain in precordia and apnoea; screaming fearfully.

Generalities. - When cupped the blood flowed like water and would not coagulate; not even when tannin was added next day. In 36 h. from the time he was bitten he took 3 ½ quart bottles of the best rectified whisky without the least sign of intoxication. Itching and redness of part bitten, at first without pain, but violent pain soon commenced there (back of left hand) and extended in a short time up forearm and arm to shoulder and thence to precordial region. Apparently moribund.

Fever. - Skin cold as marble. Skin very cold (few m.).

(John Henry Clarke, M.D., A Dictionary of Practical Materia Medica, vol. 2 (1902), Latrodectus Mactans, p. 253-254)

1927 - William Boericke

The bite produces tetanic effects that last several days. A picture of *angina pectoris* is presented by the action of the drug. The praecordial region seems to be the center of attack. Constriction of chest muscles, with radiation to shoulders and back. Lowered coagulability.

Head. - Anxiety. Screams with pain. Pain in neck to back of head. Occipital pain.

Respiratory. - Extreme apnoea. Gasping respiration. Fears losing breath.

Chest. - Violent, praecordial pain extending to the axilla and down the arm and forearm to fingers, with numbness of the extremity. Pulse feeble and rapid. Sinking sensation at the epigastrium. Cramping pain from chest to abdomen.

Extremities. - Pain in left arm, feels paralyzed. Weakness of legs followed by cramps in the abdominal muscles. Paraesthesien of lower limbs.

Skin. - Coldness of whole surface. Skin cold as marble.

Relationship. - Compare: *Latrodectus Hasselti* - New South Wales Black Spider - (Long lasting effects seem to indicate it as a "chronic" blood poisoning. Arrests intense pain in pyaemia. Great oedema in neighborhood of wound; paralysis of limbs, with great wasting of muscles. Violent, darting, burning pains. preceding paralysis; vertigo, tendency to fall forward; septicaemic conditions; constant delusion of *flying*. Loss of memory. Roaring noises.) *Aranea*; *Mygale*; *Theridion*; *Latrodectus Katipo* - New Zealand spider - (lymphangitis and nervous twitchings, scarlet burning eruption.) *Triatema* - Kissing bug - (Swelling with violent itching of fingers and toes. Smothering sensation and difficult breathing succeeded by fainting and rapid pulse.)

(William Boericke, M.D., Pocket Manual of Homoeopathic Materia Medica, Ninth Edition, New York 1927, Latrodectus mactans, p. 395-396)

1950 - Edward C. Whitmont

"The leading and determining features are:

Extremes of *tension*, *spasticity* and *constrictiveness* and *prostration*.

They manifest themselves in the *mind*, the *chest*, *abdomen*, the *lumbar spine* and the *lower extremities* in the first place.

The modalities are worse during the night, worse during damp weather and change of weather, worse before a thunderstorm, restless, tossing about but worse from motion and exhausted by every effort, chilliness, lack of vital heat but flashes of heat. Syphilitics and alcoholics are hypersensitive to *Latrodectus*; alcohol especially aggravates all of its symptoms, thus suggesting alcoholism and constitutional syphilis among the general indications for *Latrodectus*.

Mind: Extremest restlessness, constantly tossing about, fear, depression, hysteria, unrestrained and causeless crying in usually emotionally stable strong men.

General: Extremest prostration, every effort is too much. Perhaps ill effects of overwork, etc. Muscle spasms with twitching, knotting, tremor, hyperactive reflexes and excruciating cramplike unbearable pains, coming and going in waves like labour pains. Muscles sore to the touch. Worse motion, yet patient so restless that he cannot lie still.

Chest: Angina pectoris; constrictive pain spreading to left shoulder and back; feeling of oppression; laboured respiration with an uncontrollable expiratory grunt. Palpitations of heart.

Abdomen: Rigid as a board (*defense musculaire*?); distended like a drum. The distension is only slightly relieved by passing flatus. The whole picture most closely simulates an acute surgical emergency like perforated gastric ulcer, ruptured appendix and incipient peritonitis. (The temperature is sub-febrile in the poisonings.)

Spine and back: The lumbar area shows the greatest degree of constriction; shooting cramping pains; feeling as if the back were broken. Feeling of icy coldness from the hips downward. Paralysis of all function associated with the lumbosacral nerve plexus (genitals, urinary, rectum, and lower extremities).

Extremities: Paralysis, increased reflexes, spasticity, inability to lift legs because of spasm of the extensor muscles of the hips. Tenderness of the calf muscles upon palpation, tingling sensation and numbness in hands and feet. Burning and stinging of the soles of the feet, as if they were on fire. Swelling of ankles.

Head: Headache (worse lying, better sitting?) probably congestive; tendency to apoplexy. Stuffiness of the nose.

Digestive: Dry mouth, sore throat, great thirst for cold water which betters the throat, continuously drinking. Loss of appetite or ravenous hunger. Vomiting of bitter brown matter. Extreme gaseous distension. Absolute inactivity of the rectum.

Female: Menses suppressed, scanty, delayed.

Urinary: Retention of urine, paralysis of the bladder, better warm application and pouring warm water over perineum.

Circulatory: Flushes of heat followed by chilliness; apoplectic tendency, elevation of blood pressure; heavy perspiration. Temperature subfebrile.

The restlessness and constriction is shared with *Tarentula*; the coldness worse from dampness, worse night and the neuralgic tendency with *Aranea*. However, *Aranea* has diarrhoea and profuse menses; *Latrodectus* has suppressed menstruation and constipation.

Latrodectus presents itself as a medicine with very characteristic symptoms of broad range and deep effect upon the vital force. It probably deserves an important place in our therapeutic armamentarium. We should consider it in acutest emergencies and neuralgic syndromes which conform with the mental and general symptoms thus far elicited."

(Edward C. Whitmont, M. D., Polychrest versus less frequently used remedy: additional symptoms of Latrodectus Mactans. Read before Bureau of Clinical Medicine, I. H. A., June 22nd, 1949. The British Homoeopathic Journal 1950, p. 175-176)

Bibliographie / Bibliography

I. Die Spinne / The Spider

•• John Henry Comstock, The Spider Book, Doubleday, Page and Company, New York 1913, p. 357-359

•• A. W. Blair, M. D., University of Alabama, Life History of Latrodectus Mactans. Archives of Internal Medicine vol. 54 (1934), p. 844-850

••• R. W. Thorp and W. D. Woodson, Black Widow: America´s Most Poisonous Spider, Chapel Hill, University of North Carolina Press, 1945

••• B. J. Kaston, Comparative Biology of American Black Widow Spiders, Transactions of the San Diego Society of Natural History vol. 16, No. 3, 24 July 1970, p. 33-82

• Samantha Vibert, Catherine Scott and Gerhard Gries, A meal or a male - The 'whispers' of black widow males do not trigger a predatory response in females, Frontiers in Zoology **11**:4, 2014

II. Toxikologie / Toxicity

• Letter from E. R. Corson, Insect Life, Periodical Bulletin of the U. S. Department of Agriculture, Division of Entomology. Vol. I, July, 1888 to June, 1889, p. 280-282

•• Vernon L. Kellog, Spider Poison, The Journal of Parasitology, vol. 1 (1915), p. 107-112

•• W. J. Baerg, University of Arkansas, The Effects of the Bite of Latrodectus Mactans Fabr., The Journal of Parasitology Vol .9 (1923), p. 161-169
⇒ s.a.: W. J. Baerg, Nature Magazine, 14:152-154, September 1924.

••• Emil Bogen, Arachnidism, Spider Poisoning. AMA 1926. Reprint from Archives of internal medicine 1926
⇒ s.a.: Emil Bogen, J. A. M. A., 86:1894-1896, July 19, 1926.
Emil Bogen, J. A. M. A., 89:50, July 2, 1927.

•• Emil Bogen and Phoebus Berman, Poisonous Spider Bites, with especial Reference to the Latrodectus Mactans, California and Western Medicine Vol. 27, March 1927, p. 339-341

••• Michel Bonnet, The toxicology of Latrodectus mactans, The black widow spider, Homoeopathic Links vol. 11 (1998), Autumn, p. 161-168

III. Homöopathie

• Samuel A. Jones, Latrodectus mactans, Journal of Homoeopathics vol. 5 (1902), p. 340

• Pacific Coast Journal of Homoeopathy vol. 44 (1933), p. 308-326
[Provings of Brennaman, Huhn, Davidson, Hoffman, Mayhew.]

• L. R. Twentyman, Latrodectus mactans, British Homoeopathic Journal vol. 48 (1959), p. 30

• Douglas Gibson, Latrodectus mactans, a study, British Homoeopathic Journal vol. 60 (1971), p. 108

●● Helga Lesigang, Latrodectus mactans, Arzneimittelprüfung, Documenta Homoeopathica Bd. 12 (1992), S. 271-282

● Eine unheimliche Begegnung mit Latrodectus mactans, Homöopathische Einblicke 22, 1995, S. 22-26

●● Jonathan Shore, Investigations into the Psyche of the Spider, Journal of the American Institute of Homoeopathy vol. 89 (1996), p. 8-21
[Resume of dream provings with Latrodectus mactans 30C in Finland and Germany (and of Atrax robustus in Australia)]

● Stefan Reis, Über kleine und große Arzneimittel sowie einleitende Bemerkungen zur Arzneimittelprüfung von Latrodectus mactans, Archiv für Homöopathik Bd. 6 (1997), S. 85-94

● Latrodectus mactans, übersetzt und bearbeitet von Michael Terlinden, Archiv für Homöopathik Bd. 6 (1997), S. 123-141
[Übersetzung der Prüfungen von Brennaman et al 1933. Symptome der einzelnen Prüfer und Symptomverzeichnis.]

Latrodectus tredecimguttatus

The European Black Widow, La Malmignatte

"Latrodectus tredecimguttatus, sometimes known as the Mediterranean black widow, the European black widow, or the steppe spider, is a species in the genus Latrodectus (widow spiders). It is commonly found throughout the Mediterranean region, ranging from Portugal to southwest and central Asia, hence the name. Specimens from central Asia are also known by the binomial name Latrodectus lugubris; that name, however, is now considered improper, though it is still commonly found in the literature. Latrodectus tredecimguttatus was previously considered a Latrodectus mactans subspecies.

L. tredecimguttatus bears different names in different regions. For example, in Southern France it is called Malmignatte and in Italy is called malmignatta. Throughout the Central Asia and Eastern Slavic region, the name karakurt is most often applied. The words kara, meaning “black”, and kurt, meaning “wolf” (the word also means grub worm or maggot, which the spider is most likely named for), come from the Turkish language

L. tredecimguttatus is black in color, similar to most other widow species, and is identified by the thirteen spots which are found on its dorsal abdomen (the species name is Latin for “with thirteen spots”). These spots are usually red in colour, but may also be yellow or orange. It is otherwise similar to other species in the genus Latrodectus. The Mediterranean widow primarily lives in steppes and other grasslands, and can be a significant problem in areas where grain is harvested by hand. The female of the species has a body length of about 7–15 mm (0.28–0.59 in), while the male is smaller and reaches 4–7 mm (0.16– 0.28 in) at best. Only the female spider’s bite is dangerous (either for humans or cattle) as the male cannot penetrate the relatively thick epidermis."

Like all Latrodectus species, L. tredecimguttatus has a painful bite that is fatal in rare cases. They are not in close association with humans generally, although epidemics of bites have been reported. There are many reports of Ukrainian farm workers receiving bites while working in the fields. The LD-50 of L. tredecimguttatus venom has been measured as 0.59 mg/kg, and separately again as 0.59 mg/kg (with a confidence interval of 0.33–1.06). In Kazakhstan, there are reports of this species biting and killing camels."
(wikipedia)

1842 - Notice sur divers faits qui confirment la propriété vénimeuse du Latrodectus malmignatus - Dr. Graëlls

"Quand, le 6 mai 1834, je pris la liberté de communiquer à la Société entomologique les détails de quelques accidents causés en Catalogne par le *Latrodectus malmignatus*, je crus qu´on connaissait déjà bien les effets que produit le venin de cette araignée sur l´homme; et, pour cette raison, je fus forcé de me borner à montrer que ces accidents se sont fait sentir sur certains points de la province que j´habitais alors. Plus tard, je vis, par la lecture de quelques ouvrages modernes, entre autres, le *Traité des Aptères*, par le baron Walkenaër, dans les suites à Buffon, et aussi par les notices que m´ont données différents entomologistes d´un savoir éminent, que, sans données bien positives sur ce sujet, il n´était pas suffisamment démontré que les accidents observés en différentes occasions, et en différents pays, fussent réellement produits par l´araignée en question.

La circonstance de vivre une partie de l´année, et d´avoir beaucoup de relations dans une province dans laquelle, depuis quelque temps, on observe, par malheur, que cet être suspect abonde, m´a mis en main des faits certains; et comme déjà la Société entomologique a pris en considération mes notices de l´année 1834, en les publiant dans ses *Annales* [2], je crois de mon devoir de lui communiquer maintenant les résultats de mes investigations, sur cette matière :

que si ses observations sont en partie du ressort de la médecine, je ne vois cependant pas d´inconvénients à les faire connaître à mes savants collègues, parmi lesquels plusieurs, comme moi, partagent leurs moments entre l´étude des deux sciences.

De toutes manières, si mon mémoire paraissait à la Société étranger à ses occupations, je la laisse libre d´en faire ce qui lui plaira, en lui rappelant seulement que mon but en lui communiquant ce travail a été uniquement de compléter l´histoire d´un animal intéressant sous un certain point de vue, qui est compris dans le ressort de l´institution de notre association.

Avant l´année 1830, on ne connaissait dans la campagne de Tarragone (petit département de la Catalogne), aucune araignée dont la piqûre fût suivie d´accidents graves et alarmants. Les hommes les plus âgés de différents endroits du canton, consultés sur cette particularité, s´accordèrent à dire que jamais ils n´avaient connu, ni entendu parler à leurs pères des accidents déterminés par les araignées, qui se sont montrées dans les années 1830, 1834, et 1841. Cependant, ce n´en est pas moins une chose étrange, et pour moi incroyable, que le *Latrodectus* en question n´ait jamais existé dans ce pays, et qu´on doive le considérer dans ces années comme envoyé du ciel, ainsi que les plaies d´Égypte.

Il est bien connu que les circonstances atmosphériques ne sont pas toujours favorables pour le développement de certains êtres, et c´est pour cette raison que nous voyons manquer plus ou moins pendant certaines années des insectes qui sont dans l´autres années très-abondants, et deviennent de véritables fléaux, comme, par exemple, la sauterelle. Mais comment comprendre que les conditions nécessaires à la propagation du *Latrodectus* qui nous occupe ne se soient pas reproduites depuis un temps immémorial, motif par lequel on ne conservait aucune connaissance de son existence dans la campagne de Tarragone?

J´ai observé que l´apparition de cette araignée coïncide communément avec celle de la sauterelle; et j´ai reconnu que ces orthoptères se multiplient prodigieusement dans les années où à un hiver doux et un peu pluvieux succède un printemps tempéré et sec. Ces circonstances réunies sont aussi favorables au *Latrodectus*, surtout si elles continuent quelques années de suite; et je ne crois pas, puisqu´elles se sont reproduites trois fois en une décade, qu´elles aient manqué dans un siècle, de telle sorte que l´existence d´un ennemi si dangereux sortit ainsi de la mémoire des hommes du pays.

Du reste, je puis assurer que le *Latrodectus malmignatus* est une araignée que depuis plusieurs années je connais et vois constamment plus ou moins abondamment tous les étés, avec d´autres espèces du même genre dans les environs de Barcelone, principalement dans les terrains arides et sablonneux qui se trouvent entre la montagne de Monbuy et Castell-del-Fels. Heureusement, ces lieux sont presque abandonnées à cause de leur stérilité; et c´est sans doute la cause de ce qu´on n´a pas observé là, comme dans la campagne de Tarragone, des cas d´individus piqués par ces araignées.

Avant d´entrer dans la relation des faits qui prouvent la propriété venimeuse du *Latrodectus malmignatus*, je demande, quoique cela ne serve que de confirmation, à rappeler les particularités que j´ai remarquées dans ses habitudes.

Les mois de l´été sont principalement ceux pendant lesquels l´araignée dont nous parlons se rencontre le plus abondamment : il n´est pas si facile de l´avoir en abondance dans les autres mois; car, à mesure que la température de l´été baisse, à l´automne, elle va en disparaissant, de manière que, pendant l´hiver, il est impossible d´en trouver une seule à la surface de la terre, ce qui ferait croire qu´elle passe tout ce temps de l´année dans les retraites souterraines, à la profondeur de quelques pouces, et en partie garantie du froid par la tapisserie dont elle garnit ses quartiers d´hiver.

Au commencement du printemps, j´ai vu constamment ces araignées aux aguets dans leurs toiles, qui s´étendent ordinairement à peu de hauteur du sol, et en général sur les ornières que

les voitures tracent dans les champs, ou dans les trous faites par les pieds des chevaux, ou bien dans d´autres endroits analogues; car c´est son habitude de placer avec soin ses pièges, sans doute pour empêcher la fuite de sa victime, dans le cas où elle tomberait à terre avant d´avoir reçu le coup mortel.

Le *Latrodectus* place les fils de ce filet au pied des végétaux voisins, à peu de hauteur; la forme qu´il lui donne n´est pas régulière, et ne mérite pas le nom de véritable toile; car il consiste en plusieurs fils dirigés de diverses manières, et destinés à envelopper les imprudents qui se heurtent contre eux, et à soutenir une loge plus ou moins centrale, qui est son véritable nid aérien, ou, si l´on veut, son habitation c´été. Cependant, en examinant avec attention cette résidence aranicole, on remarque certaine adresse dans sa disposition; et quoiqu´il y ait bien moins d´art que dans la construction des demeures de beaucoup d´araignées, néanmoins la loge n´est pas mal faite intérieurement : elle est ordinairement de la grandeur d´une coque de noix, garnie en dehors des différentes dépouilles d´insectes dévorés par le Latrodectus; et sa présence est dissimulée par quelques feuilles sèches de végétaux voisins, de sorte qu´à la première vue on pourrait croire que c´est par hasard qu´elles sont tombées sur une vielle toile d´araignée.

Au mois de juillet, époque à laquelle je rends mes visites à cette araignée, j´ai toujours trouvé deux individus dans chaque nid : L´un, ordinairement la femelle, placée sous la loge, très-bien cachée; l´autre, souvent le mâle, de côté en embuscade, caché sous quelques feuilles de plantes auxquelles sont attachés les cordages de sa demeure. En un mot, on peut dire qu´il est en observation, sans se laisser voir; la solitude de son piège fait croire facilement qu'il est abandonné par le chasseur qui l´a construit; mais c´est tout le contraire : le moindre choc qui fait trembler cette habitation aérienne avertit les surveillants perfides, qui accourent immédiatement pour en connaître la cause, et saisissent étroitement l´insecte imprudent qui a osé s´aventurer dans ce repaire d´assassins. Si l´étranger est robuste et si ses armes défensives peuvent l´aider à se sauver dans un combat corps à corps, le *Latrodectus* commence par faire trembler ses fils, pour que sa proie s´embarrasse davantage; et aussitôt, sans perdre de temps, il s´avance d´un air intrépide, et l´enveloppe avec tant d´agilité et d´adresse, que je l´ai vu dompter en un peu plus d´une minute la *Cicada plebeia*, *L´Oedipoda coerulescens*, et d´autres insectes non moins robustes. Les deux individus s´aident mutuellement, et dès que la première manœuvre est finie, quand les mouvements du prisonnier ne sont plus que de vains efforts contre ses liens, l´une des araignées s´approche et le frappe de mort. Si l´insecte est grand, à la première piqûre, il paraît éprouver une forte convulsion, qui passe bientôt pour faire place à un état d´abattement tel, qu´il peut se remuer à peine, et périt en peu de temps. Dans ce cas, il n´est pas rare de voir l´araignée répéter ses coups; mais quand l´insecte est faible, ou elle saute brusquement sur lui en lui donnant une mort prompte, ou elle l´enveloppe auparavant si ses armes lui sont suspectes. La place que le *Latrodectus* choisit pour frapper sa victime ne paraît pas être indifférente; car j´ai remarqué qu´il s´attaque aux jointures des segments, en donnant la préférence à celle de la tête avec le thorax, bien que, dans quelques cas, je l´aie vu frapper en d´autres parties.

Les acridiens, mantes, cigales, melolonthes, abeilles, et jusqu´aux cicindèles, sont fréquemment la proie de la voracité de cette araignée. Quelquefois je me suis amusé à tourmenter ces adroits chasseurs en remuant leurs toiles avec une paille ou un petit morceau de bois; et d´ordinaire, après le choc d´un corps quelconque sur son habitation, il sautait aussitôt pour venir en reconnaître la cause, et se retirait précipitamment en voyant que l´agresseur était d´une force supérieure. Si on tourmente ces araignées, en les touchant avec une paille, elles se laissent tomber à terre en ramassant leurs pattes et en faisant le mort; mais si l´on continue à les tourmenter, elles recommencent à fuir, en se défendant de temps en temps par une piqûre dirigée contre l´instrument qui les incommode.

Il est à remarquer que cette araignée paraît en abondance dans les mêmes années que le genre

Acridium (*Oedipoda*); et je vois que cette observation a été faite par les laboureurs de la campagne de Tarragone, qui ont porté leur attention sur la destruction que font les *Latrodectus* parmi ces insectes; car, sous leurs nids, on voit le sol couvert des restes de ces orthoptéres, quoique, comme je l´ai déjà dit, ce ne soit pas leur seule nourriture, puisqu´il dévorent aussi des espèces d´autres genres.

La coque dans laquelle la femelle dépose ses œufs est d´une couleur brunâtre très-serrée, sphéroïdale, atténuée à une de ces extrémités, de 7 à 8 lignes de diamètre, et elle contient dans son intérieur 200 à 300 œufs, différence qui provient de la force de la femelle, ou plutôt de la différence des pontes, ou du moment de la ponte; car je ne crois pas me tromper en disant que cette araignée forme chaque année deux coques; car différentes fois je les ai vues dans un même nid, sans y trouver plus d´une seule femelle. C´est dans ce cas que j´ai remarqué la plus grande différence dans le nombre des œufs que chaque poche contenait, et qui variait pour le moins de plusieurs douzaines. Ces œufs paraissent adhérer les uns aux autres par des soies très-fines; car en voulant les séparer de la poche, on les voit réunis en chapelet, dont la couleur ressemble à celle de la paille sèche. Je n´ai pas encore pu voir naître le *Latrodectus* en question; et bien que je l´aie souvent rencontré très-petit, il vivait déjà seul, et établi dans une toile particulière.

Outre ce *Latrodectus*, j´ai trouvé dans les mêmes localités, si je ne me trompe, le *L. oculatus* (Argus, Savigny) et le *L. erebus* (Lugubre, Léon Dufour) [3], quoique le baron Walkenaër dise que le premier soit d´Afrique; mais cela seul ne serait pas un obstacle, parce qu´il y a beaucoup d´insectes de la côté africaine de la Méditerranée que j´ai trouvés sur celle d´Espagne, et même dans l´intérieur de ce pays. Les mœurs de ces espèces sont très-semblables à celles que j´ai décrites du *L malmignatus*.

Les accidents dangereux causés dans l´été de 1830 par une araignée, dans le canton appelé le Plà, dans la campagne de Tarragone, fixèrent l´attention de l´Académie royale de médecine et de chirurgie de Barcelone, qui envoya, pour examiner le fait, deux de ses membres qui, par malheur, étaient peu versés dans l´entomologie. De cette manière, le résultat de la mission ne remplit pas les vues de L´Académie, puisque ses envoyés participèrent aux préventions du vulgaire contre toutes les araignées en général, et que leur imagination, déjà pleine de tarentules, ne se représenta cet être fameux que d´une manière fantastique, et virent, dans les malades qu´ils visitèrent, la célèbre maladie de Tarente de l´illustre Baglivi; car je ne crois pas qu´ils aient quitté un instant l´idée qui les dominait en quittant Barcelone pour leur mission: tant la prévention est funeste pour pouvoir juger sainement des choses!

Quand cette commission rendit compte à l´Académie de ces recherches, elle présenta un flacon de cristal, presque rempli d´araignées, conservés dans l´alcool, leur paraissant toutes des tarentules, et des plus venimeuses. Cette collection d´araignées me fut communiqué par la Société, pour que je donnasse mon avis sur les diverses espèces qui la composaient; et je pus m´assurer qu´il ne s´y trouvait pas une seule tarentule, et que dans ces genres et espèces diverses, les seules qui me parussent suspectes étaient celles du genre *Latrodectus* (autrefois *Theridion*), qui formaient une partie du contenu du flacon.

Cette année-là, on reconnut positivement les accidents, mais sans pouvoir vérifier quelle araignée les causait.

En 1833, cette plaie se répéta pour la seconde fois dans cette même campagne de Tarragone, et les pays attaqués furent en plus grand nombre; car on remarqua des accidents à Vendrell, Belbey, Calafell, Santa-Oliva, Peras, Albiñana et San-Vicente-de-Calders. L´Académie de médecine, intéressé à vérifier le fait d´une manière positive, commissionna de nouveau un de ses membres, et choisit à cet effet le médecin de Vendrell, don Esteban Andreu, homme laborieux, qui réunit des faits très-exacts, scrupuleusement dépouillés de tous préjugés, et fruits d´une sévère observation.

Ce corps scientifique me chargea de nouveau de l´examen des araignées que le docteur Andreu avait envoyées avec ses observations; et je vis que presque tous les individus appartenaient au *Latrodectus malmignatus*; le reste était composé de *L. oculatus* et *erebus*.

Je pouvais alors, avec quelque probabilité, présumer que cette araignée était la véritable cause des graves accidents qui s´étaient reproduits deux fois en quatre ans dans la campagne de Tarragone; je résolus de m´assurer de la constance des faits qui devaient me prouver la propriété venimeuse du *Latrodectus* dont nous parlons, et ses suites funestes pour l´homme, annoncées déjà par plusieurs naturalistes d´époques différentes: et en donnant mes recherches à l´Académie, je pus assurer que les araignées réunies par le docteur Andreu étaient la cause des désagréables accidents observés dans le pays déjà cité.

Plus tard, la lecture de quelques ouvrages modernes, comme je l´ai indiqué au commencement de ce mémoire, m´a fait connaître les doutes qui existent encore sur ce sujet, et que, bien que divers observateurs aient assuré que la morsure du *Latrodectus malmignatus* produit sur l´homme une plaie empoisonnée, suivie de dérangements considérables, comme nous l´avons observé en Catalogne, quelques auteurs, parmi lesquels le célèbre entomologiste baron Walkenaër, révoquent en doute les rapports cités sur ce sujet, et attribuent les effets observés à la mauvaise disposition dans laquelle se trouvait le sujet attaqué en recevant la morsure, qu´íls regardent comme la cause accidentelle et non productrice des phénomènes morbides qui la suivent immédiatement.

L´importance de tirer à clair cette question est évidente; et, bien que je ne me reconnaisse pas doué d´un savoir suffisant, j´essaierai cependant de le faire, sans autre prétention que de soumettre ma manière de penser au jugement des savants qui, avec plus de talents et de connaissances, peuvent être compétents dans cette matière.

Avant tout, je déclare que je n´ai jamais ajouté foi à toutes les fables que j´ai entendues sur les araignées, y compris celles qu´on raconte de la Tarentule, qui est si commune en ce pays, et que je me suis si souvent amusé à observer dans ses nids mêmes; mais je ne puis pas non plus accorder une parfaite innocence à des êtres dont la classe renferme les scorpions, dont le venin est bien prouvé, et dont beaucoup ont des qualités venimeuses suffisantes pour tuer leurs victimes par la plus légère piqûre. La propriété de donner des blessures envenimées n´est pas douteuse dans certaines araignées, et M. Walkenaër lui-même, en parlant du venin de certains animaux, avoue son existence. Une simple expérience lui en aurait prouvé la certitude. Si l´on blesse avec une épingle un insecte qui ne soit pas très-délicat, a peine se manifestera-t-il un légère altération qui ne menace nullement sa vie d´une prompte mort; mais si on livre cet être à un *Latrodectus*, nous verrons que la simple piqûre faite par un instrument aussi délicat que les mandibules dont il est pourvu, détermine dans l´insecte une mort instantanée. Cette blessure a donc quelque chose de particulier, puisque, immédiatement après sa production, périt l´animal qui l´a reçue.

Puisque l´existence du venin n´est pas douteuse dans certaines araignées, pourquoi ne croirait-on pas que, dans quelques-unes, son activité pût nuire à l´homme même, en étant la cause des différents accidents qui suivent son inoculation? La simple piqûre d´une épingle pourrait-elle causer les graves symptômes que l´on voit constamment survenir chez l´homme à la suite de la morsure du *Latrodectus malmignatus*? Je ne le crois pas; et à moins de trouver le sujet dans la pire disposition, la piqûre insignifiante d´une épingle ne pourra pas avoir de suites plus qu´à l´ordinaire. Dans ma pratique médicale, j´ai eu une foule d´occasions de voir que les simples blessures des téguments observées sur des personnes malades amènent à peine d´autres résultats que les solutions ordinaires de continuité, durant généralement peu de temps, à moins qu´elles ne soient très-étendues, ou qu´il ne vienne s´y compliquer quelque vice de constitution du malade. Pendant ma longue fréquentation de l´amphithéâtre anatomique de L´École de médecine de Barcelone, j´ai observé bien souvent que les blessures et piqûres faites par le

scalpels dont on se sert pour la dissection des cadavres n´avaient ordinairement aucune suite, tandis que d´autres fois je les ai vue en avoir de fatales; et dans ces cas, dont il m´intéressait de connaître la cause, j´ai reconnu, à n´en pas douter, que le mal occasionné ne provenait ni de l´insignifiante blessure, ni même de la seule disposition du sujet, mais bien de l´inoculation d´une humeur vireuse produite par la maladie qui a fait succomber l´individu dont la dissection a amené un tel résultat. Ainsi, non-seulement j´ai vu s´inoculer certaines maladies, mais aussi se produire une inflammation spéciale du système lymphatique, qui, dégénérant en suppuration, a fini avec la vie de l´individu attaqué.

En réfléchissant donc sur ce qui vient d´être dit, nous voyons que de simples blessures dans le téguments, surtout quand elles sont aussi minimes que celles produites par de légères piqûres d´épingle, ne sont pas suivies d´accidents alarmants comme dans le cas où l´instrument est envenimé.

Maintenant, puis-je supposer un moment, avec les naturalistes qui ne croient pas au venin de notre *Latrodectus,* qu´une piqûre d´épingle, ou une autre blessure analogue, peut produire sur une personne mal disposée, la fièvre, et ensuite le délire, sans qu´il soit nécessaire de recourir, pour ce phénomène, à l´action d´aucun venin, et que ce sont les seuls symptômes qui caractérisent la maladie produite par la morsure de notre *Latrodectus*? La reproduction constante d´une même série de symptômes, toujours déterminée par les mêmes causes, peut-elle être regardée comme fortuite et dépendante seulement de la mauvaise disposition individuelle? Il serait superflu de réunir tous les accidents, qui, aussi bien, ne sont pas ordinairement très-fréquents.

Boccon, Reysler, Rossi, Totti, Abbot, Cauro, etc., ont parlé de l´enveniment produit par la piqûre de *Latrodectus*, et l´on a mis en doute les assertions de ces observateurs, sans en citer d´autres qui aient prouvé expérimentalement le contraire, en se contentant de dire; "qu´on a beaucoup exagéré la chose; que toutes ces observations sont très-anciennes; qu´on ne s´est pas donné la peine de bien examiner si la maladie observée était véritablement produite par la piqûre de l´araignée en question, et que l´on n´a présenté ni faits ni observations qui le démontrent." Je suis convaincu que s´il est utile de n´être pas trop crédule, il est peu prudent d´être incrédule sans fondement, et pour cette raison, je me suis décidé à réunir toutes les données possibles, sur les faits arrivés dans la campagne de Tarragone, pendant les trois années 1830, 1833, 1841, pour connaître ainsi la vérité.

Les fruits de cette résolution sont les observations faites par le docteur Andreu, dont l´authenticité est facile à prouver en consultant l´Académie de médecine de Barcelone, les médecins de Vendrell, Velbey, Calafell, Santa-Oliva, Peras, Albiñana, San-Vicente-de-Calders et le Plà, ainsi que les habitants de ces endroits, et surtout ceux qui ont ressenti les effets d´un semblable enveniment.

Symptômes que détermine la morsure de Latrodectus malmignatus.

D´après les observations faites sur les personnes piquées par cette araignée, la maladie à laquelle une telle blessure donne lieu été caractérisée par les symptômes suivants, exposés ici dans ce qu´ils ont de plus important, et dans l´ordre où ils se présentent et se succèdent.

Dans l´action de la morsure, le sujet sera une piqûre assez désagréable, qui, bien examinée, est double, puisqu´elle provient de la morsure faite par les deux mandibules de l´araignée; cela se manifeste ensuite plus ouvertement par deux cercles rouges, qui, se réunissant ensuite, forment une aréole œdémateuse qui marque le siège de la tumeur et qui se développe plus tard à l´endroit blessé.

La douleur, devenue brûlante, occupe la longueur du membre attaqué, et gagne même les glandes axillaires ou inguinales, suivant la région à laquelle appartient le membre: ces glandes se tuméfient et deviennent douloureuses, et l´espace entre elles et l´endroit piqué se marque de

taches livides qui semblent désigner le passage des vaisseaux lymphatiques. La douleur continue successivement, en gagnant du terrain, jusqu´aux cavités abdominale et thoracique, avec une sensation de chaleur brûlante, forte constriction ou mal de gorge, tension du ventre, ténesme, sans pouvoir répandre une seule goutte, et prurit douloureux sur le sommet de la glande. Une douleur aiguë ne tarde pas à occuper la tête, se fait sentir tour de long de l´épine dorsale, et aussitôt surviennent des convulsions générales, et plus particulièrement aux extrémités, dans lesquelles se sent un fourmillement très-incommode, suivi quelquefois d´une insensibilité notable, surtout aux pieds, qui sont ordinairement livides, pendant que tout le corps est enflé.

Cet appareil imposant des symptômes fait voir une faiblesse d´esprit très-marquée chez les malades, par leurs expressions de désespoir, d´affliction profonde, de craintes sur le retour de leur santé, car ils se croient menacés d´une mort prochaine; on les voit changer continuellement de place dans leur lit, pousser des soupirs et des cris plaintifs, porter machinalement les mains à leur tête, où ils disent qu´ils se sentent piquer le cerveau par des épingles; la figure est quelquefois crispée et brûlante, d´autres fois pâle. On remarque de la difficulté dans la respiration, le pouls est très-bas, fréquent, irrégulier, la peau froide et rendue humide par une sueur abondante, froide et visqueuse; en même temps le patient se plaint que ses entrailles brûlent, et demande avec avidité de l´eau fraîche.

Dans quelques cas, la vue s´obscurcit au point de ne plus distinguer les objets, la conjonctive est injectée; dans d´autres, la voix s´affaiblit, ou bien le tintement des oreilles devient très-marqué. On a vu quelquefois des taches livides paraître sur le corps entier.

L´intensité de ces symptômes varie suivant la délicatesse de l´individu, la force du *Latrodectus*, et aussi le nombre des piqûres qu´a reçues le patient.

La décadence du mal s´annonce au bout de plus ou moins de temps, suivant la force du malade, l´énergie des moyens employés, et la promptitude de leurs effets: dans tous les cas, on la voit s´annoncer par la sueur, qui, de froide et visqueuse, devient chaude et vaporeuse, par l´élévation et la régularité du pouls, la facilité de respirer, et d´uriner, la cessation du prurit des glandes, et de la douleur aiguë du cerveau et de l´épine dorsale, qui passe à un engourdissement très-marqué (je soupçonne que cet état léthargique est un effet du laudanum qu´on donne au malade, et non un symptôme de la maladie; car il faut remarquer qu´il apparaît quand cessent les phénomènes nerveux qui précèdent, pendant lesquels le patient prend une bonne quantité d´opium); tous les symptômes baissent d´intensité, se dissipent successivement d´une manière complète, et la convalescence s´annonce par une lassitude générale, beaucoup de tristesse, constipation, douleurs dans les mollets, qui diminuent à mesure que le patient passe à l´état normal.

L´endroit malade offre, comme nous l´avons dit, une tuméfaction qui, dans quelques cas, se change en une véritable tumeur qui suppure, ordinairement, au grand soulagement du malade: dans d´autres cas, l´inflammation locale cède sans suppuration, et pendant quelque temps l´endroit piqué reste marqué par une tache livide remplaçant la tache rouge qui marquait le point de la piqûre."

[1] Le titre en espagnol est le suivant: Noticia de varios hechos, que confirman la propriedad ponzonosa del Latrodectus malmignatus Walckenaer, por el doctor don Mariano de la Paz Graëlls, professor de zoologia en el real Museo de ciencias naturales de Madrid, miembro de varias corporaciones cientificas.

[2] *Annales de la Société entomologique de France*, t. III, Bulletin, p.XXVI

[3] Serait-ce cette espèce que le naturaliste cité plus haut appelle *Theridon unicolor*, la seule qu´il dit voir trouvée dans le royaume de Valence, dans une lettre qu´il a bien voulu m´écrire à ce sujet, il y a déjà quelque temps?

Notice sur divers faits qui confirment la propriété venimeuse du *Latrodectus malmignatus Walckenaer*; par le M. le docteur Graells [1], traduite en français par M. Léon Fairmaire, Annales de la Société entomologique de France, Tome Onzième (1842), p. 205-219

1843 - La malmignatte en Corse - Pierret

"M. Pierret fait part à la société de quelques faits relatifs au *Latrodectus malmignatus*. Il paraît que cette Arachnide n´est pas seulement confinée dans la Catalogne, mais qu´elle habite aussi l´île de Corse, et que sa morsure y cause des accidents semblables à ceux que M. Graells a signalés dans son mémoire. Il résulte même d´un entretien que M. Pierret a eu tout récemment avec un de principaux habitants de Corte, M. Pieradgi, que le *Latrodectus malmignatus* n´est pas rare aux environs de Corte; qu´il paraît au moment où règnent les grandes chaleurs, et qu´il se trouve principalement dans les maisons. Lorsqu´il arrive par malheur à un insulaire d´être piqué par cet insecte, le remède consiste à exposer la partie blessée à la chaleur ardente d´un four et à la frotter avec de l´ail."

(Communications de M. Pierret, Annales de la Société entomologique de France. Deuxième série, Tome premier (1843), Bulletin entomologique, p. VIII)

1856 - La Malmignatte et le Scélotyrbe - Charles Ozanam

LATRODECTE MALMIGNATTE

"*Abdomen* gros, renflé, globuleux, très-pointu vers l´anus, noir; large bande transverse d´un rouge sanguin proche le corselet; ensuite quatre taches de même couleur, deux placées longitudinalement, et deux transversalement sur les côtés, celle qui est le plus près du cercle pentagonale, celle qui suit derrière et au milieu du dos triangulaire, et les deux latérales ovalaires. Derrière la grande tache triangulaire est une ligne longitudinale, formée de deux ou trois autres taches triangulaires ou arrondies et jointes qui aboutissent à l´anus, et est aussi d´un rouge sanguin. De chaque côté, deux grandes taches de même couleur; ces taches, surtout celle du milieu, sont dans quelques individus traversées par un point noir qui s´oblitère avec l´âge.

Ventre avec deux taches rouges, couleur de sang, transverses.

Corselet petit, déprimé, resserré vers la tête, arrondi à sa partie postérieure, noir, ainsi que les pattes; le mâle est semblable à la femelle.

La *latrodecte malmignatte*, longue d´environ 6 lignes, est commune en Italie, du côté de Volterra, en Corse, en Sardaigne; on la trouve aussi en Égypte, en Languedoc, en Espagne et jusque dans les Antilles. Fabricius l´a surnommée *aranea tredecimguttata*, parce qu´elle a sur le corps treize taches qui, pendant le premier âge, sont blanches, mais deviennent plus tard d´un rouge de sang ou bordées de blanc: dans un âge avancé ces taches peuvent s´effacer et le corps devenir entièrement noir.

Keysler, *Boccone*, *Luigi Toti*, *Marmocchi*, *M. Cauro*, ont établi, par les observations régulières, que la morsure de la malmignatte est venimeuse. *Descourtiltz* parle d´une araignée surnommée à St-Domingue araignée à cul rouge, par les nègres, dont la piqûre est souvent mortelle. Il ne nous a pas été possible de décider si elle appartenait aux théridions ou aux latrodectes.

Les nègres calment les douleurs de dents causées par la carie posant dans la cavité une petite boule de cire triturée par partie égale avec le venin de cette araignée; il est digne de remarquer que ce moyen empirique, que nous retrouvons chez les nègres, est signalé déjà par les anciens médecins grecs. *Galien* préconise les œufs d´araignée mêlés avec l´huile de nard contre l´odontalgie.

Aux Antilles on se sert aussi de l´onglet des mandibules de la *mygale aviculaire* pour en faire des cure-dents; on pense qu´ils calment les douleurs et empêchent la carie.

LATRODECTE MALMIGNATTE DE CORSE (CAURO)

M. Cauro a fait, dans sa thèse inaugurale, une étude toute particulière de la *malmignatte* de Corse, dont la morsure est reconnue très-venimeuse. Les accidents seraient analogues à ceux que produit la vipère, mais moins douloureux et moins graves. En voici le tableau:

1re Période - Collapsus.

Engourdissement.
Tremblement général.
Nausées, vomissements.
Sueurs froides.
Syncopes ou convulsions.
Délire.
Pouls fréquent, irrégulier.

2e Période - Réaction.

Cardialgies.
Douleurs précordiales.
Douleurs dans toutes les jointures.
Jaunisse universelle.
Retour lent à la santé.

Les douleurs articulaires persistent quelquefois plusieurs années.

L´antidote du venin de la *malmignatte* était le secret d´une famille corse et consistait en trois pilules que l´on administrait au blessé à de courts intervalles. N. Cauro en a découvert la composition: c´était le camphre uni à l´opium à la dose de 0,15 à 0,30 centigrammes pour trois pilules; il faut toujours trois ou quatre heures pour que l´effet du remède se produise.

LATRODECTE DE VOLTERRA (MARMOCCI)

Dans le courant de l´année 1786, l´araignée rousse de Volterra se multiplia extrêmement; les uns l´attribuèrent à la chaleur de l´été, qui avait été précédé d´un hiver assez chaud; d´autres prétendirent que l´année d´avant, la récolte ayant été peu abondante, on avait rapporté de Livorne des blés mêlés de nombreux cocons de cette araignée, qui, à la faveur d´un hiver très-chaud, auraient produit des légions d´insectes l´été suivant. Pendant cette saison, trente personnes environ furent piquées. Le Dr *Marmocchi* en soigna un grand nombre dans son hôpital et nota les accidents suivants.

La morsure, à peine semblable à celle d´une puce ou d´une mouche, excite instantanément de violentes douleurs aux extrémités et aux reins, produisant dans le jambes un mouvement irrégulier, que l´on nomme scélotyrbe, et vulgairement paralysie imparfaite les blessés ne peuvent se tenir sur les pieds; et vont en se lamentant comme des gens à qui l´on a scié les jambes, les cuisses, les bras ou les reins.

La convulsion universelle, la suppression d´urine, le priapisme, le gonflement et les douleurs du bas-ventre, les vomissements, les défaillances passagères et l´agitation continuelle involontaire de tout le corps sont les symptômes et les conséquences ordinaires de ce venin.

Au milieu d´une agitation si grande des nerfs, c´est à peine si le pouls est changé; il paraît plutôt concentré; mais les malheureux poussent des hurlements et éprouvent une dyspnée extrême, quand ils sont dans un lieu renfermé.

La nature montre assez clairement que la sueur copieuse provoquée et unie à la saignée est le véritable remède; elle détermine une sorte de fièvre naturelle ou artificielle; on lui vient en aide avec la thériaque dans du vin généreux avec le camphre uni au nitre, et l´on met ainsi en pratique cet aphorisme d´Hippocrate: "*convulioni febris superveniens bonum*." Au contraire, les applications topiques sont jusqu´à ce jour restées inutiles, à cause de la grande volatilité du

venin, qui ne leur donne point le temps d´agir utilement. Les ventouses scarifiées m´ont paru aussi inutiles et inapplicables, à cause de l´agitation continuelle des blessés, qui ne permet de les appliquer facilement au lieu de la piqûre qui apparaît comme un point rouge ou livide.

Jusqu´à présent aucun des trente blessés n´est mort, ni parmi ceux que j´ai soignés à l´hôpital ni parmi ceux qu´ont soignés à la campagne d´autres praticiens.

BAGNO NERO MACCHIATO DI ROSSO DEL AGRO VOLTERRANO - OBS. FAITES EN 1786, 87, 88, 89, PAR LUIGI TOTI

A la même époque et dans la même contrée, un médecin distingué faisait les mêmes observations, mais avec de nombreux détails scientifiques, qui montrent toute l´importance qu´il accordait à ce sujet.

"La morsure est très-vive; en peu d´instants les malades deviennent comme paralysés des extrémités inférieures et supérieures, et incapables de se tenir sur leurs pieds; ils ont de violentes douleurs à l´estomac et une grande oppression qui augmente quand ils ont dans des lieux renfermés. Ils souffrent d´une langueur universelle et d´un tremblement particulier de l´articulation du genou. Leurs pouls est profond, serré, mais il n´est pas toujours fébrile. Ils éprouvent des sensations irrégulières de froid et du chaud, de la céphalalgie, des vertiges, des vomissements. La tuméfaction du ventre survient bientôt; ils souffrent des convulsions plutôt internes qu´extérieures et perdent le sommeil. Quant à la partie mordue, on n´y remarque qu´une petite pustule rousse avec un petit point noir central.

Chez quelques-uns il survient du délire, une fièvre assez forte; chez d´autres, la rétention d´urine, symptômes qui rendent la maladie plus grave et plus difficile à guérir.

La durée de cette maladie est de trois à quatorze jours. La guérison est assurée toutes les fois que les secours médicaux sont administrés.

Ceci posé, alors que je commençais à exercer la profession de médecin à la compagne, on me présenta pour la première fois, vers les derniers jours de mai 1786, un malade qui, pour avoir été mordu à une jambe par cette arachnide, se trouvait dans le triste état décrit ci-dessus. Je ne me contentai pas de lui donner les secours de l´art, j´interrogeai, et voulus voir l´insecte; car jamais je n´avais observé de pareils accidents. J´en parlai à M. Marchi, ancien chirurgien de cette cité, et j´en obtins l´assurance que, bien des années avant, il avait eu à soigner plusieurs malades blessés par cet insecte, plus ou moins commun dans nos campagnes. Mon prédécesseur, le docteur Vigilanti, donna la même affirmation. Après de nombreuses recherches sur les différents auteurs qui ont traité des araignées, je vis que cette espèce n´avait pas encore été décrite, et je la dénommai:

"Araignée de Volterra, noire, à ventre ovoïde, avec trois rangées de points rouges longitudinales."

Je résolus alors de faire quelques expériences:

Je fis mordre à la lèvre une chienne; elle s´agita, son cou se gonfla, elle resta quelques jours sans manger, languissante et faible des extrémités; elle survécut, mais constamment elle léchait avec sa langue la partie mordue.

Je me fis apporter plusieurs oiseaux nouveau-nés, j´en fis mordre quelques-uns; peu d´heures après ils devinrent livides, se tuméfièrent et moururent.

J´en destinai d´autres pour les nourrir avec l´araignée, que je réduisis en petits morceaux; ils éprouvent un vomissement subit et moururent promptement.

Ces expériences démontrèrent suffisamment les qualités vénéneuses de cette arachnide.

Restait encore à savoir quel serait le sort des personnes qui, mordues par cet insecte,

resteraient privées de tout secours médical. Je ne me serais jamais hasardé à faire pareille expérience, lorsqu´il me souvint des deux observations suivantes, qui ne sont point de moi, mais que j´ai cru devoir rapporter, pouvant ajouter toute foi à leur auteur.

Dans les derniers jours de juillet 1787, L. A. Mazzinghi, âgé de cinq ans, habitant la campagne, alla à la fontaine, suivant sa mère, pour puiser de l´eau, vers les dix heures du matin. Il faisait très-chaud, l´enfant avait les jambes nues; il fut piqué à un doigt de pied par une de ces araignées, il poussa un grand cri et retourna avec peine chez lui, soutenu par sa mère, parce qu´il ne pouvait se tenir sur ses pieds. Comme il était un peu tard, ses parents attendirent le lendemain pour venir me chercher. On le mit au lit, et toute la soirée il se plaignait d´une grande douleur au pied; il eut de la fièvre et de l´insomnie; au milieu de la nuit, survinrent de violentes convulsions, son ventre se météorisa, il se plaignait d´une grande chaleur, que l´on pouvait en effet percevoir à l´extérieur, et il ne pouvait se retourner dans son lit; ainsi tourmenté jusqu´à neuf heures du matin, il rendit le dernier soupir; le corps était entièrement livide à l´extérieur.

Deux jours après, le malheureux père vint me trouver pour me demander conseil pour un autre malade qu´il avait chez lui, et me raconta ce que je viens de dire. Un résultat si funeste me surprit, et je ne pouvais croire que la morsure d´une seule araignée sur un enfant eût déterminé la mort, je regrettai vivement de ne pas avoir pu voir au moins le corps. Je fis de nombreuses interrogations pour savoir si l´enfant n´avait pas été blessé par quelque instrument, par une épine, ou autre chose semblable, mais le paysan me répondit que c´était la morsure d´une ou de plusieurs de ces araignées rouges, qui étaient alors fort nombreuses autour de la fontaine, située au midi. Je demandai si son fils était malade et de mauvaise santé auparavant; il répondit qu´il était sain et très-robuste, il ajouta qu´il attribuait évidemment la mort à la piqûre de l´araignée, parce qu´il avait remarqué pendant la nuit sur son fils les mêmes phénomènes qu´il avait observés autrefois sur une personne âgée, mordue aussi par ces insectes, mais qu´il ne croyait pas que l´enfant serait mort si tôt et qu´il pensait être à temps pour le faire soigner le lendemain.

Confrontant alors les symptômes qui m´étaient rapportés avec ceux que j´avais déjà observés sur autres blessés, il ne me sembla par hors de raison que l´enfant eût été piqué par plusieurs araignées et que, dans un âge si tendre, le venin eût agi avec plus d´intensité, n´étant combattu par aucun secours médical.

Ce fait me rappela celui qui arriva, en juin 1767, à Maria Anna Brogi, âgée de douze ans. Cette enfant fut également mordue à un orteil, en marchant pieds nus dans la campagne. Elle fut prise de vomissement, de tremblement et de fièvre, et ne pouvait en aucune façon se tenir sur ses jambes. Elle fut guérie par mon prédécesseur qui m´a pleinement confirmé tous ces détails.

Au mois de juillet suivant 1789, le sieur D^{r} Alexis della Fanferia, médecin à Legoli, à dix-huit milles d´ici, a observé un fait semblable, qu´il m´a communiqué par lettre; il y est question de la mort de Giovanni Bini, paysan, âgé de vingt-cinq ans, qui succomba en quarante-deux heures, après avoir été mordu par une de ces araignées à l´articulation du coude droit; or, comme cet insecte était alors peu connu, les domestiques du blessé ne prirent aucune crainte de cette piqûre et n´appelèrent le médecin que lorsqu´ils virent le malade entièrement gonflé, avec une grande fièvre et du délire. À ce moment, le D^{r} Alexis lui prodigua tous les secours de son talent, mais tout fut inutile. Trois heures après sa visite, le malade mourut.

Enfin je voulus m´assurer si la poudre de ces araignées, prise intérieurement, causait quelque accident, je fis sécher au soleil quelques-unes d´entre elles et formai de leur poudre des grosses pilules, avec le double de chair de bœuf bouillie. J´en donnai plusieurs fois à manger à des chats, à des chèvres, à des lapins, et je n´observai aucun accident. Un seul petit chien, à qui j´avais fait avaler ces pilules avec de la chair crue de mouton, donna des signes évidents

de coliques et de douleurs pendant tout le temps de la digestion. Mais il en devait être ainsi, car la chaleur ardente du soleil, en desséchant l´insecte, volatilise les parties les plus fluides, dans lesquelles se trouve sans doute l´activité du venin, puis l´acte de la pulvérisation et l´union avec d´autres matières sont autant de causes qui en rendent l´action moins efficace; troisièmement enfin, on sait combien les sucs digestifs sont efficaces pour anéantir la force des venins, aussi nos expériences ne suffisent-elles pas pour démontrer si ces arachnides sont vénéneuses par leur propre nature et capables, prises à l´intérieur, d´apporter quelque désordre dans notre santé."

L´auteur compare ensuite les effets de la piqûre de l´araignée avec ceux que Fontana attribue à la morsure de la vipère et en signale les ressemblances ou plutôt les analogies: prostration des forces, paralysies incomplètes, fluidification du sang, ecchymoses, etc.; puis, passant aux remèdes, il ajoute que l´on doit employer à la fois des moyens internes et externes. - *Moyens externes*, la ligature du membre, la succion de la plaie. - *Moyens internes*, l´administration de la thériaque unie à du vin généreux, à cause de la prostration des forces, car l´on trouve toujours chez les blessés le sang défibriné. *Toti* ajoute que, pour cette année (1786), il a eu pendant l´été seize malades à soigner, dont aucun n´est mort; mais que, si l´on en juge par le nombre considérable d´arachnides qui ont apparu cette année, malgré la rigueur de la saison, leur multiplication sera bien plus grande encore l´année suivante, si la saison est chaude, et qu´il s'empressera dès lors de faire connaître le résultat de ses observations.

Observations recueillies en 1787

OBSERVATION I: Une jeune fille de quinze ans, de tempérament sanguin, habitant les faubourgs de cette ville, fut mordue fortement à la cuisse droite par une de nos araignées qui s´était cachée à travers la paille sur laquelle l´enfant se tenait en travaillant; cet accident arriva dans la soirée du 14 juillet. Elle poussa un grand cri en se sentant piquer, et, regardant la partie blessée, elle vit l´araignée cause de son mal. Aussitôt elle la jeta par terre avec la main, et, lorsqu´elle voulut l´écraser, elles se trouva privée de toute force dans les membres inférieurs, de telle façon qu´il fallut la soutenir. J´accourus promptement au secours de la malheureuse, étant dans le voisinage pour faire une visite de malade. Je scarifiai aussitôt la partie après avoir fait deux ligatures qui comprenaient entre elles la partie de la cuisse offensée; je fis alors une onction avec l´huile de Mathiole et j´appliquai des morceaux de laine bien chauds pendant une heure; à l´intérieur j´administrai un verre de vin rouge généreux, avec 2 drachmes de thériaque. Je fis ensuite coucher la malade en relâchant les ligatures; je retournai la voir dans la matinée et appris qu´elle avait souffert une grande agitation pendant la nuit, ne pouvant prendre aucun repos; il y avait déjà une sueur universelle sur la peau, le pouls était concentré, profond; j´ordonnai de répéter soir et matin le vin thériacal, et, pour seconder la nature, j´y ajoutai une décoction de scorsonère avec addition de quelques gouttes de teinture de contrajerva. La nuit suivante la sueur parut, continua dix-sept heures de suite, et l´enfant se trouva délivrée de son mal le troisième jour.

OBSERVATION II: G. Mannajoni, tempérament sanguin, robuste, cinquante-six ans, paysan de profession, fut piqué le 5 août au soir, sur le front, en mettant son chapeau, dans lequel une araignée était entrée, l´ouvrier l´ayant posé à terre, pour prendre une charge de foin.

A peine eut-il senti la piqûre qu´il tomba en convulsions pendant six heures: il en sortit impotent, ne pouvant se servir des membres supérieurs et inférieurs; bientôt il éprouva des vomissements et la fièvre au bout de six heures.

Ses fils épouvantés le conduisirent à l´hôpital, où j´arrivais alors; j´allai aussitôt le visiter et le trouvai la face gonflée, ayant une fièvre forte, une vive chaleur et du délire. Je me hâtai de pratiquer une forte saignée au pied. Le sang coula noir et défibriné; plus tard le coagulum ne se forma pas, tous les éléments restèrent confondus. Je prescrivis le traitement ordinaire, interne et externe. Le matin suivant, je trouvai le malade avec une fièvre moins forte, jouissant

de sa raison, mais accusant une vive douleur à l´estomac et de la propension à vomir; suivant l´indication de la nature, je lui fis prendre un émétique et lui donnai de l´ipéca dans de l´eau tiède; il rejeta quantité de nourriture et une bile porracée. Il y eut alors une amélioration générale; cependant la fièvre dura sans intermittence tout le jour. L´agitation revint, le délire et l´impotence des extrémités. Je continua la méthode, et j´y ajoutai comme diaphorétique la teinture de contrajerva; l´amélioration se prononça de nouveau, et la sueur commença à paraître; elle augmenta beaucoup vers le troisième jour, et le septième elle devint si considérable qu´elle pénétra entièrement les deux matelas et les couvertures. Le dixième jour, le malade était guéri, mais il eut une convalescence, et le dix-septième jour il était encore paralytique.

De tous les blessés ce fut le plus grave que j´aie eu à traiter; la noblesse de la partie blessée en fut sans doute une des causes, et les huit heures écoulées avant le commencement du traitement furent la deuxième cause de l´intensité des phénomènes qui se manifestèrent chez le malade.

OBSERVATION III: Guiseppe Fulcieri, paysan, âgé de soixante ans, d´un tempérament ferme et robuste, fut mordu à la jambe gauche par une araignée pendant qu´il s´occupait aux travaux de la campagne. Il tomba à terre, jetant un grand cri, et, ne pouvant se mouvoir par lui-même, il fut reconduit à sa demeure par ses domestiques. Là il fut pris immédiatement de fièvre. Comme il se trouvait dans les environs un artisan, on l´appela aussitôt. Celui-ci, sachant que les scarifications avec un fer, quel qu´il fût, étaient efficaces en semblable maladie, scarifia fortement non-seulement la partie malade, mais encore tout le bas-ventre qui lui parut tuméfié. Le patient perdit beaucoup de sang. Alors il lui administra une bonne dose de vin généreux, mais sans thériaque. Le soir suivant, la fièvre revint beaucoup plus forte et les convulsions se manifestèrent avec violence. Il passa la nuit fort souffrant; le matin étant un peu plus tranquille, on l´aida à se relever de son lit, et, comme il ressentait toujours une sensation irrégulière de froid dans les extrémités inférieures, combinée avec une impuissance absolue de mouvement, ils l´emmenèrent s´asseoir auprès du feu, et là, le laissant seul, ils se rendirent à leurs travaux rustiques. Le malheureux paysan, à mesure qu´il chauffait, éprouvait un froid de plus en plus grand; voulant alors se lever de son siège pour ajouter un peu de bois au feu, et ne pouvant se tenir sur ses pieds, il tomba dans le feu même, sur le côté gauche; incapable de se soulever, et n´entendant personne approcher, il fut contraint de rester là une demi-heure et plus, jusqu´à ce que quelqu´un des siens étant survenu par hasard l´aperçut et le releva: il était à demi-mort et avait tout le côté brûlé à la profondeur d´un travers de doigt. On le conduisit à l´hôpital, où il reçut mes soins empressés et ceux des chirurgiens; il guérit entièrement au bout de six mois.

Il faut ajouter que, comme la partie brûlée au feu n´était pas la même qui avait été mordue par l´araignée, le malade resta pendant plusieurs jours à l´hôpital pour la paralysie, indépendamment de la brûlure, et qu´il fallut lui appliquer le traitement ordinaire de ceux qui ont été blessés par cet insecte; vers le septième jour, on observa l´amendement de la maladie, avec la sueur accoutumée, et il fallut six mois pour guérir la plaie occasionnée par le feu à la partie opposée.

OBSERVATION IV: Un homme de trente-six ans, de tempérament sanguin, paysan de profession, en prenant un fagot à terre, fut mordu au doigt médius de la main gauche, avec lequel il avait retenu et pressé une de ces araignées. Il tomba immédiatement évanoui sur le sol; les convulsions commencèrent et les urines se supprimèrent, accidents auxquels il était sujet autrefois. Je fus appelé au bout de six heures pour le saigner, et le trouvai ayant le bas-ventre météorisé, du délire, une fièvre violente; son pouls était plein et dur, et il éprouvait, à l´intérieur, une chaleur universelle qui ne s´apercevait point au dehors. En vue de tous ces accidents, je crus devoir faire une émission sanguine: après cette saignée, qui fut faite au bras, le

délire cessa, et le malade retrouva ses esprits. J´examinai son sang et le trouvai comme de coutume, noir, fluide et non coagulé; je lui prescrivis ensuite le traitement habituel, y ajoutant un bain d´une demi-heure pour rappeler les urines supprimées. Le malade obtint, par ces moyens, une amélioration graduelle, et le huitième jour, sous l´influence d´une diaphorèse abondante, il fut guéri de tous ses maux

OBSERVATION V: Une jeune fille de la campagne, âgée de quinze ans, fut mordue à l´épaule pour s´être couchée sur la paille à ciel découvert aux temps des récoltes. Elle habitait près de la ville, aussi l´on s´empressa d´aller chercher à Volterra un professeur de médecine, vers les onze heures du soir. Le docteur Bianchi, que l´on trouva le premier, posa une ventouse scarifiée sur le lieu de la piqûre et fit une friction au même endroit avec l´huile de Mathiole, puis il dit de la reconduire chez elle; mais cette jeune fille ne put retourner à sa demeure que fortement soutenue, car elle ne pouvait se tenir droite sur ses pieds, et, comme elle était atteinte de convulsions violentes, je pensai qu´il valait mieux la conduire à l´hôpital. Elle suivit la cure habituelle, et, dans l´espace de huit jours, elle fut entièrement guérie, après avoir subi la sueur critique habituelle.

OBSERVATION VI: Une autre enfant de la campagne, âgée de sept ans, habitant les premières maisons qui se trouvent hors de la porte qui regarde le midi, portant quelque vêtement pour la noble famille Arrighi, fut mordue à un bras. Elle tomba dans un état de défaillance et prit des convulsions, comme cela arrive d´ordinaire, avec un tremblement suivi de paralysie dans les membres inférieurs. On me l´amena à l´hôpital pendant huit jours de suite, à neuf heures du matin, moment où j´allais y faire ma visite ordinaire. Pendant le laps de temps dont je viens de parler, j´observai ma méthode ordinaire, et elle se trouva parfaitement guérie à la suite d´une sueur abondante.

J´ai rencontré encore, pendant le même été de 1787, huit autres personnes, également de la campagne, que j´ai soignées pour les mêmes morsures d´araignée dont j´ai parlé jusqu´ici, que j´ai toutes guéries par ma même méthode, et que je ne décrirai pas minutieusement, n´ayant rien observé de particulier ni de nouveau. Il est utile de remarquer que ces araignées ne font pas, dans les autres saisons de l´année, des morsures aussi dangereuses que pendant l'été. En effet, dans les premiers jours de novembre, l´atmosphère s´étant fortement refroidie, une petite fille de sept ans, habitant la campagne, fut piquée par une araignée à la jambe droite; la piqûre ne lui occasionna pas beaucoup de douleur. Cette enfant s´évanouit seulement quelques heures après la morsure, et elle eut un peu de tremblement, vers le soir, dans les membres inférieurs. Les convulsions ne se renouvelèrent pas, non plus que la fièvre; elle fut guérie de son mal après pris une fois du vin thériacal concentré.

Il faut encore remarquer que ces araignées écloses et conservées dans les chambres, sans leur donner de nourriture, mordent faiblement et n´occasionnent pas plus de douleur qu´une mouche ordinaire. J´eus occasion d´expérimenter moi-même la chose un jour après diner. J´étais appuyé sur mon secrétaire, lorsque je me sentis mordre plusieurs fois dans diverses parties du corps, n´étant que peu vêtu à cause de la chaleur. D´abord je crus que cela provenait de cet insecte qu´Ovide appelle *fortuné* (puce), mais ensuite, sentant que les morsures se renouvelaient souvent, même dans le même endroit, je me mis à la recherche de l´insecte, et je découvris quatre de ces araignées de Volterra de médiocre grosseur. Je fus en vérité un peu effrayé, et, ne sachant d´où elles pouvaient venir, je me mis à visiter les vases où j´en conservais: je vis qu´il y avait une déchirure au parchemin d´un des bocaux où je conservais une cinquantaine de ces araignées que j´y avais aussi fait éclore; et je n´en retrouvai plus dans le bocal que dix-huit ou vingt. Il paraît que, tourmentées par la faim, elles avaient rongé le parchemin et s´étaient répandues sur mon secrétaire. Cependant, je ne voulus prendre aucun remède, observant seulement attentivement ce qui pouvait me survenir. Je ne remarquai que quelques

pustules livides dans les endroits où j´avais été mordu. Plusieurs heures et plusieurs jours se passèrent sans que j´éprouvasse aucun des symptômes que j´avais observés chez ceux qui avaient été piqués par les araignées qui étaient écloses été qui s´étaient développées à la campagne.

Le nombre de personnes mordues cette année (1787) a été vingt-trois, c´est-à-dire un tiers de plus que l´année d´avant (1786). Quelques-uns furent vus et soignés aussi par mes collèges, et on ne se rappelle plus que des malades soient entrés depuis à l´hôpital pour cause de pareille blessure. Ces insectes se sont tellement multipliés qu´on en voit encore dans les jardins de la ville, et, s´ils viennent à se reproduire encore de la sorte, les habitants de la cité eux-mêmes pourront bien avoir à éprouver les effets de leur venin. Il sera bon de chercher quelque moyen de s´en préserver, si la nature ne nous en délivre pas. Aetius (*De bestiis virus ejaculantibus*, XIII), parlant de la manière dont on peut extirper les bêtes vénéneuses, dit qu´on les fait périr en incendiant les forêts. Incendier les chaumes qui restent à terre après que l´on a moissonné les blés, et au pied desquels les araignées déposent leurs cocons, serait la meilleure tentative que l´on pût faire. On obtiendrait ainsi, sinon leur anéantissement absolu, du moins une diminution très-grande, et ce moyen serait facile à exécuter, en usant des précautions nécessaires pour mettre à l´abri les plantes et les arbres qui se trouveraient dans le voisinage.

La chose est grave et d´un intérêt général, mais il me suffit de l´avoir prouvée, je laisse aux penseurs le soin de réfléchir et d´amener ce projet à bonne fin.

Observations de l´année 1788

Les mois d´été de l´année 1788 furent très-chauds et très-secs, les arachnides y furent très-nombreuses et très-venimeuses, un grand nombre de personnes en éprouvèrent les funestes effets; elles guérirent par la méthode ordinaire et avec un heureux résultat. Je n´ai rien observé cette année qui méritât une mention particulière, je dirai seulement que, outre la prodigieuse multiplication des araignées, on remarquait aussi celle des grillons, comme il en avait été, du reste, l´année avant, 1787; aussi n´est-il pas vrai, comme l´ont avancé les feuilles publiques, que les uns détruisent les autres, mais tous deux se multiplient à l´infini dans le mêmes circonstances.

Observations de l´année 1789

Pendant l´hiver de 1789 on éprouva un froid plus rigoureux qu´aucun de ceux dont la mémoire soit restée. En effet, du 25 décembre 1788 au 9 janvier 1789, mon thermomètre de Réaumur descendit jusqu´à 4 et même 7 degrés au-dessous de zéro. Plusieurs académies en ont recueilli l´observation. Ce froid rigoureux et persévérant détermina la mort d´un très-grand nombre de ces araignées de Volterra. Les grosses araignées furent aussi maltraitées que celles qui étaient encore dans le cocon. Quoique je fusse obligé de garder le lit pendant tout l´hiver, je ne laissai pas de continuer avec soin mes observations. Je me fis apporter divers cocons recueillis à la campagne. En les ouvrants j´y trouvai les petites araignées écloses comme à l´ordinaire, après les quarante jours, et tuées absolument par le froid. Une grande partie de celles que j´avais dans mon secrétaire périrent également. Après une saison aussi rigoureuse, on ne vit plus au printemps apparaître dans la campagne ce nombre prodigieux d´insectes qui s´y offraient ordinairement à la vue, mais on en apercevait à peine quelques-uns. Ensuite, l´été suivant, on n´en vit qu´un très-petit nombre du côté du midi. Je ne sache pas qu´il y ait eu plus de deux personnes qui aient été piquées, et ce n´est pas même à mes soins qu´elles ont été confiées. On voit par là combien la nature est prévoyante pour tout ce qui tient aux intérêts de l´homme, elle a, par un moyen très-simple, presque détruit ces insectes dangereux qui s´étaient multipliés au point que l´on en voyait dans les murs et les maisons; s´il survient encore une saison aussi funeste pour ces arachnides, elles seront réduites à un très-petit nombre. Mais il est bien difficile que leur race disparaisse, car, pouvant se reproduire dans le cours de

plusieurs années à la faveur des saisons, leur apparition s´explique naturellement, quoique quelques naturalistes les regardent comme une nouvelle espèce, tandis que ce n´est qu´une espèce multipliée tout à coup. C´est dans cette erreur que tombèrent ceux qui affirmèrent qu´en 1785 ces arachnides avaient paru pour la première fois dans le campagnes de Volterra."

MALMIGNATTE D´ESPAGNE, PAR LE DOCTEUR GRAELL, DE BARCELONE

Le D[r] *Graëll*, de Barcelone, dans une lettre adressé le 6 mai 1834 à la Société entomologique de France, donne les détails suivants sur les accidents produits en Catalogne par la malmignatte:

"L´apparition d´une araignée dont les morsures ont produit de graves accidents chez quelques habitants d´El campo de Taragona, et par suite desquels plusieurs personnes d´une constitution faible sont mortes, fut signalée pour la première fois, en 1830, par les gens du pays appelé El Plor. Elle attira l´attention de l´Académie royale de médecine et de chirurgie de Barcelone, qui nomma une commission pour examiner les personnes mordues par cette araignée et reconnaître quelle était cette espèce qui causait ces accidents. Malheureusement, ce dernier point fut difficile à vérifier, les paysans s´étaient attachés à détruire toutes les araignées qu´ils rencontraient et ne pouvaient signaler celle malfaisante.

En 1833, ce fléau apparut, pour la deuxième fois, parmi les habitants d´El Vendrell, dans le même district, en produisant les mêmes accidents, et en telle quantité que les paysans n´osaient plus sortir pour se rendre à leurs travaux.

Cependant de graves accidents furent signalés; nommé pour faire partie de la commission chargée d´examiner cet insecte, je reconnus que cette araignée n´était autre que le théridion malmignatte (*Aran.* 13 *guttata* de Fabricius).

J´ai vu, en effet, cette espèce en très-grande abondance dans les terres incultes de Monjui, près Barcelone, jusqu´au château de Fels, principalement sur les côtés de Garaf. Elle n´a pas, dans ces localités, produit les mêmes malheurs que parmi les cultivateurs ci-dessus mentionnées, à cause du peu d´habitants dans ces terres incultes."

Les expériences et les observations nombreuses que nous venons de rapporter nous conduisent à des réflexions importantes.

A. Elles établissent premièrement ce fait, nié par Hecker, que les arachnides peuvent, à certaines époques, se multiplier tout à coup à tel point que leur multitude devient un fléau, comme l´invasion des sauterelles dans les pleines d´Égypte et celle des moucherons du temps des Hèbreux, et, si cette multiplication a pu donner lieu à des épidémies (pour ainsi dire) de *scélotyrbe* dans les campagnes de Volterra, elle a bien pu, dans des temps reculés, donner lieu à des épidémies de *tarentisme* dans les pleines de la Pouille, d´où l´analogie avec le tarentisme nerveux.

B. C´est toujours dans les mois de juin, juillet et août que les accidents offrent le plus de gravité; tous les observateurs sont unanimes sur ce point, soit qu´ils parlent de la tarentule, comme Baglivi et De Renzi, ou qu´il soit question des tarentuloïdes, comme dans le Mémoire du docteur Gazzo, soit qu´on observe des espèces bien différentes, comme la malmignatte de Corse ou l´araignée de Volterra.

C´est qu´à cette époque correspond la canicule, le moment le plus chaud de l´année, et nous verrons bientôt que la chaleur a une grande influence sur l´activité des venins.

Puis, cette époque est aussi celle de l´accouplement des arachnides, et, pour un grand nombre d´animaux, c´est en même temps l´époque où toutes les sécrétions prennent une plus grande énergie.

C. Nous disions naguères que la chaleur ardente favorise la multiplication des araignées et

donne un surcroit d´activité aux venins; des faits nombreux viennent à l´appui de cette opinion, les deux Mémoires italiens cités plus haut nous montrent l´araignée de Volterra se multipliant par phalanges, pendant trois années très-chaudes et leur piqûre causant des accidents sérieux, tandis qu´après une saison rigoureuse tout rentre dans les milites habituelles.

Lamanon rapporte aussi que, dans certaines saisons chaudes, les araignées de nos campagnes peuvent devenir venimeuses; au mois de juin 1772 par un temps très-chaud et très-sec, on vit plusieurs fois, dans le village de Sallon, en Provence, des araignées occasionner par leur morsure de graves symptômes.

Il est inutile de répéter ici ce que nous avons dit de la tarentule, mais c´est un fait parfaitement démontré maintenant que le tarentisme existe, et que les tarentules n´ont le pouvoir de causer tout cet ensemble de phénomènes que pendant les trois mois de la canicule et dans les plaines brûlées par le soleil de la Pouille; transportées ailleurs, ou dans des pays plus froids, leur venin perd en grande partie son action.

Dans les pays du nord les araignées sont beaucoup moins venimeuses; elles ne le seraient pas en Angleterre ni en Suède: toutes ces circonstances nous montrent combien il est difficile d´arriver à la vérité, même par l´observation directe, car bien des observateurs ont pu se faire piquer par la tarentule sans éprouver le tarentisme, par la latrodecte à points rouges sans être atteints de scélotyrbe, et nier ainsi leur existence, parce qu´ils ont expérimenté à des époques défavorables.

D. Enfin, les observations des Docteurs *Marmocchi* et *Toti* offrent un phénomène extrêmement curieux, c´est l´existence chez tous les blessés de cette agitation, convulsive, irrégulière et semi-paralytique des membres qu´ils ont désignée sous le nom de *scélotyrbe*. Ces symptômes sont les analogues des convulsions dansantes que détermine la tarentule, un degré inférieur du mal, ou plutôt une forme différente produite par une espèce différente d´arachnides; cela démontre encore une fois l´importance des distinctions en histoire naturelle et en médecine, et combien l´on arriverait à un résultat faux ou incomplet, en réunissant dans une seule description les accidents produits par les arachnides, sans distinguer les genres et les espèces.

Il est à regretter qu´aucun des auteurs n´ait songé à vérifier l´efficacité de la musique pour combattre ces accidents. Le silence sur ce point semble du moins indiquer que les malades n´en avaient pas un ardent désir. Mais, si ce fait n´a pas été constaté en Italie, il l´a été par le docteur Froment, qui a décrit les accidents produits, près d´Aubagne, par l´araignée 13 guttata et les bons effets obtenus par la musique sur les personnes blessés.

Du reste la guérison s´opère, comme pour la piqûre de la tarentule, par la production de sueurs très-abondantes et critiques.

E. Enfin signalons en passant la similitude qui existe entre le *scélotyrbe* qui résulte de la piqûre de la *latrodecte* et la *chorée* ou danse de Saint-Guy. Dans les deux cas, mouvements involontaires irréguliers, bizarres, avec douleurs dans les jointures, et un état de semi-paralysie; aussi la thérapeutique pourra-t-elle employer avec avantage le venin de cette arachnide pour la guérison de la chorée, surtout quand celle-ci est à l´état aigu.

Mais ici se présente une grave difficulté; il est impossible, dira-t-on, d´administrer les venins à l´intérieur, pour neutraliser soit les effets de leur piqûre, soit pour combattre des maladies ayant des symptômes analogues, car le venin introduit dans l´estomac y est détruit et devient inerte.

Nous allons nous efforcer de détruire ces objections dans le chapitre suivant."

(Dr. Charles Ozanam, Étude sur le venin des arachnides et son emploi en thérapeutique suivie d´une dissertation sur le tarentisme et le tigretier, Paris 1856, Latrodecte Malmignatte, p. 32-52)

1954 - The Health Problem of Arachnidism - Z. Maretic and M. Stanic

"Arachnidism is the name given to the acute poisoning caused by the bite of the venomous spider Latrodectus; in some countries, arachnidism may be caused by other spiders as well. The genus Latrodectus is spread over all the continents, the species Latrodectus tredecimguttatus being found in southern Europe and North Africa. Its black variety, L. erebus, has been described in Spain and Egypt, and in the steppe regions of Southern Russia and Asia, where it is most commonly known under the folk-name "Karakurt" (the black wolf). This black variety has also been noted in Istria, Yugoslavia. According to Sampayo,[20] there are three subspecies of L. tredecimguttatus: L. hasselti in southern and south-eastern Asia, Africa, and Australia; L. menavodi in Madagascar; and L. katipo in New Zealand. The species L. pallidus is found in Asia, and L. hystrix in Arabia in particular. In the Americas, from Canada to Patagonia, the species L. mactans is common. L. geometricus is found in the tropical and subtropical areas of Asia, Africa, and America; L. folliatus in South America; and L. concinnus and L. indistinctus in South Africa.

The bite of all these spiders has approximately the same effect.

Arachnidism has been known since antiquity and has been described by various authors since the Middle Ages. There are, however, signs that arachnidism has recently become more common, both in Yugoslavia and elsewhere.[1] In the summer of 1953, the Latrodectus caused alarm among the population of Italy, appearing in great numbers in the vicinity of Rome. One casualty was recorded in a young and vigorous man, as reported by Bettini and by Biocca (personal communications - 1953). Similar reports appeared in American newspapers, and in 1950 Gajardo-Tobar [6] reported two casualties that occurred in Chile.

The appearance of this spider is periodic; in some years it is found in enormous numbers and may afterwards be missed for years, sometimes for decennia. It is not an aggressive spider, biting only in self-defence when provoked, and its bite may therefore be considered a mere accident and of practical importance only when its numbers multiply excessively and such accidents become frequent. In several regions of Istria, for example, the Latrodectus is present in such numbers that specimens may be collected from almost every square yard.[15]

Almost all our patients were bitten when in the fields, the greater part of them during harvesting and threshing. It is interesting that 18 % were bitten on the same part of the body - namely, on the volar side above the left radiocarpal articulation. That is the site harvesters place on sheaves when binding them.[15]

According to published data, a great number of bites by L. mactans and L. geometricus occur in the home, often in privies where the spider hides under the boards.[2] Bites on the penis are said to be frequent. So far we have seen no accidents of this nature, nor have we seen the Latrodectus in houses. Russian authors have recorded actual epidemics of arachnidism among cattle at the end of the past century and the beginning of this,[23] and accidents among cattle have also been observed in Indonesia.[19] In Istria, we have not seen this at all.[13]

The causative agent of arachnidism in Europe is L. tredecimguttatus. Only the female is venomous. Her body is up to 1.5 cm in length, she is of a velvet-black colour, and may have as many as 17 deep-red spots on her ball-shaped abdomen. The male is much smaller and harmless. According to our observations, the male's bite cannot harm even a white mouse, which is, however, killed by the bite of the female within 10 to 20 minutes.

The Latrodectus nests in wheat, on the brink of ditches under stones, and in bushes, feeding on various insects which are caught in the web. The victim is first wrapped up in a viscous secretion from the web glands, then killed by the bite, and afterwards sucked.

The venom-producing mechanism of the Latrodectus consists of glands and hollow chelicerae

which have both a cranial and a thornlike caudal process. When the spider plunges the chelicerae into the victim's body the venom is pressed out by the musculature in the wall of the gland.

So far as we know, few or no accidents due to the Latrodectus were recorded in Istria before 1948.[12] In the period 1948-53, more than 180 cases were observed in an area with not more than 30,000 inhabitants; most of those occurred in the District of Pula and some in the District of Porec, while sporadic cases were reported from other regions of Istria. It is likely that arachnidism has increased not only in these regions of Istria, where it has been observed in recent years, but also in other regions - though to a far lesser extent.

At the General Hospital at Pula, 124 patients were treated for arachnidism, and one of us (Maretic) made clinical observations during the period 1948-53. If one considers that, according to Bogen & Loomis,[3] only 615 cases had been recorded in the whole of the USA by 1935, it is evident that our cases represent a very considerable number. In Yugoslavia, arachnidism has been seen in Dalmatia,[22] Montenegro,[18] and Macedonia as well as in Istria, although it is less frequent there.

Clinical Features

The poisoning caused by the bite of the Latrodectus has a serious and dramatic course. Bitten persons, although their lives are not generally in danger, suffer great pain and are disabled for a certain time owing to the long convalescence. The syndrome of arachnidism is very characteristic, but those who are faced with it for the first time meet with many difficulties of differential diagnosis. The bite itself is superficial, similar to a slight prick with a needle, and many persons do not even perceive it. Most of our patients had dramatic symptoms of arachnidism without knowing they had been bitten, a fact that increases the difficulties in establishing a diagnosis. The period from the moment of the bite to the appearance of the first symptoms is normally short-generally only 10-20 minutes, although it may extend up to one to two hours. Sometimes a burning is felt at the bitten site immediately after the bite, and this pain is followed by other symptoms. One characteristic symptom is an early pain in the regional lymphatic nodes (axillary or inguinal), where a swelling may often be palpated. Locally, a typical erythema with urtica, local perspiration, and excitation of the arrectores pilorum arises. Usually a reddish-blue ring with very sharp edges appears on the following day; this area is anaesthetic, and an anaesthesia dolorosa may occur.

The **general condition** becomes poor quite early. The patient feels a pressure in the chest, and the pains, which extend to the belly, the lumbar region, and the extremities (particularly the lower ones), gradually increase and become insupportable. The skin over the whole body becomes hyperaesthetic. In serious cases, patients are not able to stand upright, become stiff as if they had lumbago, or walk around heavily and awkwardly like tabetics. At the beginning of the illness, the pains prevail in the belly and the lumbar region, but on the second and third days they are greater in the lower extremities, mostly in the soles of the feet, where a sharp burning is felt. The patients are tachypnoeic and breathe superficially, sometimes stridulously. Loss of weight is also characteristic; some of our patients lost 5 kg within three days. The main symptom in man is the very intense pain, which compels the patient to seek medical help. Our patients described the pain as mostly felt in their muscles and bones, "as if somebody was tearing their flesh with a pair of tongs ". Some of them felt "as if they would burst ", as their flesh distended and swelled. Pavor mortis and restlessness were rather pronounced. In a patient of ours these symptoms occurred suddenly and were so intense that his family wanted to take him to the psychiatric department as they thought he had become mad.[16] Psychotic states were observed in two cases.

The body temperature is normal or slightly above normal, and there may be profuse sweating and sometimes shedding of tears, troubled salivation, rhinitis, and bronchitis. This general

state was observed to a greater or lesser extent in all bitten persons. Excessive salivation or, on the contrary, a dry mouth are frequently seen; one patient of ours excreted about 1,500 ml of saliva in 24 hours. Convulsions, together with the aforesaid restlessness, give a peculiar aspect to this disease. In some patients we saw trismus.

The rigidity of the abdominal musculature, together with disappearance of abdominal reflexes, vomiting, and sometimes more or less localized pains in various parts of the belly, lead on occasion to a wrong diagnosis of the abdominal condition, and cases are to be found in the literature in which a laparotomy was performed.

Increased tendon reflexes are a rather constant symptom.

An increase in the cerebrospinal-fluid pressure was observed in 12 of our patients while we were carrying out lumbar punctures.[12] This increase appeared to be very high when the pressure was measured by a manometer. In one of the patients, who showed premorbid values of 160-170 mm H_20, the pressure increased to 460 mm H_20 in the course of arachnidism.[16]

Changes in the eye. A more or less pronounced conjunctivitis was observed in all our patients; most of them had an oedema of the eyelids, and in some cases changes in the fundus of the eye were observed as well. The hyperaemic oedema of the eyelids, together with conjunctivitis and hyperaemia of the skin in the region of the face and head, gives a characteristic appearance to the patient. Three out of 10 patients who, in 1951, were not treated with either calcium or antivenom showed considerable filling of the veins of the fundus of the eye, but this had completely disappeared when the control visit was made three weeks later. In some cases, mydriasis was observed.

Cardiovascular changes. An increase in blood-pressure was observed in almost all our patients; the systolic increase amounted to 100 mm Hg. According to our observations, this transitory hypertension is of a convergent type. Hypertension was also occasionally noted in the earliest phase of arachnidism, while in some other cases there were signs of slight shock where the blood-pressure even decreased.

At the onset of arachnidism there is some tachycardia, and brady-cardia is frequently noted some hours later. We made electrocardiograms of seven patients, and in one case found changes in the S-T segment with a prolongation of the Q-T interval. These may be explained as signs of changes in the calcium and potassium plasma levels. The control electrocardiogram taken after recovery was quite normal.

Urinary changes. An oliguria and a high specific gravity of urine, usually above 1,040, often with albuminuria, are typical of this illness. In the first days, patients usually secrete 200-300 ml or less of urine, and when other symptoms disappear a normal diuresis sets in. The causes of oliguria may be manifold. It is beyond doubt that a decisive influence is exercised by the great loss of fluid, particularly by sweating and perhaps by salivation as well. Oliguria was also sometimes observed in patients with a full bladder; the effect of the toxin on the vegetative nervous system is probably the cause of this retention of urine, and in our opinion there may also be direct damage to the kidneys.

Chromocystoscopy was carried out on 13 patients; in four of these, a retardation of the colour was observed in the acute phase of poisoning. Albuminuria was very common in our patients. Leucocytes and erythrocytes were usually found in the urine, and in two cases there were also granular casts. These findings always became normal when the other signs of arachnidism had disappeared.

Symptoms of the digestive tract. We often observed that our patients complained of heartburn; however, on analysis of their gastric juice, we never found hyperacidity, but normal, even hypoacid, values. Vomiting was a very frequent symptom.

In some cases, a pronounced increase in the size of the liver occurred, and in two cases a subicterus was observed. Bilirubin was not found in the urine, but there was an increased urobilinogen value. Takata-Ara and formol-gel tests were always found to be negative. The values of the thymol test were often at the upper limit of normal, sometimes increased, and in one case the turbidity was 12. Anorexia and constipation were always part of the clinical picture.

Signs of alarm reaction are rather pronounced in arachnidism at the onset of the intoxication. Clinical signs of shock are sometimes manifest, but usually one notes a change in the blood picture in that there is a rapid fall in the count of eosonophils and lymphocytes, with a neutrophilic leucocytosis, a moderate increase in rest nitrogen, and typical changes in the sugar curve, the metabolism of electrolytes, and haemoconcentration.As regards blood-sugar, a slight hyperglycaemia or hypoglycaemia were found in some cases, and glycosuria in one case.

Blood-sugar changes were studied in animal experiments, as will be shown later. A decrease in sodium and chloride and an increase in phosphates and proteins were observed in the blood plasma. The haematocrit values were increased.

A rash, scarlatinoid, morbilliform, papular, even vesicular - generalized, or localized on the belly, the chest, or in the vicinity of the bitten site - commonly followed by pruritus, was observed in serious cases some days after the bite.

The duration of the illness in untreated persons is one week, sometimes even longer. The convalescence lasts a long time, about one month or even more.

Experimental Investigations and Toxicology

To analyse the symptomatology of the toxic effect of the poison, and for various other reasons, many experiments were performed on rats, mice, cats, guinea-pigs, rabbits, dogs, and cold-blooded animals.

In our experiments carried out to compare the effect of the venoms of L. tredecimguttatus, L. hasselti, and L. mactans, an equal response was shown by all experimental animals. The antivenom against the bite of L. tredecimguttatus also protected white rats against the bite of L. mactans; and a rat immunized against the venom of L. tredecimguttatus was resistant to the bite of L. hasselti as well.

H. L. Keegan, of the Army Medical School in Washington, D.C., to whom we sent our L. tredecimguttatus antivenom, tested it against the venom of L. mactans and L. hasselti and found that it gave full protection to laboratory animals. As we know that spider venoms, and consequently antivenoms, are highly specific, this is biological proof that the venoms of L. tredecimguttatus, L. mactans, and L. hasselti are practically identical.

Experimental animals showed a restlessness similar to that of bitten persons; this was particularly expressed by the jerks and odd attitudes of rats. At a further stage of the intoxication, restlessness was replaced by paralytic symptoms. Animals also lost weight, some bitten rats losing 20% within 24 hours. Hyperaemia of the skin in the region of the head and face could be observed in guinea-pigs, cats, rats, and other animals.

Salivation was most pronounced in kittens, and lacrimation in rats, mice, and guinea-pigs.

The changes in the blood-sugar curve observed in some of our patients were checked on a series of animals which were bled at various intervals after being deliberately exposed to the bite of the spider. One hour after the bite we observed hypoglycaemia and within two hours a slight hyperglycaemia, which reverted to a decrease below normal values at the final stage. Histological analysis of the organs of our animals showed oedema, parenchymal

degeneration, necrosis or nephrosis of the kidney, degenerative liver changes, hyperaemia and oedema of the brain and lungs, and hyperaemia of other organs. In the adrenals and the lymphatic organs the changes typical of an alarm reaction were seen.[14] Ulcers were found on the mucous membranes in the stomach and intestines.

Not all animals are equally sensitive to the venom of the Latrodectus. According to information contained in the literature, the camel is very sensitive,[23] and we ourselves had an opportunity of observing great sensitiveness in the horse, as will be seen later. Of the small laboratory animals the most sensitive is the mouse, which is killed by a single Latrodectus bite within 10-20 minutes. Guinea-pigs weighing 250 g may be killed within one to two hours, and rats of 100 g and kittens of 400-800 g in about 24 hours. Rabbits are fairly resistant, and are killed by several bites only after some days. Dogs are also resistant; none of the four dogs weighing 7-12 kg and bitten by 4-6 spiders was killed. No response was observed in turtles and lizards which had been exposed to large doses of Latrodectus venom.

The venom of the Latrodectus is neurotropic but has a great effect on the whole organism. It is stated that this venom has a toxic effect 15 times greater than that of the rattlesnake. The sites of action are the nervous termina.

According to Vellard,[23] the pH of the venom changes according to temperature. At temperatures above 25° C it becomes alkaline and more toxic, and at lower temperatures acid and less toxic. This is perhaps the reason why bites are most toxic in summer. The venom coagulates at temperatures of 55°-60° C. It is limpid and of a lemon-yellow colour. Its chemical components are not known, but they are thought to be toxalbumins. The venom gland of a Latrodectus contains about 0.3 mg to 0.5 mg of venom. Once injected into the bite this spreads very quickly from the site of the bite by the lymph.

One of us (Maretic) made the following experiment:

In a series of 15 rats bitten in the tarsus by the Latrodectus, the legs were amputated after intervals of from 10 seconds to 10 minutes after the bite. Even those animals whose legs were amputated 15 seconds after the bite showed typical initial signs of restlessness and convulsions. However, in the further course of the illness a full picture of arachnidism developed only in those rats whose legs had been amputated not earlier than five minutes after the bite, i.e., the time necessary for a full absorption of the venom.

Immunology

It has long been known that spider toxins have antigenic properties and that antitoxins can be obtained by immunization of laboratory and bigger animals. That an intoxication with Latrodectus venom gives full immunity is proved by the results of the following experiments:

In the summer of 1951, 11 rats out of a number of 128 which had been exposed to the bite of the Latrodectus survived arachnidism with very marked symptoms and acquired a very solid immunity. After one to two months, they were again exposed to the bite of the Latrodectus, the first animal being bitten by one spider, the second by two, the third by three, and so on. Those animals which had been exposed to the simultaneous bites of 3 spiders did not show any signs of arachnidism, whereas such signs were observed in animals which had been bitten by 4-6 spiders simultaneously; rats which had been exposed to 7-8 simultaneous bites were killed very suddenly.

Rats proved to be very sensitive to Latrodectus venom. Intact rats may live for 24 or 48 hours or even longer after being bitten, but only rarely do they survive; on the other hand, adrenalectomized rats are killed within half an hour. However, the acquired immunity of adrenalectomized rats having previously survived arachnidism was so great that they were protected.

Therapy

Methods of treatment of arachnidism are very old. Even Celsus, in the first century, recommended baths and some local drugs; Avicenna, in the tenth century, recommended opiates and baths.[11] Various methods of treatment have been preserved to our day in the folk-medicine of some peoples. Thus, in Greece, a person bitten by the spider is warmed in a baker's oven; on the Croatian littoral, according to Damin,[4] the patient is swung on stretched ropes; and it is said that in Abyssinia the bitten person has to dance to the point of exhaustion. In past centuries, the so-called "tarentism" was rife in Europe.[10] This was thought to be caused by the bite of the spider Tarantula apuliae, and as a cure the people danced to frenzied melodies in the streets and squares of European cities until they fell to the earth from exhaustion. These melodies have been conserved in the dance "tarantella". In the world of that time, full of superstitions and unclear conceptions, these manifestations were widespread and became a veritable plague for some regions of Germany, Italy, and certain other countries. Some authors are of the opinion that these manifestations had a connexion with chorea, others that they were a form of hysteria. It is obvious that tarentism was in fact a manifestation of mass hysteria, but it is perhaps possible that it was originated by persons bitten by the spider Latrodectus, not by the Tarantula. It would not be surprising that the two were confused, since this occurs even nowadays. In the vicinity of Vodnjan, Istria, we had an opportunity of hearing that both spiders were called "tarantola" by peasants.

As we have seen, a patient bitten by the Latrodectus shows great restlessness; he is impelled to move and to walk, and is convulsed and writhes. We have further seen that in our patients and experimental animals such movements did, up to a point, help them to tolerate their pains. It is easily possible that such movements were the basis of hysterical tarentism.

Many methods have been described in recent literature for the treatment of arachnidism. We have tried some of them. In our experience, morphine, glucosides, aneurin, and some other remedies proved to have no substantial effect.

Procaine

After an intravenous injection of 10 ml of a 0.5 % solution of procaine, we obtained transitory but considerable relief of pain in our patients. Far better results were obtained by local infiltration in cases with localized pains.

Cortisone, hydrocortisone, and ACTH

Seven of our patients were treated with cortisone (cortone acetate), six with hydrocortisone (hydrocortone tablets), and one with ACTH. Experiments were carried out on 18 rats with an equal number of control animals. The bite of the Latrodectus has an effect of great stress on the organism, and some of the symptoms may be considered to be those of an alarm reaction. Some patients were freed of their major symptoms within a few hours,[14] and the greater number of them within 24 hours. Similar positive effects were observed in animals. Rats treated with cortisone lived, on the average, 70 hours after being bitten, and the controls 34 hours. Two of eight rats treated with hydrocortisone survived, while all the controls were killed. In patients treated with these drugs a recurrence of symptoms was frequently seen.

Magnesium sulfate

Doses of from 10 ml to 20 ml of a 10% solution of magnesium sulfate given intravenously are recommended by many authors for the treatment of arachnidism.[5] We made use of this method on four patients. After intravenous injection of the drug, the patients experienced a feeling of warmth and the pains decreased, almost disappearing. A drawback of this method of treatment is that symptoms may recur within 20 minutes or less and the injections should

not be repeated too frequently.

Calcium

The treatment of arachnidism with calcium salts was first recommended by Gilbert & Stewart.[8] In applying this therapy, we obtained results similar to those with magnesium sulfate - namely, an immediate and great relief of pain and disappearance of symptoms after intravenous injection - but to a far greater degree. Here too, recurrence of pain may be observed within 20 minutes or after some hours, but these relapses have a much easier course. It is absolutely necessary to repeat the calcium injections several times. A good effect is also obtained by intramuscular injection of calcium gluconate-recommended by American authors[9] - though this works slower than the intravenous injection. We treated 27 patients in all with calcium salts, and we made use of calcium chlorate, bromate, and gluconate with the same effect. The observations that we made on the changes in calcium metabolism in the serum of our patients speak in favour of treatment with calcium.

Antivenom

In 1901, Kobert [11] recommended immunization with the whole body of L. erebus. In 1903, Scerbina immunized camels, which are very sensitive to the venom of the Karakurt, directly by bites or with extract from the cephalothorax. With their serum he succeeded in curing camels to which thirteen-fold lethal doses had been given. Similar results were obtained by Konstansov in 1904. In 1919, Houssay & Negrette immunized rabbits directly by bite; in 1925, Brazil & Vellard produced antivenoms for various spiders; and in 1928, Troise, availing himself of the procedure of these authors, succeeded in preparing an antitoxin for the venom of L. mactans. In 1936, D'Amour made comparative tests of the value of convalescent sera and an antivenom obtained by an immunization of sheep; the latter showed much greater effect. In 1937, Finlayson prepared antivenoms for the bite of all three kinds. of Latrodectus found in South Africa (L. concinnus, L. indistinctus, and L. geometricus). Up to 3,000 spiders were used by Smith, Dorn & D'Amour, for the immunization of sheep. A specific horse serum against the bite of the Karakurt was prepared by the Russian author Maksiyanovich in 1939. In 1941-42 Houssay, Pirosky & Sampayo of the Bacteriological Institute of the National Department of Hygiene in Buenos Aires, prepared a very good serum by immunizing horses, obtaining a very high titre by purification; 1 ml of the antivenom protects a guinea-pig from 3,000 lethal doses. They used 1,436 cephalothoraces for the immunization, and 820 more for hyperimmunization.[20] With 5 ml of this serum given intramuscularly they obtained excellent therapeutic results. A relief of pain set in after a few minutes, and some hours later the pains completely disappeared. The following day the patients felt well, as was the case with other antivenoms. The treatment of arachnidism by convalescent serum has been tried; Bogen [2] reported varying results, but we saw no results in our patients.

The practical requirements of Istria, where arachnidism has recently become a health problem, led us to try to prepare an antivenom for our spider, L. tredecimguttatus, particularly in view of the inadequacy of the usual symptomatic therapy.

In 1951, one of us (Maretic) immunized rabbits against the venom of the Latrodectus by applying a direct bite. At the end of these tests rabbits weighing from 1,800 g to 2,300 g were able to resist up to 120 simultaneous bites. As little as 0.8 ml of the serum of the rabbit proved sufficient for neutralizing in vitro an emulsion of two pairs of venom glands in I ml of physiological saline, capable of killing a 300-g guinea-pig in 3 ½ hours. This antivenom showed good results in 12 patients of ours. With an intramuscular injection of 8-10 ml the state of the patients improved considerably after some hours, and after 24 hours and even earlier they were practically cured.

In 1952, one of us (Stanic [21]) prepared a specific serum at the Central Institute of Hygiene in

Zagreb, using as antigen the macerated cephalothoraces of spiders. A certain number of spiders being required for studying the action of the Latrodectus venom and for determining the lethal dose and the immunization properties, we had to organize the collection of spiders, which were sent to Zagreb from Pula by parcel post, individually packed in pharmaceutical boxes. The spiders were thus able to live for some weeks during the season. About 350 spiders were despatched to Zagreb in this manner during the summers of 1952 and 1953.

Obtaining the venom by a preparation of the glands or by provoking the spiders being a rather tedious undertaking, we decided to make use of a simpler but satisfactory method. We stunned the spiders with ether and with a pair of fine scissors cut off the front part of the cephalothorax behind the first pair of legs, where the venom glands are situated. The macerate prepared from this was centrifuged in 1 ml of physiological saline. A white mouse injected intravenously with 0.1 ml, or even 0.05 ml, of this clear liquid was killed in a few minutes. We took as one DCL (dosis certe letalis) 0.025 ml, this being able to kill a mouse within half an hour. The macerate of one spider contains 40 DCL at least. In various specimens of the Latrodectus we noted considerable differences of toxicity, probably due to external conditions, and we therefore decided to use as a preliminary definition of one DCL the amount of venom by which a mouse is killed within half an hour after showing evident signs of arachnidism.

A wether with a body weight of about 40 kg was used for immunization. We injected subcutaneously into its throat region the macerate of one cephalothorax in 2 ml of physiological saline. The wether supported the injection without showing any symptoms. The next injection consisted of two macerated cephalothoraces and the wether lay down, refused food, and secreted much saliva. On the third day he recovered. Four days later the wether was given a third injection containing the macerates of three spiders to which he responded with similar symptoms, although somewhat less pronounced. A fourth injection given four days later was tolerated without any symptoms. Later, at intervals of four or five days, we repeatedly injected the macerates of six spiders, bled 20 ml of the wether's blood, and separated the serum by centrifugation. Four DCL were then added to 0.1 ml of serum, and after a neutralization of 20 minutes the mixture was injected intravenously into a mouse. Five minutes later the mouse began to blink, and signs of salivation were noted which, however, soon disappeared; no other symptoms occurred. The same amount of venom mixed with 0.2 ml of serum had no toxic effect on the mouse.

Control mice were given the same quantity of venom with different amounts of the serum of a non-immunized wether; all died before long with typical symptoms of arachnidism. A trial of neutralization of the Latrodectus venom with the antitoxin against the venom of the Vipera ammodvtes yielded no positive results.[21]

Eight days after the last injection of the macerates of six cephalothoraces 500 ml of blood were taken from the wether. We separated 330 ml of serum, added 33 mg of merthiolate, filtered the mixture sterilely through a Seitz filter, and stored ampoules of 5 ml of the filtrate. Immunization carried out with this serum proved that a mouse to which it was given in a dilution of 1: 50, and even 1: 150, was protected against one DCL. With 0.2 ml of this serum we succeeded within one hour in curing mice which had already shown marked symptoms of salivation.

We successfully treated 16 of our patients with this serum; within 10-20 minutes after being given 5 ml intravenously, they showed visible improvement, the symptoms disappeared, and 2-3 hours later they felt quite well. A few hours after that they recovered their appetites and were able to sleep. Similar results had been reported by Gajardo-Tobar.[7] None of our 28 patients treated with either rabbit or sheep serum showed any signs of serum reaction.

We also tried to immunize a horse, but he was unexpectedly killed by a single macerate

within 24 hours. The horse seems to be as sensitive as the camel. Immediately after he had been given an injection in the neck region at 11 a.m., a big local oedema appeared and an increase in body temperature and a tremor were observed. Later these signs disappeared, but during the night symptoms of arachnidism emerged. The following morning the horse was found in a pool of its own saliva and could only forcibly be set on its feet. An immense salivation dominated the clinical picture. The horse was dyspnoeic and refused to take either food or water. When we arrived with the serum we found the animal dying of suffocation. Dissection showed that the voluminous lungs and the trachea were filled with a frothy, white, and haemorrhagic secretion. The histological findings agreed with those found in other animals. Another horse fell seriously ill after administration of only 1/5 of a macerate, but was immediately cured with the antivenom. From that time we abandoned the immunization of horses, which we had approached with a view to obtaining larger quantities of serum. We are now preparing a refined serum by peptic digestion similar to the Argentinian antivenom, the good effects of which have been described by Gajardo-Tobar.

However, the quickest and best therapeutic effect is obtained by a simultaneous application of antivenom and calcium, as has been recommended by Miller.[17] If first calcium, and later antivenom are injected intravenously into a patient showing the most marked symptoms of arachnidism, pains disappear immediately after the calcium injection and do not re-appear since the antivenom begins to act in the meantime. Some local pains may remain but they can be relieved by infiltration with procaine. By this combined treatment with calcium, antivenom, and sometimes procaine infiltration - which proved to be the most effective and by which the patient is practically relieved of his pain within a few minutes - the problem of arachnidism in our country may be considered practically solved.[a]

The Control of Spiders

The control of spiders may be carried out either by mechanical destruction of the spiders themselves and of their cocoons - although in our experience this has proved rather difficult - or by the application of insecticides. We did not apply insecticides in the field, but our experiments proved that DDT was not suitable. Specimens exposed to a very strong concentration of DDT, which cannot be obtained under natural conditions, lived 24 hours and longer. Better results were obtained with Gammexane (gamma-isomer benzene hexachloride), when the Latrodcctus was killed under similar conditions within half an hour. In our opinion, however, the control of spiders by the insecticides known so far appears to be rather problematical and expensive.

Discussion

In this paper we have described the problem of arachnidism in Yugoslavia and the way in which we have approached the solution. In our opinion, arachnidism must have become a problem in other countries as well, since, according to our information, it has been increasing in recent years.

We suggest that there is definite need for an international exchange of experience on arachnidism; this would be desirable and would probably prove very useful."

REFERENCES

1. Bettini, S. (1954) R. C. Ist. sup. Sanita, 17, 333
2. Bogen, E. (1926) Arch. intern. Med. 38, 623
3. Bogen, E. & Loomis, R. N. (1936) Calif. west. Med. 45, 31
4. Damin, N. (1896) Lathrodectes tredecimguttatus, Zagreb
5. Frawley, J. M. & Ginsburg, H. M. (1935) J. Amer. med. Ass. 104, 1790
6. Gajardo-Tobar, R. (1950) Rev. Med. (Valparaiso), 3, 150

7. Gajardo-Tobar, R. & Vildosola, E. (1944) Rev. Soc. argent. Biol. 20, 12
8. Gilbert, E. W. & Stewart, C. M. (1953) Amer. J. med. Sci. 189, 532
9. Greer, W. E. R. (1949) New Engl. J. Med. 240, 5
10. Hecker, J. F. C. (1832) Die Tanzwuth, Berlin
11. Kobert, E. R. (1901) Beitrage zur Kenntnis der Giftspinnen, Stuttgart
12. Maretic, Z. (1951) Acta trop. (Basel), 8, 136
13. Maretic, Z. (1951) Lijecn. Vjesn. 73, 203
14. Maretic, Z. (1953) J. Amer. med. Ass. 152, 609
15. Maretic, Z. (1953) Zdrav. Nov. 7, 150
16. Maretic, Z. & Jelasic, F. (1953) Acta trop. (Basel), 10, 209
17. Miller, D. G. jr. (1949) J. Amer. med. Ass. 139, 1238
18. Ramzin, S. (1947) Vo.-sanit. Pregi. 4, 267
19. Roza, M. & Soedibio, R. (1950) Hemera Zoa, 18, 169
20. Sampayo, R. (1942) Latrodectus mactans y latrodectismo, Buenos Aires
21. Stanic, M. (1953) Acta trop. (Basel), 10, 225
22. Skarica, M. (1949) Lathrodectismus u Dalmaciji. In: Zbornik i kongresa ljejara FNRJ, vol. 3, pp. 168-172
23. Vellard, J. (1936) Le venin des araigne'es, Paris

(Z. Maretic, M.D., General Hospital, Pula, Yugoslavia, M. Stanic, M.D., Central Institute of Hygiene, Zagreb, Yugoslavia, The Health Problem of Arachnidism, Bulletin of World Health Organisation 1954, 11, 1007-1022. Manuscript received in April 1954)

Latrodectus katipo

1870 - On the Katipo, a poisonous Spider of New Zealand - F. W. Wright

"I have presumed to offer for the consideration of the Medical Section of the Auckland Institute the following memorial on the Katipo, a poisonous spider of New Zealand, with a case that occurred in my own practice, believing that the subject deserves a general notice, as it certainly requires colonial investigation at the hands of the medical profession.

In the month of December, 1868, a person of the name of John Huff, living near my residence, came into the surgery complaining that he had been bitten on the shoulder by a spider. He was in the employment of Messrs. Archard and Brown, of Stanley-street, Mechanics' Bay. He was occupied, at the time, in carrying firewood, to supply the furnaces of a brick-kiln; the wood was stacked near the kiln in sedge or coarse grass; this happened between the hours of eleven and twelve o'clock, a.m. At noon he came home to dinner, sat down to table, but upon attempting to eat, found he could not open his mouth, or was scarcely able to articulate, in consequence of stiffness about the jaws. He was alarmed and came into the surgery, when it was difficult to understand what he had to say; all I could learn from him was that he had been bitten by a spider, on the shoulder, in the Bay. Upon examining the spot, I found the surface raised, to an extent as large round as a tea-cup; this elevated surface was white, and was surrounded by a halo of red, not unlike an exaggerated wheal of the nettlerash. He complained of considerable pain in the part, and during the examination became faint, and soon almost pulseless. His pulse was unusually slow, scarcely counting more than twelve or fourteen beats in the minute. His countenance and the general surface of the body assumed a hue of extreme pallor, which gradually turned to a blue tint. His extremities were cold and flaccid; his respiration almost ceased, and indeed I had fears that he was about to expire. Dr. Pinching being in my house at the time, I called for his assistance. He was astonished at the feebleness and prostration of the patient, from such an apparently trifling cause.

From his extreme faintness it was necessary to lay him on the floor, when I applied spirits of ammonia to the wound, which had the effect of lessening the swelling and abating the pain. I also administered ammonia and water, afterwards combined with brandy, in considerable doses; under this treatment his pulse gradually improved, his circulation and respiration became more natural, as was evidenced by his return to a more natural colour. Although a stout strong man, this state of depression remained for upwards of two hours before he was able to return home. In the evening I found him considerably improved, having taken a slight dose of medicine. For several days he could not return to his work, but complained of great lassitude, and nervous depression, which he was sensible of for many days after.

It must be evident from the symptoms of this case, that the man was powerfully affected by a narcotic and irritating poison, which being absorbed into the circulation, affected the heart, brain, and nervous system, to a. very considerable extent, almost amounting to fatal syncope, - that the stimulants, by exciting the heart's action, gradually aroused the excretory functions, so as ultimately to remove the poison from the system; for although suffering under its influence for a considerable time, it does not appear to have left any permanent effects behind it, for the man has since been in perfect health.

In corroboration of the nature of this accident, I append the following very graphic description of the bite of the Katipo, furnished by the Rev. Mr. Chapman, whose long residence as a missionary to the Maori race, in the interior of New Zealand, renders his observations and opinions of peculiar importance.

"In the course of my sojourn in New Zealand, I have had three rather remarkable proofs of the violently poisonous nature of the bite of the Katipo.

"Some twenty years ago a party of natives had taken up a temporary residence at Waihi, near Maketu; their resting place being near the sea-beach. During the period of their morning's meal, a girl was bitten by a Katipo, in the region of the abdomen. She did not seem at first to

suffer much pain, but towards noon, inflammation set in, and some native remedies were used. As these had no effect, her friends decided to convey her to my residence, and they reached my house about one p.m. I discovered, on first seeing her, indications of severe pain; and on examining the wound, found a swelling of the size and shape of the obtuse end of a hen's egg. I immediately rubbed the part with strong ammonia. This had no other effect than of lessening the severity of the pain, but failed in decreasing the swelling. I gave the girl also medicine, which was probably salts and tincture of henbane. After this, I saw her nearly every day, for a fortnight, using such means as appeared to me suitable. She seemed at this stage to be gradually recovering, but suddenly became faint and pallid, lost all desire for food, and though offered whatever my house afforded, would only take a little bread and tea, and sometimes a little wine. She lingered in this way for about six weeks and then died.

"The next case was the son of a trader resident at Maketu; three of his boys went up the river on a ramble and lingered at the Tumu, resting themselves by sitting on the tufts of sedge growing on the sand-hills just above the reach of the tide. These tufts are the principal haunts of the Katipo. While so resting, one. of them was bitten by this insect, on the fleshy part of the thigh, it having crawled unperceived up his trousers. The boys were at this time about two miles from home. They returned immediately, but not thinking the bite of any consequence, delayed applying to me until towards evening, at which time the sufferer became ill, and the place bitten inflamed. I attended him, using the same remedies as in the other case; but he suffered long, wasting, and losing all energy, soon having the appearance of one going into a decline. If I recollect correctly, he was three months before he rallied, and probably another three before he fully recovered.

"The next case occurred to that remarkable man Toke, the chief of Maketu. We were travelling together up the coast from Whakatane, and halting to dine, he seated himself upon a large tuft of sedge. He had not been resting many minutes before he sprang upon his feet, saying, 'I am badly bitten by a Katipo.' He was bitten on the upper part of the thigh. I directed him to lie down; I then dissolved some carbonate of soda in a very small quantity of water, and adding to this some brandy from my flask, I quickly made a crucial incision over the part bitten, and squeezed out forcibly, the blood, and then rubbed in this antacid solution, keeping up this action alternately for some ten minutes, when he said he no longer felt the pain. He remarked on rising, 'Had you not been with me, I should have had a long illness.' Only two or three minutes could have elapsed after the bite, before a spot about the size of the top of the little finger appeared, and of a peculiar white colour, in strong contrast with the dusky shade of Toke's skin. He was very careful to secure all the blood I had forced out of the wound I had made, by absorbing it in a piece of rag torn from his shirt; this relic, now so doubly sacred, he carried into the middle of a swamp close by, and I saw him stamping it down into the ground very violently, to preserve it from possible desecration.

"The natives generally avoid sleeping on the sea-beach, but have no fear of the Katipo half a stone's throw inland of the sea-beach line. I never knew them (of themselves) use any other remedy than rubbing and applying hot, half-scalded leaves to the part, and as soon as convenient taking the bitten one to the priest, to receive the benefit of his incantations, as they then believed in the efficacy of prayers, made to their gods of the hills and valleys."

Here again are the evidences of a narcotic and irritating poison, whose absorption into the system produced more permanent effects upon the body; the elimination of the poison had not been so perfect and rapid as in Huff's case. The strength and tone of the constitution in these individuals was, in all probability, not so powerful, hence the elimination of the poison was not so ready, producing a more permanent influence, in all probability causing a degraded condition of the constitution, a blood-poisoning, that caused subsequent disease. Again, in all these cases the effect of the poison may, in some degree, have been modified by the condition of the insects' poison-bags, the locality and character of the bite, under any circumstances,

however, it is plain that the deleterious effects of the bite of the Katipo, and its poisonous character, has long been recognised and feared by the natives; and in Huff's case was plainly demonstrated. In Toke's case we can but admire the skill and decision of the missionary, who, all alone in a wild and savage land, could have treated the case so actively and with such good effect, - he, in all probability, preventing the absorption of the poison into the system, by the means he employed.

From all the information that I can collect, the Katipo is a small spider of about half an inch to threequarters of an inch in diameter, measuring across the body and legs, according to the authority of Major Heaphy, who having been Surveyor-General of the Colony, has had abundant opportunity to know the insect, and is familiar with its resorts.

The Katipo are said to be of two kinds, - one having a dark-glossy body, with a marked red spot on the back; the other, of about the same size, having a similar round black and shining body, but without the spot.

Mr. Taylor, in his book, "A Leaf of the Natural History of New Zealand," writes thus: "The Katipo - venomous Spider - one kind red, and one black with a red spot upon its back. Their bite appears to be very poisonous, occasioning a violent swelling of the part." Major Heaphy is inclined to believe that Mr. Taylor is mistaken in describing a red Katipo; but agrees with him that the one with the black body and red-vermilion spot upon its back, is the most poisonous.

A difference in the habitat of the Katipo would seem to point to a variety, the one inhabiting the sandy beaches of the sea-shore, taking refuge among the drift wood and roots of sedge or rushes found there, while the other one, with the blank body without the red spot, may be discovered in the garden, or among the rafters of any old building.

Major Heaphy says, "I saw one, with the red-vermilion spot upon its back, at Massacre Bay, near Nelson, in the Middle Island; a native there obtaining it for me, after a few minutes' search, for a small reward. It was found among the roots of the Wiwi, or rush, around some dry driftwood, on the sandy beach. The natives were very careful not to allow it to touch them, they said it would kill them; but on close enquiry they admitted they never knew of a case of the bite ending fatally, although the bite from them was not uncommon. Great suffering, however, they said ensued, the part swelling considerably."

On the original plan of the North Shore, near Auckland, the sea beach nearest the north side of the lake, was indicated, in a marginal note, as very celebrated for the number of Katipo existing there.

The other variety, with the black body without the red spot, is of about the same size as the other, of a dark glossy brown or black colour. This, as well as the preceding, is a very beautifully shaped insect, the abdomen is, as generally seen from above, perfectly spherical, like a "number one" shot, very glossy. The legs are compact, not straggling. It is found amongst dead wood in a garden, and, with a slight web, amongst the rafters of an out-building or loft. The natives have no distinguishing name for either variety, they are both called Katipo, to distinguish them from the Punga-were-were, or common Spider.

I have never heard of a case of bite from one of this kind, but the natives say that they are equally venomous with the spotted variety. I am convinced that the one with the red spot, indicates a. different variety, and is not the result of age or sex, as among hundreds of the black kind I never saw a spotted one.

There is no doubt but that several of the Arachnidae are of a poisonous character, that their mandibles are furnished with a curved claw, perforated at the extremity something like the poison-fang of a. venomous snake, and used for a similar purpose. A gland furnishes a

secretion which is forced through these organs, and is injected into any object that may be wounded by the sharp claw. The fluid which is secreted for the service of the fangs is nearly colourless, and is found to possess most of the properties that exist in the venom of the rattle-snake, or viper.

It is certain that the bite of a. moderate-sized Spider will kill a house-fly in a few seconds. Without believing all the stories that have been told of the Tarantula, it is certain that its bite is poisonous, - that it is of a character similar to that of the Katipo. Dr. Graperon states, that he saw two cases in which the bite of the Tarantula proved fatal in the Crimea, - one in forty-eight hours, the other in six days. The wound, which was inflicted on the patient's neck, was very painful, and had left a. brownish-violet mark; the head, neck, and shoulders were swollen; from the clavicle to the false ribs was of a bluish colour, and respiration became difficult forty-four hours after the injury. Scarifications, the actual cautery, oil externally and internally, and ammonia, were all employed in vain. A comparison of the symptoms in this case with those exhibited by Huff, will surely bear me out in the conclusion, that the poisons are similar, at least in their effect."

(On the Katipo, a poisonous Spider of New Zealand. By F. W. Wright, L.M.B. Toronto, L.M.P. New Zealand. Transactions and Proceedings of the New Zealand Institute, 1869, vol. 2 (1870), p. 81-84. Read before the Medical Section of the Auckland Institute, October 20, 1869.)

1871 - On the Katipo, or Venomous Spider of New Zealand - Walter Buller

"So little appears to be known of the natural history of the Katipo, or Venomous Spider of New Zealand, that I have deemed the following observations on its range and habits of sufficient interest to warrant my placing them before the Society.

The first scientific notice, so far as I am aware, of the existence of a poisonous spider in this country, was furnished by Dr. Ralph, formerly of Wellington, in a communication to the Linnean Society, in 1856. (See *Journal, Proc. Lin. Soc*., Vol. i., Zool., 1856, p. 1-2.) Dr. Ralph's paper contained a short description of the full-grown spider, observations on its nesting habits, and an account of experiments which he had made in order to test the potency of its venom.

The native name, Katipo, signifies "night-stinger," (being derived from two words, *kakati*, to sting, and *po*, the night,) and although more strictly applicable to the venomous spider, is often used to denote a wasp or other stinging insect.

The exact range of this spider - interesting as being the only poisonous vermin in New Zealand - cannot yet be accurately determined; but it appears to be rather local in its distribution, while its habitat is strictly confined to the sand-hills skirting the sea shore. Along the coast from Wainui to Waikanae (on the north side of Cook's Strait), it is excessively abundant. From Waikanae to Horowhenua it is comparatively scarce ; but at the latter place, and for a few miles further north, it is said to be abundant. At Manawatu, and thence along the coast for twenty or thirty miles, it is very rare. At the mouth of the Wanganui River, again, it is very abundant, and a story is still current among the natives of the district about a fishing party, all of whom were bitten by this dreaded spider, and, in two cases, with fatal results. I was assured by Matene Te Whiwhi, of Otaki, that in former times a war party to which he belonged, on camping for the night near the mouth of the Wanganui River, had no less than ten men bitten before morning, some of whom suffered very severely. The Rev. Mr. Stannard informs me that he found the Katipo very plentiful, a few years ago, on the seacoast between Waitotara and Patea. On some parts of the Taranaki coast it is known to be very abundant. It is plentiful near the mouth of the Mokau River, but becomes scarcer as we go further north. It occurs, more or less abundantly, on the shores of the Bay of Plenty, but never beyond the littoral zone of sand dunes. It is also found, but less numerously, on the east coast of the Wellington Province. Major Heaphy obtained a specimen at Massacre Bay, near Nelson, in the South Island.

The notices of the Katipo which have hitherto been published contain many inaccuracies of description. In a very interesting paper communicated to the Auckland Institute, by Dr. Wright (*Transactions*, 1869, p. 81), the sea-shore Katipo is described as having a "dark glossy body with a marked red spot on the back." The Rev. B. Taylor, in his *Leaf of the Natural History of New Zealand*, writes thus : - "The Katipo - venomous spider - one kind red, and one black with a red spot upon its back." Major Heaphy expresses his doubts as to the existence of a red Katipo, as described by Mr. Taylor. (*Transactions*, 1869, p. 83.) Dr. Thompson, in his *Story of New Zealand*, says that there are two poisonous spiders - " the one found in the dry sea sand, having a bright red spot on its dark back, the other, found inland, being of a yellow colour." (p. 30.) According to another account, the inland Katipo has "a round black and shining body but without the spot." In his recent work, *New Zealand and its Inhabitants*, Mr. Taylor describes the Katipo as "a black spider very delicately formed, with a red cross on its back, surrounded with white spots; the female being entirely black." Dr. Hochstetter, who had never actually seen the Katipo, describes it more correctly as "a. small black spider with a red stripe on its back." Dr. Ralph, in the paper already referred to, mentions that this spider presents a very different appearance at different periods of its age, but he does not attempt to describe these progressive changes towards maturity. Having recently, through the kind assistance of Mr. Knocks, of Otaki, obtained a fine collection of live Katipos, in every stage of growth, together with their cocoons or nests, I am enabled to place before the Society a more detailed description of the species than has ever yet appeared.

There is a small extent of sand-hills near Waikanae, on the west coast, noted among the natives for the abundance of Katipo. A settler residing there, named Jenkins, assured me that he could without difficulty "fill a quart measure in less than a day." In 1857, I collected in that locality a considerable number of them, and kept them alive for several weeks in order to study their habits. And I may here mention a. circumstance illustrative of the wonderful tenacity of life possessed by some of the Arachnida. I shut up a. full-grown Katipo in a chemist's chip-box, on the 11th May, and placing it among other objects in my cabinet, it was overlooked and forgotten. I consequently did not open the chip-box again until the 8th October following, when I found the spider alive and active, and apparently none the worse for five months' fasting! As, however, in other instances I have known them perish at the end of a week for want of food, I am inclined to consider the above case corroborative of the Native account, that on the approach of cold weather the Katipo retires to a cell underground, and passes the winter in a torpid state, and that in this condition it may be handled with perfect impunity.

Mr. Taylor, in the published account already noticed, states that "the Katipo does not make any web," but this is a mistake, for on examining its haunts, it will often be found occupying a thick domed web, and on being captured, it may be observed spinning a fine thread of gossamer. This venomous spider may sometimes be found on the leaves of the pouaka, and occasionally in the crevices of drift timber lying high and dry on the sea beach ; but its favourite resort is under the tufts of pingao (*Desmoschoenus spiralis*), which grows in abundance on the sand dunes near the coast. On moving aside the long, overlapping leaves, the white web of the spider may be seen attached to the roots of the plant, and within or around it two or more of the venomous Katipo, the bright stripe on the back contrasting strongly with the black of the other parts.

The Rev. Mr. Chapman records a case in which the bite of this spider proved fatal to a girl who was bitten in the region of the abdomen ; and he mentions another case, of an English lad who was bitten on the fleshy part of the thigh, and " was three months before he rallied, and probably another three before he fully recovered." (See *Transactions*, 1869, p. 82.) The natives on the west coast have assured me that among them, children have frequently died from the effects of the bite. But in the generality of cases, and especially if the usual remedies are

applied, the poisonous effects of the bite pass away in a few days, causing however much pain and lassitude while they last. The natives have several modes of treating a subject recently bitten, the most effectual one being to scarify the part and to bathe the patient in hot water. Another remedy in repute among them is to anoint the part affected with kokowai, or red ochre. This has the effect of reducing the swelling which almost immediately follows the bite, and alleviating the pain ; and if the subject be robust and healthy no further inconvenience is likely to ensue. But if no such remedial measures are adopted, and the bite is neglected, very serious consequences may follow. According to the natives, the common symptoms are an aching pain in the part bitten, which soon becomes much swollen and inflamed ; then a copious sweat, and a feeling of intense languor and depression of spirits. If not checked, this is followed by a convulsive contraction of the limbs, and the case then assumes a dangerous phase.

During my residence at Manawatu, some years ago, the natives brought me word that a woman had been bitten by a Katipo. I at once placed the case in the hands of the Native Medical Officer of the district, Batten Smith, Esq., to whom I am indebted for the following interesting notes :

"April 5, 1863. At 2 p.m. I was called to see a woman named Marara, about fifty years of age, and belonging to the Ngatiwhakatere tribe. It appears that yesterday, about noon, whilst digging potatoes at Wirokino (near the seacoast) she was bitten by a Katipo on the left hip. In a few minutes after, she complained of 'pains all over her,' which were followed in the space of two hours by cold shiverings, lasting only for a few minutes and returning at irregular intervals up to the time of my visit. Her husband had applied hot roasted potato to the seat of pain, though without alleviating it. She has always been a strong and healthy woman. I found the left hip slightly swollen and tender on pressure, but neither any noticeable shining blush nor heat of the skin; the tongue clean all over; pulse through, full and strong, reaching only to 75 ; neither vomiting nor headache, cramps in the muscles of the stomach nor sore throat. Countenance anxious, but not bloated ; pupils of the eyes natural, and not over sensitive to light. Pain great in *both* thighs, but greatest at the immediate seat of the bite, which had the same appearance as the prick of a needle or other fine instrument would produce. No swelling of either legs or feet.

"Treatment : - Solution of nitrate of silver 10 grains to 1 ounce of water, washed over the hip 3 and she was given the following mixture, - Carbonate of ammonia 2 scruples, laudanum 40 drops, chloric anther § drachm, peppermint water to 8 ounces. Two table spoonfuls to be taken every second hour.

"At 9 p.m. the rigors and pain having abated, she was given, - Hyd. Chlor. 3 grains, 3. a, and Hst. Alb. 1 ounce, s. m.

"April 6. Better, but tongue rather yellow. Repeated mixture with an increase of ammonia.

"April 7. Every bad symptom abated.

"April 8. Discharged well."

Dr. Wright, in describing a case within his own practice at Auckland, states that the patient, who was a stout strong man, within an hour after being bitten by a Katipo, on attempting to eat, found that he could not open his mouth, or was scarcely able to articulate in consequence of stiffness about the jaws. The symptoms grew rapidly worse, and the patient became faint and almost pulseless. His extremities were cold and flaccid, his respiration almost ceased, and his two medical attendants had fears that he was about to expire. Spirits of ammonia were applied to the wound, which had the effect of reducing the swelling and abating the pain; ammonia and water, afterwards combined with brandy, were administered in considerable doses. Under this treatment the patient gradually improved, and in two hours was able to return

home, but for several days after was unable to return to his work. Dr. Wright concludes that "from the symptoms of this case, the man was powerfully affected by a narcotic and irritating poison, which being absorbed into the circulation, affected the heart, brain, and nervous system to a very considerable extent, almost amounting to fatal syncope, - that the stimulants, by exciting the heart's action, gradually aroused the excretory functions so as ultimately to remove the poison from the system."

Enough has been said to show that the bite of the Katipo, although seldom fatal, is very painful and distressing. It is important, therefore, that those whose avocations lead them to the seashore, should be able to distinguish it readily from other spiders, and to know its haunts, so as to avoid them. I have satisfied myself that in common with many other venomous creatures, it only exerts its dreaded power as a means of defence, or when greatly irritated; for I have observed that on being touched with the finger, it instantly folds its legs, rolls over on its back, and simulates death, remaining perfectly motionless till further molested, when it attempts to escape, only using its fangs as the dernier resort.

The cocoon, or nest of the Katipo, is perfectly spherical in shape, opaque, yellowish white, and composed of a silky web of very fine texture. The eggs are of the size of mustard seed, perfectly round, and of a transparent purplish red. They are agglutinated together in the form of a ball, and are placed in the centre of the cocoon, the exterior surface of which is sometimes encrusted with sand.

The Katipo undergoes the following changes in its progress towards maturity. In the very young state, it has the body white with two linear series of connected black spots, and an intermediate line of pale red; under parts brown; legs light brown with black joints. In the next stage, the fore part of the body is yellow with two black " eye-spots ;" sides black with transverse marks of yellowish white ; dorsal stripe bright red, commencing higher up than in the adult, and with the edges serrated ; thorax dark brown ; under parts black with an obscure spot of red ; legs yellowish brown, black at their joints. At a more advanced age, the stripe on the back is brighter and is narrowly bordered with yellow, and there are some obscure markings on the sides. In this condition the thorax and legs are nearly black.

Adult Female - Examples differ considerably in size, the body which is almost spherical, varying in development from the size of pigeon shot to that of a small green-pea. In the fully adult condition, this spider is a very handsome one, both in form and colour. In my largest specimens, the outspread legs, measuring across, cover a space of three-quarters of an inch. Thorax and body shining, satiny black. A stripe of bright orange-red passes down the centre of the body, the edges being tinged with yellow. At the anterior extremity, this stripe is broader and angular, and it is surmounted by an open, narrow mark of white in the form of a nail-head. Below this, and immediately above the junction of the thorax there are two divergent spots of orpiment yellow with white edges. Legs black, with the extremities inclining to brown. On the under surface there are two transverse spots of dark red. In some examples there is a dark line down the middle of the bright dorsal stripe, while in others the sides are ornamented with transverse marks of yellowish white. One of the specimens in my collection, more beautiful than the rest, has two triangular spots of yellow above the junction of the thorax, then two letter V marks with their angles joined, succeeded above by two similar but larger marks, their inner arms forming the nail-head which caps the bright dorsal stripe of red.

Adult Male - The male is considerably smaller than the female. Body shining blackish brown, with an obscure narrow line of yellow down the centre of the back, broader towards the posterior extremity, and a similar interrupted line on each side; legs dark brown, with black joints."

(On the Katipo, or Venomous Spider of New Zealand. By Walter Buller, F.L.S., F.G.S., Transactions and Proceedings of the New Zealand Institute, 1870, Vol. 3 (1871), p. 29-34. Read before the Wellington Philosophical Society, November 12, 1870.)

1873 - A Case of Katipo Spider Bite - E. J. Fraser

"Dr. E. J. Fraser, chairman of the standing committee on surgery, presented the following:

September 21st, 1872, a gentleman, while in the San Joaquin Valley, was bitten by a large black spider, on the dorsum of the left foot, about an inch above the junction of the fourth and fifth toes. The pain from the bite aroused him from sleep. The foot felt as though it had been rudely lacerated by some dull instrument. He found however upon examination only a small red spot resembling a flea-bite. Upon searching for the cause, a large black spider was found, resembling in appearance the katipo, or venomous spider of New Zealand, of which species considerable numbers are found in the Valley.

Although no swelling followed, severe shooting, burning pains ran from the bite on the foot up the limb to the back, accompanied by a nervous twitching all over his body. A cold clammy perspiration covered the left lower extremity.

The symptoms seemed to increase till morning, when the perspiration covered both lower limbs, accompanied by the additional symptom of a very severe drawing or crampy sensation in the abdomen. Competent medical and surgical aid could not be had, but his wife took the precaution to give him whisky, which he drank freely and in large quantities. The stimulant seemed to produce but little impression, except a feeling, as he described it, as though the affected side was drunk. Before evening, Sunday, Sept. 22, the pain was felt almost equally in both limbs, and seemed to center about the heel.

He hastened down to this city, and I saw him soon after noon on Monday. The cold sticky perspiration on the limbs and body, the pains in the limbs and heel, the pains in the back and the drawing sensation in the abdomen, together with an anxious expression of countenance, delirium, half smothered by imperfect intoxication, combined to present a pitiable and distressing object indeed. There was however no swelling of the foot where it was bitten. I at once administered *Belladonna* 3x, in aqueous solution, which controlled the darting pains and nervous symptoms admirably. The alcoholic stimulant was continued.

On Wednesday (25th), a bright scarlet papular eruption appeared upon both lower extremities, which stung and burned like fire. *Ars*., *Rhus*, *Ammon*. *carb*., and *Ledum*, were administered, but nothing seemed to be of much service except *Bell*. The pains and nervous symptoms, however, gradually diminished, and as there was no swelling of the foot or limb that was bitten, a safe and rapid recovery was anticipated.

Oct. 1st, the *tenth* day after the accident, the point that was bitten, which had up to this time remained a small purple point, began to swell, turned white like the swelling which follows the sting of a wasp or bee. The swelling was so painful and so rapid, that within three hours the white spot was nearly as large as a twenty-five cent silver coin. The whole dorsum of the foot and ankle became very much swollen, and a red streak was observed running up the leg.

Seeing that there was serious trouble ahead, and that there was no time to be lost, I immediately applied strong *nitric acid* over the elevated white spot to destroy the cuticle. This being thoroughly done, *Sulphate of Zinc* was applied in substance in order to produce an eschar. As soon as the escharotic began to act with energy, the tendency of the swelling to extend up the limb ceased.

In about three days the eschar sloughed, but in removing it, which was covered by adhesive plaster, fully a teaspoonful of straw-colored fluid escaped. In less than five minutes after the removal of the eschar, the cavity filled again with the same kind of fluid. The discharge of fluid being continued the wound was dressed with bread and milk poultices, which readily absorbed it.

The swelling diminished rapidly and all symptoms improved so, that in about ten days he was

able to go to his office.

The wound, however, did not fully heal, but was covered over by a dark red film. November 22nd, two months after he was bitten, I opened it, when several drops of reddish fluid escaped. I then gave *Lachesis*, and there has been no trouble since, and the gentleman seems well.

This, gentlemen, is a plain history of the case, but in reporting it, I have ignored my general rule, to "never report a case." A belief, however, that its features are new and peculiar, and that some valuable information may be drawn from it, is my only apology for presenting it.

The peculiar features are. *First*: The constitutional symptoms produced by the action of the poison upon the nerve centres, and

Second: The severe local symptoms which only began to make their appearance nine days after the accident.

I would say in conclusion that if I had another case of the kind to treat, I would produce an eschar at once, and allow all the poisonous matter that might be secreted there to escape, and then with the local, together with the constitutional treatment, I would expect a quicker successful issue.

Dr. F. Hiller: This case is full of practical interest. *First*, The patient suffered from the bite of the insect. *Second*: From fear of its consequences. *Third*: From the amount of whisky administered.

When Dr. Fraser saw the patient he found him delirious, inflammation had ensued, and many other symptoms demanded the administration of *Belladonna* and other remedies which govern such conditions. It is my opinion that a dose of *Lachesis* instead of the whisky would have arrested the effects of the poison in a very short time, perhaps preventing all the morbid conditions as they appeared the tenth day.

Dr. Esten: Would Dr. Hiller in such case adopt a local treatment?

Dr. Hiller: I have in a great measure abolished local applications. Ammonia is generally considered an effective antidote, and has been used with some success, but it does not prevent blood poisoning.

Dr. Fraser: The view that I take of the case is, that the poison was located at a particular point, and it was from that that the aggravated local symptoms developed after so long a period. Vaccination is somewhat similar in its course. The pustule does not appear, when it works properly, till the ninth or tenth day, but when it does appear it is at the point where the virus was inserted, and nowhere else.

This is uniformly the case, notwithstanding the usual intervening constitutional symptoms. The wound made for the introduction of the virus is always healed thoroughly before the pustule appears, so that the wound at that particular point could not favor the location of the pustule there.

If then, animal virus does really lie under the cuticle for a period of nine days before it produces local symptoms, I see no obstacle in the way of its removal by surgical means. This is why I would in the future apply the escharotic as early as possible.

In the medical treatment in future I would profit by the experience of the past and administer *Lachesis* earlier than I did in that case.

Dr. Griswold: I understood Dr. Fraser to say that the first symptoms immediately following the bite were constitutional symptoms. Now, if that is the case, why would Dr. Fraser or any other physician use an escharotic at that time? My opinion is that the case did not get well from the use of the escharotic. Of course, if the poison was retained right in the point where it

was first received, then escharotics could come into play. But in cases like this, where a rapidly acting agent is taken into the blood, and produces immediate poisoning, I cannot see its utility. I would much sooner expect to see vaccination arrested by an escharotic.

Dr. Hiller: The case came under Dr. Fraser's treatment the second day after the bite. We know that vaccine or any other animal poison is immediately taken up into the circulation and affects the whole system at once. If the specific Homoeopathic remedy could have been administered soon after the introduction of the poison - if *Lachesis* had been given instead of the whiskey, - it would have arrested the effects of the poison at once. There is no other remedy to compare with it. Traumatic gangrene, phlebitis, and even pyaemia are controlled by *Lachesis*. In a recent case, *Lach*. 200 checked gangrene. The lines of demarcation were distinct within twenty - four hours, and the eschar sloughed off within two weeks leaving a healthy granulation. The eschar in the above case acted as a counter-irritant, and produced an exit.

Dr. Griswold: It has passed into a familiar rule, when the poison of any insect or reptile has been received, that the wound should be sucked, or burnt or cut away as soon as possible, and it seems a recognized fact among the profession and the populace that in many cases constitutional symptoms have been prevented thereby.

But after the poison has actually passed from the wound into the mass of the blood, thereby producing constitutional symptoms, how an eschar could cut short the symptoms does not appear. On only one hypothesis can the claim that the eschar was of great advantage be sustained, viz.: that the poison in producing its constitutional symptoms remained where first deposited, and acted, not through the mass of the blood, but by the impressions made upon the nervous system through its contact with and impression upon the nerves around the wound.

Indeed a further reference to the symptoms rehearsed renders this hypothesis possible and even probable.

If it is true that the poison acted by impressing the extremities of the nerves, it is an agent well worthy of further investigating and the use of escharotics in such cases is not to be overlooked, even by those who have remedies as potent as *Lachesis*.

Dr. Davis: Dr. Hering recommends the application of radiating heat near the wound or bite, to be retained there till the patient begins to shiver. For internal medication give *Bufo* when there are red streaks shooting up the extremities and culminating at or in the axillary or inguinal glands.

Dr. Fraser: Gentlemen, I can only say to you that none of you can realize the rapidity and magnitude of the swelling. I never in all my experience saw such rapid swelling. Within the space of three hours after the swelling commenced, the foot was like a puff ball, and the white elevated spot around the bite was as large is a twenty-five cent silver coin. It certainly looked like a very dangerous case, and I saw no hope for my patient's life except in prompt surgical interference. I can assure you that I was delighted to see the beneficial effects produced by the eschar."

(Dr. E. J. Fraser, Spider Bite (Katipo), Annual Meeting of the California Medical Society, April 9th, 1873. The United States Medical Investigator vol. 10 (1873), p. 667-671)

1902 - Characteristics - John H. Clarke

Description. - Latrodectus katipo. N. O. Arachnida. Tincture of living spider.

Clinical. - Chorea. Faintness. Heart, slow. Nettle-rash. Oedema.

Characteristics. - Katipo is a venomous spider found in New Zealand and some parts of California. The symptoms recorded are the effects of bites. The seat of a bite becomes immediately painful and swelling occurs. In some cases the swelling does not come on until some days after the bite. In one case, five days after the bite, a scarlet papulous rash appeared on both extremities, burning like fire. Lassitude, faintness, twitchings, and in one case trismus were noted. The symptoms were somewhat slow in evolution, and in a fatal case, that of a girl bitten on the abdomen, death did not occur until six weeks after the bite.

Relations. - *Compare*: Lat. mact., Tarent., Mygale., Aranea, Apis, Vespa, and serpent poisons.

Symptoms

Mind. - Delirium, half smothered by imperfect intoxication. Nervous depression.

Face. - Anxious expression. Extreme pallor changing to blue tint, of face and body. Jaws stiff very soon, could not open mouth to eat, and could scarcely articulate.

Stomach. - Lost all desire for food (after a fortnight); lingered six weeks and then died.

Abdomen. - Very severe drawing or cramping sensation in abdomen.

Respiratory Organs. - Respiration almost ceased.

Heart. - Almost pulseless. Pulse slow, scarcely more than twelve or fourteen beats to the minute.

Lower Limbs. - Severe shaking, burning pains ran from the bite on the foot up the limbs to back, accompanied by nervous twitching all over body soon pain felt almost equally in both limbs, and seemed to centre about heel. Feet felt as if rudely lacerated by dull instrument, waking him from sleep (immediately).

Generalities. - Suffered long, wasting and losing all energy, some having appearance of one going into a decline; it was three months before he rallied and six before he recovered. Nervous twitching all over body. Suddenly became faint and pallid. Large quantities of whisky produced little impression, except a feeling as though affected side was drunk.

Skin. - Small, red spot like flea-bite. Bitten surface raised, as large round as teacup, the raised part white red halo; with pain; swelling and pain > by spirits of Ammonia. Swelling size and shape of hen's egg; pain > by ammonia, but not the swelling. The bite remained a small purple point for nine days, on the tenth began to swell and turn white like a beesting; pain and swelling rapidly increased, dorsum of foot and ankle like a puff-ball, red streak running up leg. A bright scarlet, papular eruption on both lower limbs, which stung and burned like fire.

Fever. - Extremities cold and flaccid. A cold, clammy sweat covered left lower extremity; in morning sweat covered both limbs.

(John Henry Clarke, M.D., A Dictionary of Practical Materia Medica, vol. 2 (1902), Latrodectus Katipo, p. 252-253)

1931 - Commentary - Herbert A. Roberts

"This venomous spider is found in some parts of California and in New Zealand. The recorded symptoms are those produced by bites. The symptoms are slow in evolution, and in a fatal case which was recorded, the child, who was bitten on the abdomen, did not die until six weeks after the bite.

The bite produces a small raised place like that of a flea-bite, sometimes with intense burning. This swells, sometimes at once and sometimes after the lapse of a few days, as large around as a teacup, white with a red halo. There are severe pains running upward from the bite, as in *Latrodectus mactans*, accompanied with a great deal of burning pain and severe twitching. The face becomes anxious, with extreme pallor, changing to a bluish tint. There is nervous depression and delirium. The jaws become stiff, so the patient cannot eat, nor scarcely articulate. The heart becomes slow in action and the patient is almost pulseless. The appearance of the patient is as of one going into a decline. Those bitten take a long time in recovering; after very long and gradual loss of strength the tide may turn and there will be a long, slow convalescence.

A marked peculiar symptom is the sensation as if the heel were lacerated by a dull instrument; a bruised pain, which awakens him from sleep, and which is an aggravation in sleep.

In these animal poisons we expect to find the anxious expression as a result of heart complications, and the pallor and blue tint extending from the face to the entire body, are of course due to the disorganized blood, which almost always is the first action of these animal poisons.

The stiffness of the jaws is so great that the patient cannot eat, nor scarcely speak. There is a loss of all desire for food; severe cramping and drawing pains in the abdomen.

There are severe burning pains running from the foot and limbs to the back, but centering about the heel. The sensation in his sleep as if his heel were lacerated.

With these symptoms, there is nervous twitching beginning in the limbs and extending over the whole body; severe shaking; lack of energy; sudden faint spells, with pallor; great emaciation and wasting."

(H. A. Roberts, M. D., Derby, Conn., The Spider Poisons. Read before the I. H. A., Bureau of Materia Medica, June 1931. The Homoeopathic Recorder vol. 46 (1931), p. 639-640)

2011 - Clinical experiences - Farokh J. Master

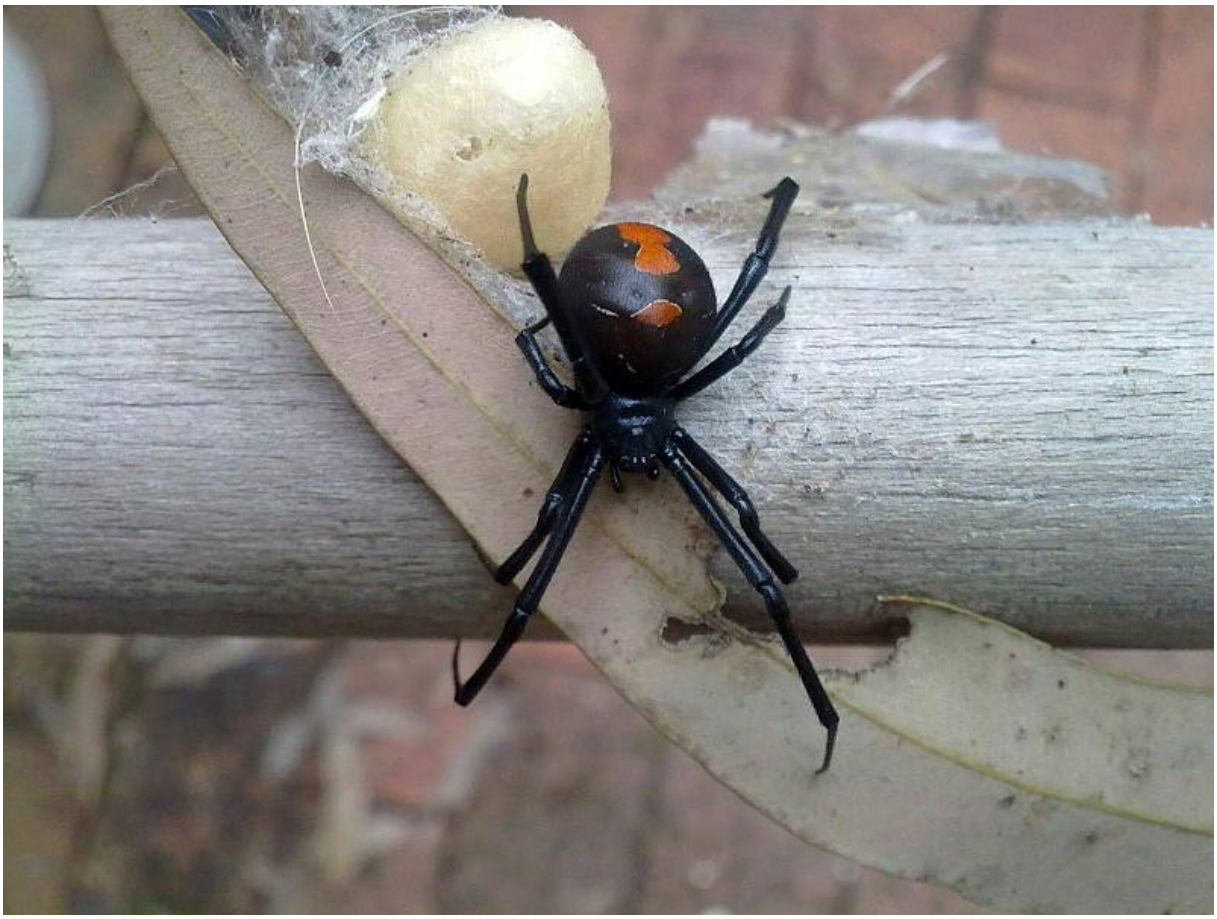
"Let’s go to another variety of Latrodectus and i.e. Latrodectus katipo (New Zealand spider). I never knew much about this venomous spider, but I have read about its effect of its bites and its strong affinity on the skin.

I had a case of pemphigus which I was treating which was responding very well to Sulphur and later on to Calcarea sulphurica but one day he had an acute infection producing massive cellulitis, I gave Arsenic, Cantharis, Anthracinum but without any results. There was a severe burning pain in the body of the patient. The patient was pale, he was anxious, his pulse was weak, there was excessive swelling and oedema of the feet. This kind of burning pain with excessive oedema which did not respond to the indicated remedies, I was searching in Encyclopedia Homoeopathica by putting the important words of the patient: burning, oedema of the feet, inflammation of the lymph vessels, pallor of the skin and cellulitis.

I had never used Latrodectus katipo, it was my first experience, and I started giving every 3 hourly to the patient and within 15 to 20 days the whole cellulitis of the patient with pemphigus was completely dissolved."

(Farokh J. Master, Spider Group, www.drfarokhmaster.com, Editorial for the month of July 2011)

Latrodectus hasselti



2011 - Clinical experiences - Farokh J. Master

"Another Latrodectus which has been useful in my practice is Latrodectus hasselti. This is one spider which is very well proved. I saw in Hungary, an old lady who complained of discharge from the urethra. She had a history of venereal disease during the Second World War which was treated with some drugs which she is not aware of. She also complained of leucorrhoea which was white but sometimes it was bloody. Her sexual desire was quite strong even though she was old and frequently she had to masturbate once in few months to reduce that desire.

She had a big problem with her digestion, whatever she ate turned into gas, and there was lot of rumbling and gurgling in the whole digestive tract with passage of an offensive flatus. The stools were difficult she had to strain a lot. There was constant sense of fullness in the stomach after eating as well as after drinking. Any emotional disorder will directly affect her digestion like Chamomilla or Colocynthis. Because of her stomach problem her appetite was low.

Emotionally she felt very bad and full of guilt because of her venereal disease that she suffered from and that remained for quite a few years of her life.

I treated her with different remedies like Medorrhinum, Mercury solubilis, Staphysagria, Sulphur with no relief. After almost 9 months of failure I restudied the whole case and I asked her few extra questions. She said that she is extremely depressed because of her illness and at

the same time she feels very happy when she sees other people dancing. She said I love to watch folk dance, I myself was a good dancer when I was young but now because of my age I cannot dance but dancing is one thing which I love.

This reminded me of a spider remedy Tarentula or fish remedy like Sepia and a botanical remedy like Ignatia but when I checked the symptoms it never matched Ignatia, Sepia or Tarentula. What I saw was that she had frank symptoms of a very small spider remedy when I repertorised the case with Radar of Latrodectus hasselti.

I never had this remedy so I had to order this remedy from Remedia in Austria, I said you take one dose and report to me after 15 days and if you feel better do not repeat it. After fortnight she informs me that emotionally she felt much better, her digestion is far better than before however the discharges were not so better. I asked her not to repeat and inform me after a month.

She is emotionally feeling better but the physical symptoms are still there. I asked her to repeat one more dose, again the physical symptoms are not better, and emotionally she is still better. After 3 months I gave her one dose of 200C potency of Latrodectus hasselti, this time all her physical symptoms are better along with the emotional problem and she finds relief in almost all the complaints.

The best part to have success in homoeopathy is not to give up but to restudy and restudy. If you find failure in our prescription we should be perseverance and take help of important tools like Encyclopedia Homoeopathica and old journals."

(Farokh J. Master, Spider Group, www.drfarokhmaster.com, Editorial for the month of July 2011)

Bibliographie / Bibliography

••• Bronwyn Marks and Julia Twohig, Latrodectus Hasselti, A Homoeopathic Proving, Australia 1997

•• Julia Twohig, ´Deadly romance´- a homoeopathic proving, Homoeopathic Links vol. 11 (1998), Winter, p. 211-216
[Comprehensive commentary to the author´s provings of Latrodectus hasselti.]