SNAKE VENOMS IN HOMŒOPATHY

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The snake venoms affect the nervous system and the blood. Since they also possess *elective affinities* for several organs, particularly the lungs, liver, spleen, kidneys and heart, the snake venoms should be of therapeutic value in the diseases of many organs and nerves of the human body.

In the common system of medicine, these venoms are used primarily in the preparation of antivenins. Apart from this use, there is almost no other use of the venoms as a curative means. But they are quite frequently used in the treatment of acute and chronic diseases in Homœopathy. Some of the venoms possess such a high clinical record that they are as indispensable in Homœopathy as *Aconite* or *Bryonia.*

The most important venom in Homœopathy is that of the bushmaster (*Lachesis mutus*), which lives in the warm and humid climate of Central and Tropical South America, particularly Costa Rica, Panama, Nicaragua and Brazil. Since Hering *proved* the venom of this snake, it has cured many diseases, especially those of the blood and heart. It is a valuable drug in female diseases, particularly those of the climacteric period, characterized by hot flushes and hot perspiration. Because its characteristic symptoms, such as a great loquacity, unusual sensitivity to touch, aggravation of all symptoms after sleep, etc., are so common, this drug (*Lachesis*) has proved invaluable in the treatment of mania, tonsillitis, pharyngitis, diphtheria, angina pectoris and other diseases.

The venom of the North American rattlesnake (*Crotalus horridus*) comes next in importance to a homœopath. Although used less frequently, it is a very valuable drug in the treatment of a hemorrhagic diathesis. In acute diseases, when means are exhausted to curb a bleeding from any orifice of the body, say, the nose, this venom may serve to prevent the death of the patient.

Other venoms infrequently used in Homœopathy are those

of the Cobra (*Naja tripudians*), the Common Viper (*Vipera berus*), the Coral Snake (*Elaps corallinus*), and the Yellow Viper (*Bothrops lanciolatus*). However, the total number of venoms used in all the systems of medicine is considerably smaller than the number of venoms known, or available. There are in the world about 2,000, or more, species of snakes, of which about 300 species are poisonous to man. So far, only about a dozen venoms of the land-snakes find their way into medicine. But there are several species of sea-snakes whose venoms are still uninvestigated in therapeutics. These snakes swarm the Indian Ocean ; but they are also common throughout the tropical zone of the China Sea and the Pacific. The sea-snakes are related to the cobras ; and the physiological action of their venom is similar to that of cobra venom. Most of these snakes are poisonous ; and some are believed to be more poisonous than the cobra.

About 25,000 to 35,000 persons die annually of snake-bites in the world. In India alone, the number of persons killed each year is about 20,000. The loss of domestic animals is also quite heavy. But it is surprising that, in spite of this high death-rate, the literature is either meager or wanting in descriptions of the physiological symptoms in snake-bite victims. Unless these symptoms are carefully studied, the venoms cannot be utilized in Homœopathy with maximum efficiency ; for Homœopathy's success depends upon the knowledge of all the symptoms, particularly the unusual ones. Evidently, these studies deserve more attention in India and Brazil, where snake-bites number largest in the world. Incidentally, these are also the countries where Homœopathy finds a large practice.

The ordinary physiological symptoms of the venoms are not a reliable guide for homœopathic medication. While they may establish the *elective affinities* of a certain venom, a considerable difference may exist between the physiological symptoms and a *proving*. For example, in a cobra-bite victim, the most prominent symptom is profuse salivation. But this symptom is not stressed, or reported, in a *proving*. On the other hand, a *proving* indicates a strong *elective affinity* of the cobra venom for the heart (*cf.* Boger, C. M., *A Synoptic Key of the*

Materia Medica); but the ordinary physiological symptoms indicate, rather, a strong *elective affinity* for the lungs. Thus, for example, when a person dies of a cobra-bite, under artificial respiration, the heart is observed to beat usually for hours after the lungs have stopped. Again, a *proving* of the cobra venom indicates a sensation as if some distant organs, like the heart and an ovary, were drawn together. This sensation, which forms a keynote of *Naja,* has not been observed in the physiological symptoms of a cobra-bite victim. Although some of these differences may arise from incomplete studies of the physiological and *proved* symptoms, real differences are likely to exist, particularly with the venoms of the Colubridae snakes, for example, the cobra. These differences arise from the fact that the methods of administration of the venom in the two cases are different. This suggests indirectly that before administration of a venom, it must be *proved* carefully. Fortunately, many venoms are now available commercially. Since, however, all the venoms do not lead to the same *proving*—nor all of them can be of use in Homœopathy—considerations should be given on the right venom before a *proving.*

The toxicity of the venoms varies from species to species. Even with a singie specimen, the toxicity will change from season to season, and from month to month. It is most poisonous during the summer, and least poisonous during the winter. The toxicity is less also during the molting period, when the snake starves himself. Therefore, in reporting a *proving,* details should be given on the source of the venom, the size of the snake, the date of procuring the venom, and the potency or concentration of the drug.

Snake venoms are aqueous solutions of proteins, mixed with mucus and epithelial debris. Fatty matters and some salts, like the chlorides and phosphates of ammonium, calcium and magnesium, are also found in the venoms. Chemically, they resemble the ptomaine bodies ; but physiologically most venoms contain : (1) *hemotoxin,* which damages the blood vessels and extravasates blood into the tissues ; (2) *neurotoxin,* which paralyzes the nerve centers, particularly the respiratory center of the medulla ; (3) *anti-coagulant,* which prevents the coagula-

tion of the blood and predisposes to hemorrhage ; (4) *hemolysin,* which dissolves the red blood corpuscles ; (5) *agglutinin,* which effects agglutination of both the red and the white blood corpuscles ; and (6) other components not yet established conclusively. However, a venom may be either predominantly hemotoxic or predominantly neurotoxic. Usually, the hemotoxic property is exhibited by the venoms of the Viperidae snakes, such as the bushmaster, rattle-snake, viper, etc. When these snakes bite a person, marked local symptoms, such as, swelling, ecchymosis, hemorrhage and pain, appear at the site of the wound. The mouth and throat of the person dry up ; and he feels intensely thirsty. Sometimes hemorrhages occur through the eyes, nose, mouth, stomach, intestine or bladder. There may be also convulsions and violent delirium. These are followed by a loss of consciousness, and coma. The victim dies after a long period of time, which may be 24 hours or more. Asphyxia always precedes the death, thus indicating that the final effect of the venom is on the bulbar nuclei of the pneumogastric nerve. As in the cobra-bite accidents, the heart may sometime continue to beat for a few minutes after the lungs have stopped. If an autopsy is performed immediately after the death, the blood is always found in a coagulated mass in all the vessels. Only after six or eight hours does it become liquid again, although of a darker color. If the victim escapes death, the recovery is slow, because the venom poisons the blood, or it may affect also some internal organ. In some cases, health may be impaired for months or even years.

Contrary to the hemotoxic effects of the Viperidae-bites, the venoms of the Colubridae snakes are predominantly neurotoxic. For example, when the cobra bites a person, the usual symptoms of the Viperidae-bites, such as the swelling, hemorrhage, pain, etc., are lacking. Worse still, the wound is invisible to the naked eyes. Within a few minutes the victim is paralyzed from the feet to the eyelids, larynx, tongue, jaws and other muscles in the upper part of the body. Caused by this paralysis, the lower jaw hangs down ; and profuse saliva trickles down the lip. The person can neither talk, nor drink any liquid ; but his sensory nerves appear to remain unmolested.

After sometime, the respiratory functions fail rapidly, and the person dies within about an hour. But if he can withstand the nervous ordeal, a complete recovery takes place in a few days.

Administered orally, the snake venoms may act quite differently. Some investigators believe that any snake venom is harmless when taken orally. As a first aid measure, they even advise oral suction of a snake-bite wound. However, other investigators believe that the venoms can be swallowed with impunity only when they come from the Colubridae family. In their opinion, it is dangerous to swallow the venoms of the Viperidae snakes. They point out that animals may be killed by feeding large doses of, say the *Lachesis* venom. The action may be so rapid that the animal may die of a gastro-intestinal hemorrhage even before the nervous symptoms have time to appear. If this is true also with the human being, some explanation appears probable as to why the clinical records of *Naja* differ from those of *Lachesis* or *Crotalus*. *Naja* comes from the Colubridae family, and *Lachesis* and *Crotalus* from the Viperidae family. However, this does not appear to be the whole story ; because, if the *provings* were right and there were *simillima* in both cases, it is difficult to see why the clinical records of *Naja* and *Lachesis* should not be comparative. Assuming that the *provings* were accurate and there were good *simillima,* the therapeutical results would suggest a better clinical success with the Viperidae- than with the Colubridae-venoms. This may not be generally true ; for it has been known that the venoms of the Colubridae snakes dialyze through vegetable and animal membranes, whereas no dialysis takes place with the Viperidae venoms. If the mechanism of osmosis through the mucous membrane of a living human being is the same as that through an animal membrane, the venoms of the Colubridae, and not of the Viperidae, should prove toxic on swallowing.

In order to be effective, any homœopathic drug must produce symptoms on swallowing in large quantities. The greater the number of symptoms—particularly the unusual ones—the greater its utility. Therefore, if the ingestion of the Colubridae venoms fails to develop enough characteristic symptoms, much

use cannot be expected of these venoms in Homœopathy. On the other hand, these venoms show an *elective affinity* for the nervous system, which is rarely exhibited by other substances. Since considerations of *elective affinities* are of utmost importance in repertorization, these venoms are expected to serve well in the treatment of nervous diseases. Evidently, a better success is unlikely as long as the administration of the venoms is made orally. It must be so changed as to develop a larger number of symptoms in a *proving*. Such a method may be the hypodermic injection, as practised in Allopathy. However, Allopathy uses this method without any guiding principle. Should the homœopathic principle apply also to the hypodermic method of administration, a reliable "proving" of the venoms will be available in the snake-bite victims. A new method of administration of a drug will not be against the homœopathic principle, since Homœopathy is based upon the similarity of symptoms. The crux of Homœopathy is to *prove* a drug under a certain method of administration, and then to administer the drug under the same method of administration. In other words, to ensure the best results, the conditions of experimentation and application must be identical. Evidently, a *simillimum* is obtainable with other methods of administration; but the best method acceptable of Homœopathy is the one that gives the largest number of characteristic symptoms. As discussed already, the introduction of the Colubridae venoms under the skin develops several characteristic symptoms; but many of them fail to appear under the oral method. Therefore, these venoms can serve better by the administration of the venoms with the former method. The fact that some method of administration may, or may not, be used by other systems of medicine, should not affect Homœopathy's independent decision. Homœopathy, for example, cannot discard the oral method of administration simply because it has been used for ages in all systems of medicine, including quackery and witch-healing. Anything that selects a drug on the homœopathic principle, and cures a disease gently and without any side-effect belongs to Homœopathy. However, whether a drug administered hypodermically under the homœopathic principle will cure a disease is not known as yet. If it does,

Homœopathy will have one of its greatest victories; for this will establish the soundness of the homœopathic principle on a wider basis. However, it is very interesting to note that proposals have been made in Allopathy for treating poliomyelitis with injections of the cobra venom. There exists a similarity between the paralyses of polio and of the cobra-bite; but the *simillimum* is not very satisfactory. Since some cases of polio have been benefitted by injections of the cobra venom, it can be concluded that, like the oral method of administration, hypodermic injections will cure diseases effectively on the homœopathic principle.

Because the snake venoms differ in properties from many other substances used in the homœopathic materia medica, special cares are involved in the preparation and preservation of drugs from the former. When fresh, a venom is yellowish in color, faintly aromatic in odor, and acidic to litmus. It contains about 65 to 80 per cent of water, and the specific gravity varies from about 1.030 to 1.058. If left exposed to the atmosphere, the venom develops a foul smell, and hordes of microbes move about actively in it. If, however, the venom is dried in *vacuo*, it is transformed into a pulverizable yellow solid, resembling gum arabic. In this form, the venom can be preserved almost indefinitely; that is, if this dried venom is treated with water at any time, it readily goes into solution, and the latter shows the toxicity of the original venom. If, however, a fresh sample of the venom is treated with absolute alcohol, the toxic constituents are precipitated out. On separating this precipitate and treating with water, the solution is again found to be almost as toxic as the original venom. These results suggest that absolute alcohol is an unsatisfactory medium for the preparation of drugs from these venoms. But it is also undesirable to prepare these drugs with water, since aqueous solutions of the venoms deteriorate rapidly. A rapid deterioration is likely also in a low potency drug prepared with ethly alcohol as normally recommended in the Homœopathic Pharmacopœia. Furthermore, there is a possibility of developing microbes in these low potency drugs, unless, of course, the alcoholic constituent of the drugs inhibits their culture. A medium of glycerine may preserve

the drugs longer, since this syrupy liquid is an excellent preservative of the venoms.

All the snake venoms are sensitive to a high temperature. The effect of temperature is least with the Coluberidae venoms and greatest with the Viperidae venoms. The cobra venom can be heated to 100° C, or boiled for a short time, without destroying its toxicity; but it is destroyed at 120° C, or on prolonged boiling. Generally, the venoms of the Viperidae snakes are destroyed around 70° C. For example, the *Lachesis* venom is destroyed beyond a temperature of 65° C. Low temperatures do not affect the toxicity of the snake venoms.

At present, no attention is paid to the effect of light on homœopathic drugs made of the snake venoms. However, light has a very marked effect on the venoms. Therefore, because of exposures to light and air, these drugs are unlikely to preserve their efficacies for more than a few weeks after their preparation, particularly at low potencies. When a clinical failure is observed with these drugs in spite of a good *simillimum,* suspicion should be aroused as to the quality, rather than the ability, of the drugs.

The rapid deterioration of an aqueous or alcoholic solution of the venoms raises the problem of preservation and long-distance transportation of these drugs. This problem can be solved by preparing the drugs in triturations. Since light has no effect on dried venom, the efficacies of these drugs may be preserved almost indefinitely by sealing them in tubes of ordinary glass.

The triturated venoms may also be preserved in a desiccator. If stored in a cool place inside a desiccator of colored glass, the drugs should keep their efficacies for several months, if not years. But the desiccant must be selected carefully, because compounds like anhydrous calcium chloride will be inefficient. Concentrated sulfuric acid may serve as an efficient desiccant for some time; but on aging there will be danger of contaminating the drug with sulfur dioxide produced by the decomposition of sulfuric acid. For the preservation of the homœopathic drugs, the best desiccant appears to be anhydrous magnesium perchlorate, which is sold in the market under the name of "anhydrone."

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Penicillinum alone failed to cure some of them. In such lingering cases Merc. sol. served as a finisher in my hands. Other remedies also may be necessary but I had no need of them uptil now. I also cured many cases of scabies with Penicillinum.

Some of the cases mentioned above might have been cured more speedily with Penicillinum in higher potencies but as reported earlier I could not obtain the same at that time in spite of my best efforts. Not a single case under Penicillinum terminated fatally.

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Although the lethal dose of a snake venom for a human being is still unknown, homœopathic medication cannot lead to any fatal accident. It is known that the venoms of the Coluvridae snakes can be swallowed in large quantities without any ill effect. But, because authorities differ, it is safer to avoid drop-doses of a 1x potency drug made from a Viperidae venom. If the potency is 3x, or higher, there cannot be any chance of toxic effects from any of the snake venoms. It is believed that a fatal accident can happen in an adult person if about 15 milligrams of the cobra venom are administered hypodermically. Most of the other venoms are less toxic than the cobra venom. Furthermore, to effect a fatal result, the quantity of venom ingested is much larger than the lethal dose injected under the skin. Therefore, assuming that 15 milligrams of any snake venom can be fatal to a person on ingestion, it will take about 300 drops of a venom at 3x potency to cause this result. This is a remote possibility in the homœopathic system of medication.

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