

## SOME INSECTS AND REPTILES ON THE BORDER

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When the national guard of the northern states reached the Mexican border on and about the first part of July, the natural and climatic conditions encountered were entirely new and unusual to men unaccustomed to that type of outdoor life. In the section called the "Magic Valley," embracing the towns of McAllen, Mission City and Pharr, where the New York guard was stationed, the country is arid and one of the most barren regions of the south. Cactus, mesquite and sage, with Spanish bayonets and daggers scattered here and there, comprised the only growth that flourished. Vegetation and grass were so sparse, more especially in the dry weather, that animals required an extensive area for grazing. One of the interesting features was the variety of insects and reptiles injurious or poisonous to man. During the earlier days, there were many tales told of the "deadly" rattlesnakes, centipedes, tarantulas, spiders and others that had never been heard of before and never will again. In the course of a six months' stay in that region, a small amount of practical and personal knowledge of the subject was gleaned.

Most bites and wounds were received during the earlier months of July and August, owing possibly to the site of encampment on ground that was infested with insects, the fact that those months were very hot and animals seemed to

ing, stinging sensation. The earlier bites were treated with iodine, but later more instant relief was obtained from the use of equal parts of spirit of ammonia and water applied as a wet dressing. No constitutional effects were seen.

Centipedes (*Chilopoda*), of the group *Myriapoda*, were not so numerous. The largest, seen in the possession of a Texan, was 6 inches long. Each of its many segments has a pair of legs, and the poison comes from a large pair of jaws under the head, which is developed from the second pair of legs. Two bites were seen and quickly incised and drained and a wet mercuric chlorid dressing applied. No constitutional symptoms resulted.

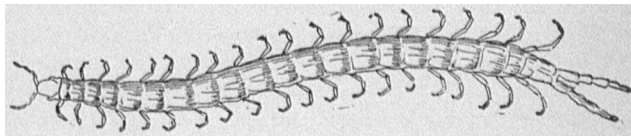


Fig. 3.—Centipede.

The Texas rattlesnake (*Crotalus atrox*) and the diamond rattlesnake (*Crotalus adamanteus*) are so similar that the term "Diamond-backed" is commonly applied to rattlesnakes in Texas. It seems to be questionable whether or not they belong to separate classes, though the shapes of their heads differ and the Texas rattlesnake is not so good a swimmer as the diamond rattlesnake. The latter lives in the southeastern part of this country, from Florida north to the Carolinas and west to the Mississippi Valley. The Texas rattlesnake occurs in the arid portion of Texas, parts of southern New Mexico, Arizona and northern Mexico. They are frequently seen in cactus fields; the largest was 7½ feet in length with fourteen rattles, and its skin is now in the possession of Capt. Louis Kuntz of the Second New York Field Artillery. The rattles end in a cone-shaped cup or button. The snake's projectile range is about one third of its length, and its striking range about one half its length, accompanied by a forward thrust of the head and neck. It is possessed of movable fangs at the anterior end of the upper jaw which are erected coincidentally with the forward thrust. Pressure by the muscular apparatus of the jaw causes an expulsion of venom from the poison sac along the unsheathed fangs and into the wounds. As the fangs points frequently diverge, it is a combination bite and blow, the wounds usually being larger than similar incisions from curved needles. The wounds are about five-eighths inch apart and from one-half to three-quarters inch in depth, accompanied by a small amount of bleeding.

Six cases of rattlesnake bites came to my attention, varying in severity, the most severe occurring in a "guard" who had captured the snake with a forked stick, and insisted on picking it up with his bare fingers. He received a bite on the middle finger of the left hand, the fangs penetrating to the bone, and was seen about five minutes after the occurrence.

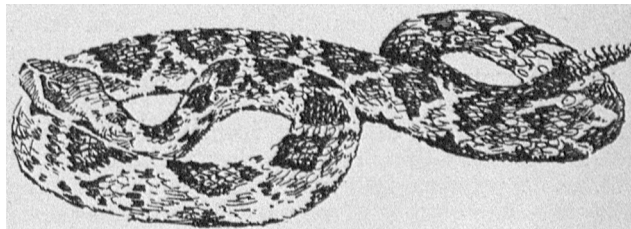


Fig. 4.—Texas rattlesnake.

The finger was swollen, the fang marks plainly visible, with a little dark red blood oozing from the two openings. A tourniquet was applied over the upper arm, and two incisions about 1½ inches long made over each fang point, which allowed about 2 ounces of dark red blood to flow. Five per cent. tincture of iodine was painted in the wounds, and the fingers, forearm, and arm bandaged with a mercuric chlorid wet dressing. The tourniquet was loosened and tightened every twenty minutes for two hours. The entire arm up to the tourniquet became swollen about one and a half times its normal size with a bluish-red discoloration, somewhat painful, and causing considerable anxiety to the patient, but no

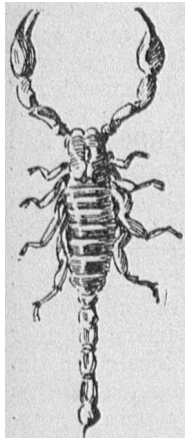


Fig. 1.—Scorpion.

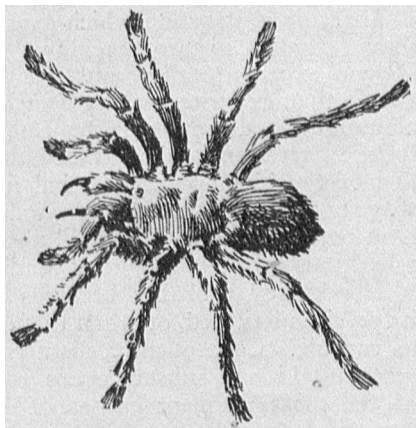


Fig. 2.—Tarantula.

be more predatory, and because of the limited protection at that time. The number of bites received depended more on the location than on the mobility of the unit. If a camp was made in the midst of a cactus-mesquite-sage field, the bites were more numerous than on a plain. More men suffered from insect wounds and snake bites for a given period of time at our base camp on the outskirts of McAllen, than for the same period of time on the plains of Palo Alto.

Red ant bites were numerous, and when a person was bitten in a number of different places an annoying irritation and smarting sensation was produced. Tincture of iodine painted over the area relieved the condition in a few minutes.

Scorpions (*Scorpionidea*), of the *Arachnida* group, caused many troublesome bites. Scorpions vary in length from 1 to 4 inches, and are composed of a cephalothorax united to the abdomen by a broad base, the body elongated and plainly segmented and narrowing to a tail containing a vesicle with a sting. Two palpi emerge from the cephalothorax, one on each side, and end in two pairs of claws. They have about eight eyes and the same number of legs. A small white area resulted from the bite which required, as a rule, several applications of tincture of iodine.

Of the many varieties of spider bites, the most severe was that caused by the tarantula (*Theraphosidae*), of the *Arachnida* group. These vary in length from 1 to 5 inches, with the body and legs covered with long, black hair, and are slow in moving but quick to strike. They produced white, raised, swollen areas, about an inch in diameter with a smart-

constitutional symptoms. Repeated mercuric chlorid applications were made, and strychnin sulphate, one-thirtieth grain, given by mouth and repeated in half an hour. Aside from slight stiffness in the bitten finger, the patient made an uninterrupted recovery.

In five other cases, from five to twenty minutes elapsed between the time of the rattlesnake bites and the time they were treated, and all the patients recovered without any serious manifestations.

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## Therapeutics

### DISTURBANCES OF THE KIDNEYS

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#### HYDRONEPHROSIS

This condition—a dilatation of the renal pelvis—can occur only as the result of some obstruction in the ureter. Such an obstruction may be due to an impacted calculus, a coagulum of blood, congealed pus, some tumor growth pressing on the ureter, a twist of the ureter caused by looseness of the kidney, or to long continued distention of the bladder. An obstructed ureter will rarely be found as a congenital condition. The longer such a dilatation of the pelvis of the kidney continues, or the more frequently such a condition occurs, the greater the injury to the kidney structure. Frequently, if the pressure of urine in the kidney becomes sufficiently great, it will either straighten a twisted ureter or dilate the ureter around an obstruction, and the kidney will empty itself into the bladder. If the calculus or other obstructive substance plugs the orifice of the ureter and is soon displaced, dilatation of the pelvis may not occur and such plugging may not recur although the calculus may still remain in the pelvis of the kidney. Any sudden obstruction or a twist of the ureter does not always lead to dilatation of the kidney pelvis, as the associated kidney congestion and a diminution of the excretion of urine sometimes prevents this. Repeated obstruction, however, will generally cause a hydronephrosis.

Anything that causes prolonged distention of the bladder, whether due to an enlarged prostate or to some urethral obstruction, may cause a hydronephrosis of one or both kidneys. A readily movable kidney may have a more or less dilated pelvis, even when Dietl's crises do not occur, although in this condition alone real hydronephrosis does not often occur. A gradual dilatation of the pelvis of the kidney may cause an abdominal discomfort from the weight and pressure on the adjacent organs, but perhaps no real pain. The polyuria following a Dietl's crisis is due not only to the outflow of retained urine in the pelvis of the kidney, but also to an increased secretion from the irritated kidney.

Hemorrhage into the pelvis may cause its dilation and a subsequent distention from plugging of the ureter. Such blood may come from a tumor, or from varices in the pelvis or calices of the kidney.

When the flow of urine is suddenly obstructed, shock may occur, as in renal colic, and the temperature may rise, as it usually does when the obstruction is caused by a plug of pus from a pyelitis or from a coagulum from a bleeding kidney. The more serious the cause of the obstruction, the more frequent become the attacks of acute hydronephrosis, pain, etc.

Urinary signs ordinarily do not occur when external pressure or a twisted ureter is the cause. If there are renal calculi, if the kidney is bleeding, or if there is pyelitis, the urine will show blood, or pus, or both.

There may be no absolute obstruction to the flow of urine, and yet the conditions may cause sufficient damming back to produce a dilated pelvis. This condition is discovered by cystoscopy, the passage of the ureteral catheter and by ascertaining how much fluid the pelvis will contain. Long continued irritation of a ureter may cause sufficient narrowing to prevent the passage of a ureteral catheter; or a constricted ureter may be congenital.

The sensation of pain when fluid is injected into the pelvis of the kidney will indicate when the pelvis is full. Although there is a difference of opinion as to the amount of liquid a normal pelvis should contain, it is probable that anything over an ounce (30 c.c.) should be considered abnormal.

While a large hydronephrosis may ordinarily be diagnosed by physical signs and symptoms, pyelography, the injection into the pelvis of the kidney of a solution that will give definite roentgenographic pictures, will positively determine the size of a kidney pelvis, and the relationship of an abdominal tumor to the kidney.

That any obstruction which causes a hydronephrosis may seriously impair the kidney structure has been shown experimentally, and Keith and Snowden<sup>119</sup> found that experimental hydronephrosis soon caused albuminuria, decreased phenolsulphonaphthalein and lactose excretion, and increased the nonprotein nitrogen of the blood, causing renal insufficiency. Death may result from this condition, unless the other kidney is in perfect health. It should also be recognized that a hydronephrotic kidney may readily become infected.

The kidney probably becomes painful only when its pelvis is irritated, or when there is an irritation near its capsule. Consequently, disturbances located in the secreting kidney substance are rarely painful. One of the most frequent causes of kidney pain is distention of the pelvis perhaps by a calculus. Just how much distention the pelvis may tolerate without pain may be variable, but as previously stated, more than an ounce of fluid, sometimes less, will cause kidney ache, if not actual kidney pain. The patient may get relief at night from kidney pain due to pelvic distention or pelvic irritation only by lying on the affected side, so that the respiration will not cause as much movement of this kidney. Kidney pain and distress, accompanied by a diminished amount of urine, followed by the passage of a large amount of urine with relief from distress, points strongly to obstruction of the ureter and a dilatation of the kidney pelvis.

At first such pain is referred to the lumbar region, and a tender point is discovered between the last rib and the erector spinae muscles, the point of tenderness being about the size of the end of the thumb. This pain is stabbing and severe, and may cause vomiting. As the kidney pelvis distends more and more, there is more general abdominal discomfort, and the pain and ache is diffused over the whole side and lumbar region. As the pelvis reaches its full capacity, distress is referred to the abdomen, more, of course, on the affected side, and the symptoms become more like those of renal colic; but the acute obstruction is likely to be shorter than that of a renal colic as the

119. Keith, N. M., and Snowden, R. R.: Functional Changes in Experimental Hydronephrosis, Arch. Int. Med., February, 1915, p. 239.