

Zion and Bryce Nature Notes



VOL. 8 - No. 3 Sept. 1936

DEPARTMENT OF THE INTERIOR
National Park Service
Zion and Bryce Canyon National Parks, Utah

Vol. 8
Zion-Bryce Nature Notes

No. 3
Sept., 1936

This bulletin is issued quarterly for the purpose of giving information to those interested in the natural history and scientific features of Zion and Bryce Canyon National Parks. Additional copies of these bulletins may be obtained free of charge by those who can make use of them by addressing the Superintendent, Zion National Park, Utah. PUBLICATIONS USING THESE NOTES SHOULD GIVE CREDIT TO ZION-BRYCE NATURE NOTES.

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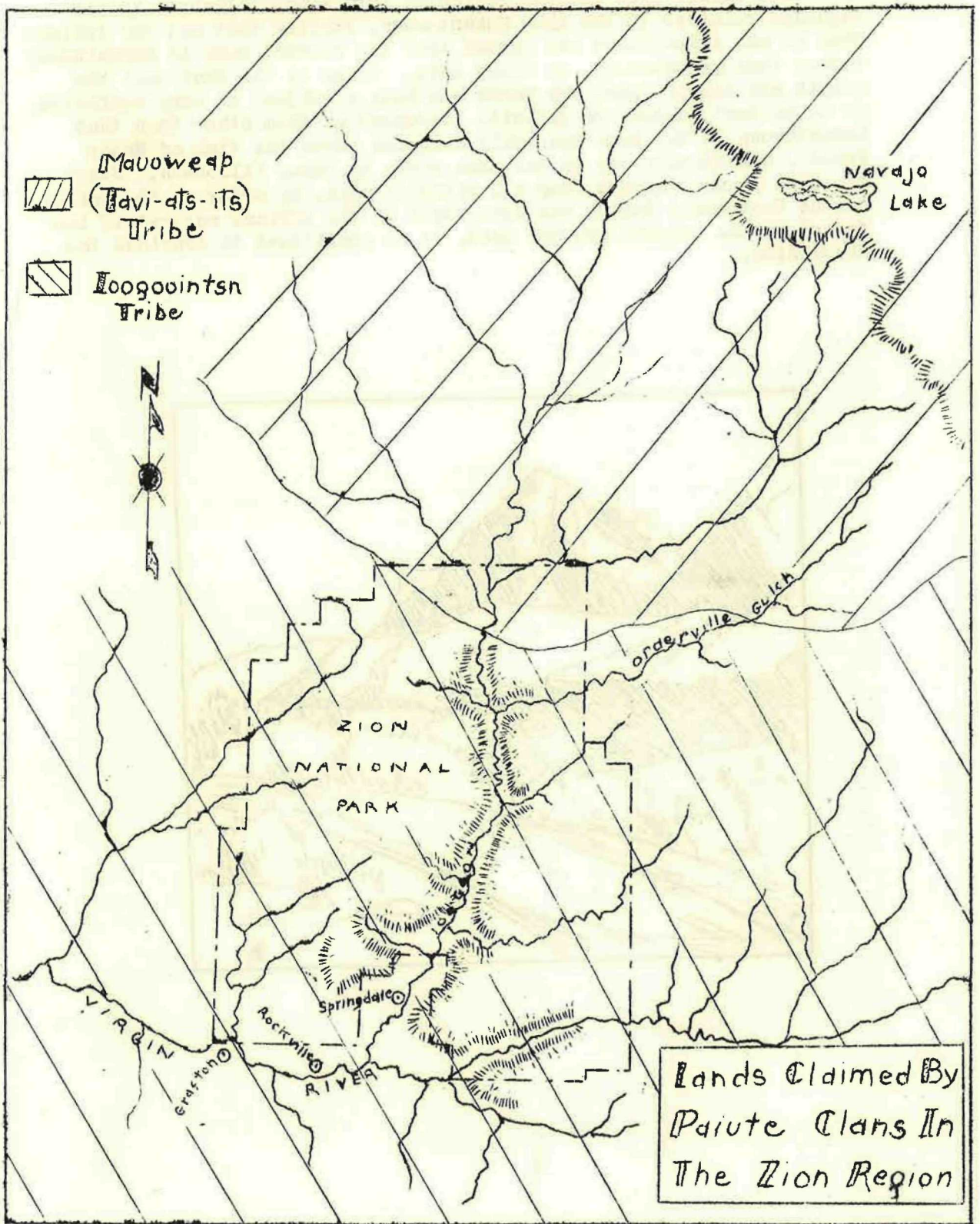
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PAIUTE NAMES

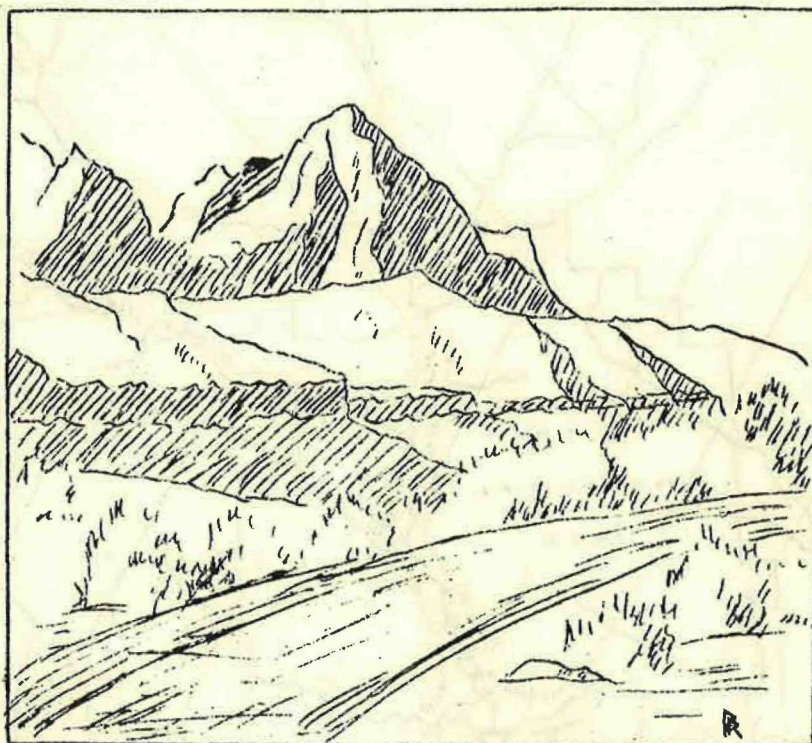
From information by Wm R. Palmer

Nature Notes for March, 1936, was devoted exclusively to Paiute Indian names and legends gathered during a brief association with Toney Tillohash, an educated Paiute living near Santa Clara, Utah. Publication of Toney's admittedly incomplete information has resulted, as was hoped, in contributions from various other students of local ethnology, notably Mr. William R. Palmer of Cedar City. Since Mr. Palmer's full contribution cannot be reproduced here, owing to limited space, we have condensed the more important portions into the following pages, and will include it all in the Zion-Bryce-Cedar Breaks Encyclopedia now in preparation.

Mr. Palmer has, during the past twenty years, accumulated information on the tribal lands and place names of the Zion region which is somewhat at variance with that supplied by Toney Tillohash. There is ample reason to believe that the following information, and accompanying map, is more accurate than Toney's interpretations. As shown on the map, the name I-co-goon was restricted by most of the Indians to Zion Canyon, rather than to the entire sand-rock country round about, as Toney said. Toney's confusion was apparently caused by thinking that the entire area under control of the I-co-goo-intsn clan was known by their name. The country north of that controlled by this clan was, according to Mr. Palmer's findings, controlled by another clan, the Tavi-ats-its, under Chief Kanarra (the clan name signifies "sun people"). The name of this area was Mau-o-weap (brushy canyon), from a tributary of the Virgin River by that name. Mr. Palmer states that this tributary was one of the creeks coming in from the east, above the Narrows, which would indicate that it was somewhere north of Orderville Gulch, or that it might have even been the upper reaches of the Gulch itself. The accompanying sketch map, based on a drawing by Mr. Palmer, shows all of these areas clearly, and should clarify the rather confusing statements in the March issue of Nature Notes.



Mr. Palmer also differs radically from Toney Tillohash in his findings relative to the name Mukuntuweap, stating that all the Indians whom he has interviewed are agreed that the correct name is Mukuntuweap rather than Muhuntuweap, as Toney said. Owing to the fact that the origin and use of these two words has been a subject of some confusion, it seems best to make no definite statement on them other than that Mukuntuweap is the name generally accepted since the time of Major Powell, and Muhuntuweap is the name given by Toney Tillohash. Since the name is now removed from all official maps, by order of the United States Geographic Board, and since most of the Indians accurately informed on the subject are now dead, it is profitless to continue the discussion.



MOSQUITOES OF ZION CANYON

By Bryant E. Rees

Mosquitoes are small two-winged, long-legged frail flies belonging to the order of Diptera; family Culicidae; and are characterized by the small scales on the wings. Mosquitoes are found distributed all over the world, from the Tropics to the Arctic, but within the different faunal regions various species of mosquitoes are found.

The original food of the mosquito, both male and female, is supposed to have been plant juices, but now they, the females only, attack and annoy both man and animal. By means of their blood-sucking mouth parts they pierce the flesh and suck the blood, or, as is commonly said, "bite". Because of this type of feeding they have become important enemies of man: sucking his blood and the blood of his animals; and often in doing so, transmitting diseases, such as malaria, yellow fever, and filariasis.

The adult mosquitoes lay their eggs either singly or in rafts of about 200 eggs on the surface of the water, or occasionally in dry depressions that at some time or other become filled with water. Some species place their eggs on or about aquatic plants which are at times submerged under water with the rising of the water levels. Usually, however, the eggs are layed on the surface or about deep lakes, shallow clear or permanent running streams, or stagnant temporary pools or ditches. Here they hatch into larvae or "wigglers" that jerkily swim about from the top to the bottom of their habitat. Continually they are sweeping food into their mouths and digestive tracts. If the food is not digestible it passes harmlessly through the system. In a few days the larvae or "wigglers" pupate. After a short time the pupae or "tumblers" come to the surface at which time the pupal skin is broken and the winged adults emerge. Using the discarded skin as a raft, the adult dries its wings and later flies off in search of food. It is this adult form that is a grave annoyance to man and his animals.

This report deals only with the mosquitoes of Zion Canyon, of which only two species (Theobaldia incidens Thomson, and Aedes vexans Meigen) have been collected to date. However, the Anopheles mosquito has been reported found. Possibly more species will be added to these when a more detailed study is made.

The Anopheles larvae can be readily identified from that of the other mosquitoes as it lies horizontally with the surface of the water when at rest; the others hang down at about an eighty degree angle from the surface.

The adults are not so readily identified. In this case only a key for the identification of the two species found in the canyon is given.

Key to Genera

Cross veins of wings tending to lie in line, the posterior (hind cross vein) close to the anterior (front cross vein), or the back (mesonotum) with bare impressed discolorous lines, or both Theobaldia (culiseta) Genus

Abdomen of female with the eighth segment only partly retractile or sharply pointed, nude Aedes Genus

Key to Species

Theobaldia

Tarsi (feet segments) with very narrow white rings, basal; wings spotted incidens Thomson

Aedes

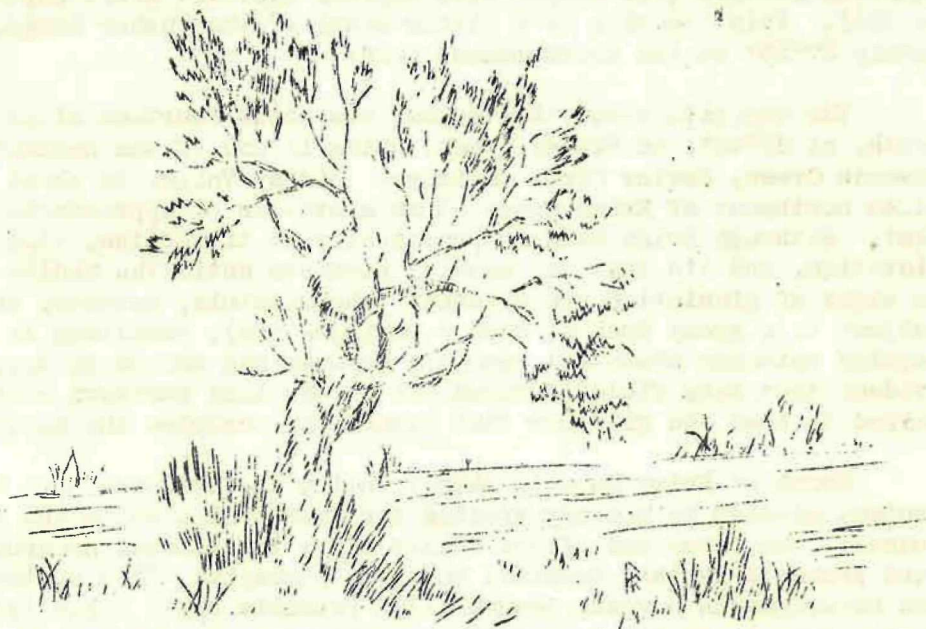
Tarsi (feet segments) with white rings basally on the joints; proboscis (beak) uniformly colored; tarsal rings pale and narrow; back (mesonotum) uniformly brown; terminal abdominal segments with normal pale bands vexans Meigen

Theobaldia incidens or rainbarrel mosquito lay their eggs in narrow rafts on the surface of permanent ditches, swamps, dirty and clear pools, brackish water, and are often found in artificial receptacles or rain barrels, hence the common name. The adults hibernate during the winter months. They attack man but rarely, preferring larger animals such as cattle and horses. A man on horseback is generally not bitten, though the horse may be bitten. This species is known west of the Rocky Mountains from New Mexico to Alaska and along the Pacific coast. It is a large species.

Aedes vexans or the vexatious mosquito has wing scales that are wholly dark. This species is the commonest woods and thicket mosquito and is a severe "biter". The winter is passed in the egg stage, in early ground pools filled by rain or overflow from floods or irrigation ditches. They are rarely found in the open, and in this canyon were collected in the small wooded side canyons and the shaded auto camp grounds. They appear in the greatest abundance in May and early June; however, adults of this species can be collected in July and August. They are common throughout much of North America and in the west occur in New Mexico, Colorado, Wyoming, Montana, Idaho, Utah, Arizona, California, Oregon, and British Columbia.

Both species were collected here in the park at the auto camp grounds and in Hidden Canyon on May 12 and 13. Only adults were collected. Larvae were taken from Zion Stadium and Weeping Rock on August 14, 1936. These were reared in the museum, and found to be Theobaldia incidens. No aedes vexans were found at this latter date.

Because of the large number of pools that are found throughout this park during the rainy and thawing seasons, it is difficult to control these species; however, some steps are taken to control those in the near vicinity of the campground. To date crank case oil has been used, but the best insecticide for the mosquitoes, as was found and used by the Salt Lake Mosquito Abatement District in prior years, is to spray these ponds, etc., with a mixture of fuel oil and crenaph - about 2% crenaph. This is a fast smooth spreading volatile oil, and, with the crenaph makes a very effective and efficient spray. Unlike the waste oil often used, it does not harm the vegetation as readily, nor does it remain too long on the water or collect about the vegetation to cause unsightly dirty messes.



SOUTHERN LIMIT OF GLACIATION IN UTAH

By G. Y. Croft

Casual observers of the Zion-Bryce-Cedar Breaks region often ask about the possibility of glacial action in the formation of these canyons, misled no doubt by the fact that Yosemite is ice carved, and that Zion Canyon has been called "A Yosemite done in oils". There is, of course, no evidence of glaciation in these magnificent water carved canyons, but we have long suspected that there might have been glaciers on the higher portions of the Markagunt Plateau, to the north. This summer the writer discovered glacial (or neve) deposits near Brian Head, approximately fourteen miles south of any previously reported from Utah.

For many years G. K. Gilbert's observation of moraine on Belknap Peak (lat. $38^{\circ}25'$) was believed to represent the southernmost Pliocene glaciation in Utah. This was recorded in 1875 in "Explorations and Surveys West of the 100th Meridian", Vol. III, p. 88. Since that time glacial deposits have been found on other high peaks of the same Tushar Range. In 1931 H. E. Gregory reported "incipient glaciation" on the Aquarius Plateau (The Kaiparowits Region, U.S.G.S. Prof. Paper 164, p. 116). This location is a little south of the Tushar Range, approximately $37^{\circ}55'$ at its southernmost point.

The deposits noted this summer are about fourteen miles farther south, at $37^{\circ}42'$, on Sidney Creek, which is one of the headwaters of Mammoth Creek, Sevier River drainage. Sidney Valley is about three miles northeast of Brian Head, at an elevation of approximately 10,250 feet. Although Brian Head is practically at timberline, 11,315 feet elevation, and its snow cap usually persists until the middle of August, no signs of glaciation are evident. The mountain, however, has been subject to a great deal of snow work (nevation), resulting in an irregular volcanic elevation becoming scoured and smooth on top. It is evident that neve fields covered all of the long northern slope and helped to feed the glaciers that apparently occupied the near valleys.

North of Brian Head in Sidney Valley the evidence left by an ancient glacier is plainly visible for over a mile below the stream's source. The lower end of the valley where the glacier dropped its load presents typical terminal moraine topography. This unstratified and heterogenous moranic accumulation presents small lakes (probably kettle holes) and kames (irregular mounds and hillocks). Sloping gently away from the moraine is a large deposit of poorly stratified

water lain material (out wash) deposited by a stream which issued from beneath the glacier. On the south side of the valley, and continuous with the terminal moraine on the east, is a remnant of a lateral moraine. The stream has cut through and removed a considerable portion of the material, thus exposing a cross section of the unstratified mass. Many large boulders are strewn over the surface of the moraine, some of which show rude evidence of having been transported by ice. The moranic material is made up of felsitic rocks from the lava flows which cap the Markagunt Plateau.

Beyond the terminus of the noticeably glaciated region, where Sidney Creek has cut a V-shaped valley, is a mass of heterogeneous material which appears to be of glacial origin. It extends for a considerable distance down the valley and is much older in appearance than the material in the upper valley. Sidney Creek in its effort to lower its valley has cut through and exposed this older material. If this material is of glacial origin, it will tend to verify the fact that glaciation in the Wasatch Mountains was divided into two epochs separated by an interglacial epoch. (See U.S.G.S. Prof. Paper 61, Glaciation of the Uinta and Wasatch Mountains, by W. W. Atwood.) From the thickness and extent of deposits, this glacier must have been larger and persisted longer than the more recent one.

The valley has been deepened and widened by the moving ice fields, thus changing it from a V-shaped river valley to a U-shaped glacier one. The stream meanders through the deepened valley, having found a new course after the ice receded, which is vastly different from those of the swift running streams of the non-glaciated valleys to the south. The head of the valley shows no ice-worn rock basins (cirques) so typical of the glacial valleys of the Uintah and Wasatch Mountains farther north.

Although this bit of glaciation is of minor importance when compared with the enormous amount of ice work which produced some of the valleys to the north, it is of interest in a region of stream cut canyons such as Zion, Bryce, and Cedar Breaks. It is probable that exploration of other small valleys draining from Brian Head will disclose additional glacial deposits, and it is hoped that in the near future we will be able to map an entire series of moraines indicative of a number of ice tongues leading away from the former neve field on Brian Head.

(Editor's note: It is possible that this article records the actual, as well as the known, southern limit of Pleistocene glaciation in Utah; since there are but two mountains to the south of Brian Head (in Utah) which are high enough to have possibly supported neve fields, Pine Valley Mountain, 10,324 feet, and Navajo Mountain, 10,250 feet. The small area of high country on both these points, and their isolation amid large areas of low elevation indicate that snow caps would likely have been too small and of too short duration to leave persistent evidences of nevation. Baker, in Geology of the Monument Valley-Navajo Mountain Region (Geol. Sur. Bul. 865; 1936) makes no mention of quaternary deposits on the summit of Navajo. - C.C.F.)

ALONG NATURE'S HIGHWAY

As I was walking from my car in the parking space behind the superintendent's office, a large insect struck against my hand. Watching it from that moment on, it was seen to fly searchingly about for a while, and then quickly dart to and grasp in mid-air a small reddish-brown moth that was flying by. Still under observation it was seen to land on a bush a few feet away. Upon examination of this deadly aerial attacker it was found to be a predaceous Robber Fly (Arax subpilicus Schaeffer - readily identified by the white and black bands on the abdomen and the white hairs on the legs) with the moth tightly held by the spiny legs. A minute later it flew to a juniper tree. There it turned the moth over and over, and then ceased the movement. By this time the predator had possibly found a place to insert its short beak, and was now enjoying a meal of the body fluids of the prey. Upon a slight movement of the branch it flew away still tightly holding on to its dinner. - B.E.R.

At another time another small form of life was seen laying her eggs into a Douglas fir. This individual belonged to the order Hymenoptera, family Ichneumonidae or Ichneumonid wasps, real life enemies of the family Siricidae or wood wasps. This form, Megarhyssa nortoni, called "Long-sting", a form parasitic on some of the Siricids in living and dead coniferous trees, logs, and stumps, was burying its ovipositor deep into the wood, carefully drilling in a definite location. It was searching for the burrows of one of the Siricid wasps. Possibly the adult Long-sting locates the position of the wood boring larvae by the sounds they make in tunneling through the wood. When a tunnel is located the eggs are laid in it, and the parasitic Ichneumonid larvae upon hatching from the eggs crawl along the tunnel until they encounter the wood-boring larvae which they then attack. The larvae occasionally attack the host from the outside, but almost always spend their entire period of growth plowing about inside the body, instinctively not eating any organs that would cause death promptly. The host insect then finally dies and the parasite emerges in the winged form after pupation. The Ichneumonids are enemies of the wood wasps, but benefactors to man. - B.E.R.

On August 12, 1936, Ranger Russell called me to come to the south entrance checking station to see a nest of a Black Widow Spider, (Latrodectus mactans Fab.) The adult was collected, but it was the two egg sacks that attracted my attention. These were also collected and then placed in a vial stopped up with cotton that the eggs might hatch. On August 13, 143 young hatched out, and immediately spun a few webs from the bottom of the vial to the cotton stopper in the top. And now the struggle for existence began. The young needed food, and, as there was none available, they began to kill and eat each other. By the 17th two had been killed and their body fluids sucked out; on the 19th, six were dead; on the 22nd thirty-three had been killed; the 24th showed seventy killed and eaten; 128 were dead on the 28th; and at the time of this writing, August 29th, only eleven have survived. As the time passed these that survived have grown and are now starting to show the characteristic markings of the Black Widow Spider. In a few more days only one will be alive - the fittest. - B.E.R.
