

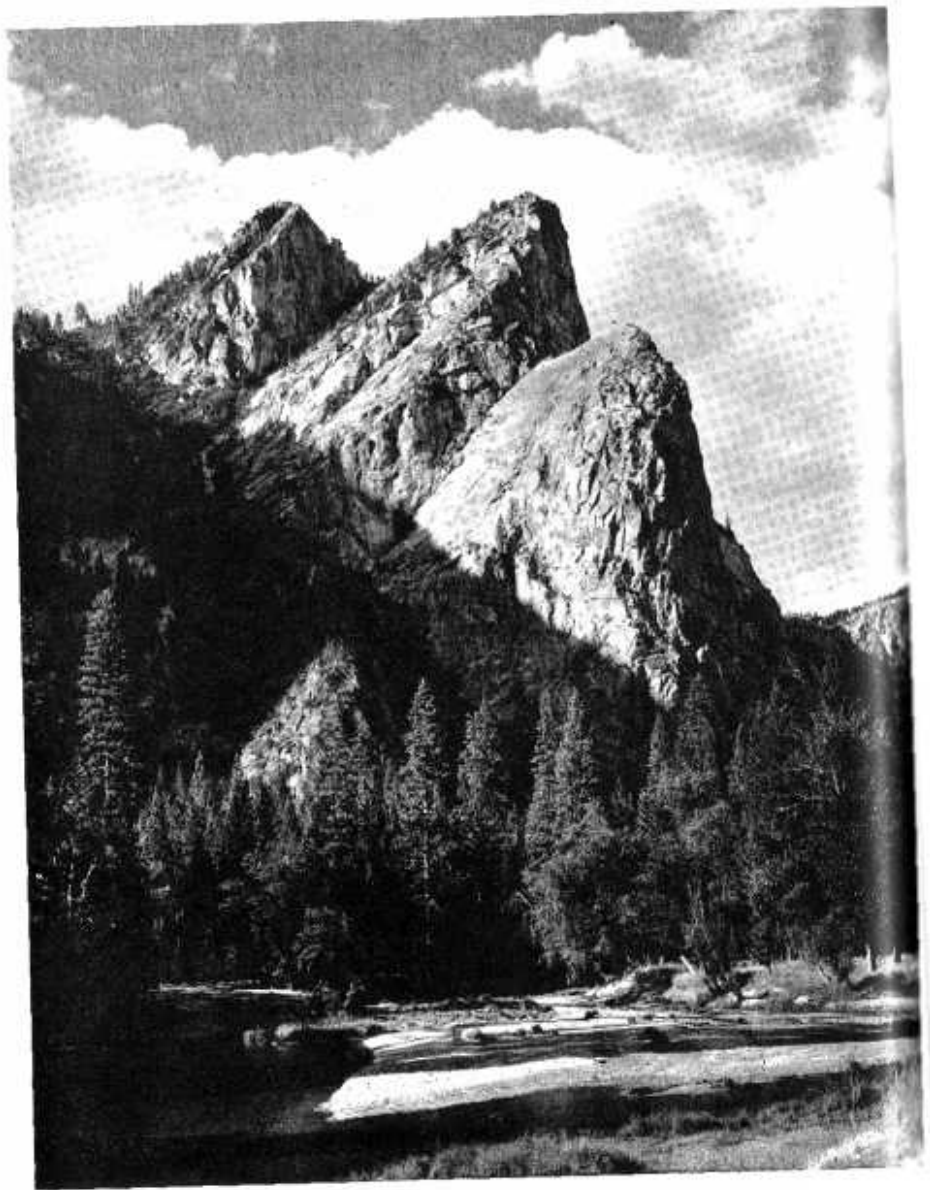
YOSEMITE NATURE NOTES

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Tree On Sentinel Dome
—Fisk c. 1881



The Three Brothers

Yosemite Nature Notes

THE MONTHLY PUBLICATION OF
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John C. Preston, Superintendent
D. D. Gallison, Assoc. Park Naturalist

D. H. Hubbard, Park Naturalist
W. C. Bullard, Asst. Park Naturalist

R. W. Carpenter, Park Naturalist (Trainee)

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A NATURALIST'S NOTEBOOK

By Lloyd Brubaker, Ranger Naturalist

Would you like to be a naturalist? Anyone can start with a few simple items of equipment and obtain a great deal of pleasure, even without a background in natural history. If this idea appeals to you, let's equip ourselves with a few simple tools - a notebook, pen, and lots of patience and take a make-believe trip into the fascinating world of living things.

In the first place I should propose that too many of us place a high premium on the *name* of a particular tree, bird, flower, or insect. When we encounter anything new we immediately want to know the name; then, upon learning it, we file it away mentally and move on to something else without really becoming acquainted with our new find. Then at a later date we recite this newly-learned name with a scientific smack of the lips. This gives us credit for more knowledge than we are really entitled to. So I suggest that we be not too anxious to learn mere names, but rather to note habits, appearances, relationships with one another and other important attributes of nature. Names we can learn later when they will mean more to us.

Next I suggest that we do not have to take miles without end on a field

trip to find nature. On the contrary, once a suitable area is reached - depending upon what you are looking for - the less distance covered the better. Sit down on a comfortable rock, or lean against a tree and become as inconspicuous as possible. By disturbing nature as little as possible your observance will be more real and undistorted. By sitting quietly you will find that you will have time to catalog mentally and in your notes, things about your surroundings—to take special note of the habitat, to be able to observe the events taking place around you, to say nothing of seeing things too obscure to be seen if you were moving past. This method of nature "walking" is a lot less tiring, and notes may be taken with greater ease. Of course if moving is necessary it should be done slowly and with deliberation.

Now about the notebook itself. An elaborate notebook is not as desirable as several sheets of 5x7 inch notepaper, lined and margined, bound with a few loops of string or binder rings. Get two sheets of strong cardboard or masonite, slightly oversize to protect the edges of the notepaper, form the front and back - and you're all set. It's a good idea

to place your name and address on the cover so that if lost, the notebook may be returned. Use good waterproof black ink. Several kinds are made which will work in fountain pens. Sudden showers or a tumble into a stream can destroy months of notes if the ink is washed out. Pages may be removed and placed in a more permanent binding when filled.

To begin the day's entry your initial paragraph should record the date and time. Then a comment or two on the weather, followed by a detailed description of the location. Your name should appear on every page so that identification is possible. Numbering and dating each page is useful too.

Writing the notes is easy. Simply record events as they occur. This makes particular comments difficult to find at a later date, so a method of cataloging must be used. By writing a word or two on the margin of the notes, at the head of each subject change or paragraph, items may be found with relative ease. Also note the time occasionally in the margin so that events may take on the proper relationship to each other.

Field notes are for your future use. You do not expect others to use them. Information may be compiled from them later but field notes are your own private matter. Abbreviated words, sketches, crossed out words (lined out with a single line), incomplete sentences, will not be criticized in field notes. The aim is to get *observations* set down. If theories, interpretations, deductions, or conclusions are included in the body of field observations they should be carefully noted as such. The use of the words "possibly", "apparently", or "I conclude from this" are used to indicate that what is to follow was



Most nature observations are taken while sitting still.

not actually an observation. It takes a great many repeated observations to substantiate a conclusion. Field notes are writer's observations. Where an unusual occurrence seems to demand a comment, you do not hesitate to make it, but be sure that it will not be confused with an actual observation. Set down what actually happened in as careful and complete detail as possible. Dimensions should be taken, intervals of time, frequency of occurrence, descriptions of color, size, texture, etc. should be made. These, as I have said, are personal descriptions, and may mean little to anyone else. This is to be expected. The objective is for you to be able to form a perfect picture of the situation, even years later, by re-reading over your notes.

What good are notes? From notes such as these nearly all writings of life histories of animals and plants have been made. It is from notes such as these that John Muir was able to explain his ideas of the foundation of Yosemite Valley. It is from notes such as these that Grinnell

and Storer were able to give such complete accounts in *Animal Life In The Yosemite*. Making valuable notes is easy. Hours tumble after each other in abandon even when you are observing one particular bird, squirrel, or insect. Upon later research you may find that your notes contain more information upon a particular subject than you can find anywhere else in the literature, or that your findings are substantiated by naturalists before you.

But let me mention a few difficulties often encountered in note taking. First, observers often do not write enough. Too few details, sketches, diagrams, time notations, and descriptions find their way into the notes. Ambiguities arise later in the mind of the note-taker when reading over his notes. It is almost impossible to describe too carefully and in too much detail. Second, notes should be taken over varying periods of the day, month, and year. Early morning notes are important for it is then that most activities take place. But midmorning, midafternoon, and evening sessions of note taking should also be made in the same area, and about the same subject in order to obtain well-rounded, complete notes. Third, details which may seem irrelevant when observing and recording be-

come important when working over the notes later. What was the plant from which that squirrel took seeds? What was that bird gathering for its nest? Collections of materials and careful sketches can be part of your notes too. It is irksome to put off writing conclusions until one can make another trip into the field for a particular tidbit of information. Last, but by no means least, is the problem of making conclusions. A concluding paragraph or paragraphs should be made at the end of each day's session. This may be included in the field notes as such in the margin so as to set it apart from the observations. Here you may place your theories, conclusions, and deductions based on what has taken place.

This is not all there is to note-taking to be sure. But this should help you get started. It is easy, and the problems that will arise will be solvable as you gain experience. Gradually your field notes, if carefully made, will become a valuable asset to any library. Thus after years of happy rambling in the woods and fields you will build up a library of discoveries, of knowledge, of material of scientific worth that may someday make a valuable contribution to the fascinating world of natural history.



ENEMIES IN NATURE

By Irston R. Barnes

Many natural history books, in discussing predatory-prey, or food-chain, relations, sometimes use a verbal shorthand, referring to predators on a species as its natural enemies. The word enemy suggests the need for a continuing critical scrutiny of our nature vocabulary, for words carry false connotations from other fields and influence both our own thinking and our ability to communicate with other people.

If the prey species is a desirable song bird or game bird, as the bob-white, and the Cooper's hawk is its "enemy," then those who are for the bob-white are likely to be against the Cooper's hawk. Thus a semantics barrier is created to a popular understanding that both the bob-white and the Cooper's hawk are equally good citizens of the woods-margin community.

When predator-prey or other natural interspecific relations are seen in true perspective, the enemy concept is clearly inaccurate and inappropriate. Naturalists using the enemy figure of speech mean only some other form of life which is dependent in a particular way on the species in question. A robin may die of old age, starvation, disease or the strike of the hawk; yet only the last is casually designated as an enemy. Surely it is not reasonable to prefer the parasite, the maggot or the vulture to the hawk. The robin, if capable of choice, might prefer the hawk. Nature knows no such preference, but finds opportunities in every form of life to support other life. From such interspecific relations, or food chains, come much of the infinite variety of life which we know.

The robin that eats the worm, the hawk that takes the robin, and the bob-cat that sometimes surprises the hawk are not severally the enemies of their respective food supplies. Neither the robin, the hawk nor the bob-cat, although it takes the life of an individual, poses any threat to the species. The hunter takes what is readily available, and when the abundance of one food diminishes, it turns to another food or moves to other hunting grounds. In general, man is the only predator so relentless in his hunting that he extirpates or extinguishes a species.

The true enemies of a species are those life forms, or inanimate forces, which destroy the essential elements of its environment or that by competition drive it from its habitat or from access to food and shelter. Sometimes an introduced species, such as the rabbit in Australia, destroys plant life and alters the nature of a habitat. Sometimes an introduced predator, the mongoose in the Caribbean Islands, finds native species that are unprepared, by powers of escape or by reproductive capacity, to withstand its attack. Sometimes introduced competitors usurp the places of the native species, as has happened with the Hawaiian birds. More often, however, it is the unchecked multiplication of a species in the absence of normal predation that creates the disastrous competition. The deer of the Kaibab Plateau were a prosperous population so long as mountain lion and wolf preyed on them but when the predation was removed, the explosion of numbers destroyed the food resources and wholesale starvation

...killed. Robins, if unchecked, could be their own destroyers; the hawk their protector.

Man is the great destroyer of habitats, the great force which by changing the patterns of land use, has brought some species of wildlife to extinction and opened the way for explosive expansions by others. Man is the nearly omnipotent enemy of wildlife; yet even here the word is misleading. Much of the harm that man does is unnecessary, unintentional and unwanted, but this is another subject.



Reprinted from 'Atlantic Naturalist'



A FLESH EATING PLANT

By Merrie Jo Warne, Ranger-Naturalist

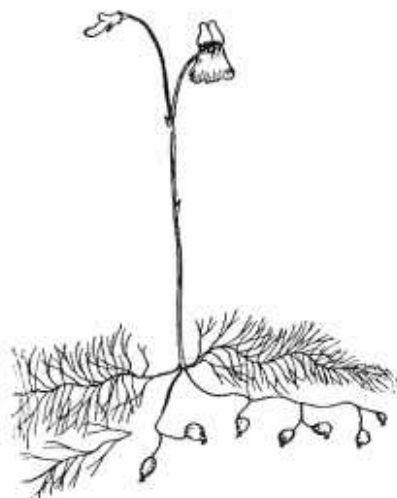
One day in late July while wandering through Sentinel Meadow in search of tadpoles for the Junior Naturalist Program, I noticed the pale green floating stems and branches of a unique aquatic plant, the common bladderwort (*Utricularia vulgaris*). This curious plant has a particular fascination to me for it has succeeded in turning the tables in the ordinary scheme of nature. When a plant "eats" an animal, the event is truly noteworthy and that is just what the bladderwort does, not just once, but repeatedly.

By using energy derived from sunlight, green plants are able to manufacture the organic foods they require from carbon dioxide and water which contains dissolved minerals. There are about 450 different flowering plants found in six families which are capable of manufacturing

their food, but which have developed specialized leaves adapted for trapping animals. These plants are sometimes called "insectivorous," but the term "carnivorous" is a better one since they utilize other animals in addition to insects for nutrition.

Occasionally you may have heard lurid stories concerning gigantic man-eating plants which are said to exist in remote jungles. Have you ever wondered if such legends could be true? Could a plant actually seize and consume a human? Even though realistic-sounding man-eating plants are often described or depicted in Saturday matinee thrillers, science fiction, and comic strips, no plant capable of utilizing an animal of human proportions has yet been discovered. This, however, should not put a damper on the

study of plant carnivores such as the bladderwort, for although their victims are minute insect larvae, frogs, fish fry, tadpoles, protozoans, crustaceans, and spiders, the intricacies of their trapping mechanisms and lures are amazingly precise and effective. The special adaptations of many plant carnivores mark them as the curiosities of the plant kingdom and miracles of natural engineering. Most plant carnivores grow in swampy areas where the soil is poor and none is entirely dependent on animal nutrition.



The Bladderwort

Bladderworts of one variety or another are found from Eurasia through North America. The common bladderwort can be found in the shallow water of many meadow ponds, small lakes, and slow streams of Yosemite National Park and in similar habitats throughout the United States except in the extreme south. It is a rootless plant with free-floating, branched stems up to three feet long. The light green leaves are finely divided into 2 to 5 fern-like segments, which contribute a feathery appearance to the tangled mass of branches.

The small yellow blossoms of the bladderwort are borne on erect stems which rise above the surface of the water. The upper lip of the flower stands nearly erect, while the lower one is broader and has three lobes and a projecting spur. If this odd little flower were larger, it might attract as much attention as some of the exotic orchids; however, bladderwort gains attention and respect from its admirers by a more devoted method.

Upon examining the leaf segments of bladderwort, one discovers that many of them produce small hollow, pear-shaped bodies which are flattened on the underside where a small opening or mouth occurs. These curious objects are the bladders or traps which enable the plant to ensnare and eventually digest small animals as food. Newly developing traps are pale green, while those which have been used are larger and black, since they contain the decaying remains of their victims. The traps operate mechanically and are automatically reset after they capture and digest prey.

A pair of branched antennae and several long, slender bristles occur around the entrance to the trap, which is closed from the inside by a delicately hinged trap door that rests tightly against the threshold. The outer surface of this convex door is covered by glands which secrete mucilage and sugar, which probably acts as a lure in attracting small animals. The bristles are instrumental in springing the trap and they form a funnel to guide prey toward the door.

When the trap is set and ready the walls are concave and the door is tightly closed. If certain of the short bristles surrounding the mouth are touched, the door is disturbed and the walls spring outward suck-

ing a current of water into the bladder. Any nearby animal which is light enough is carried in by the water and can not escape.

Special digestive cells and four-armed hairs line the cavity of the bladder, but the physiological processes involved in digestion are not clearly determined. Eventually the trapped animals die and are digested. Resetting of a trap results when the water in the cavity is withdrawn by the tiny four-armed hairs.

The automatic death trap of the bladderwort is truly a marvelous structure as are the trapping leaves of another plant carnivore found in

Yosemite National Park, the round-leaved sundew (*Drosera rotundifolia*). Again one might ask the question, could a plant actually consume a human? The more one studies the intricate traps of the existing plant carnivores, the more he becomes convinced that if they suddenly grew to tremendous size, a curious person would have little chance of escape should he come in contact with the delicately triggered trap doors, movable bristles, waxed surfaces, powerful glands, brilliant guide lines, and intoxicating odors of these predators of the plant kingdom.

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Bladderworts may be found in Tuolumne Meadows.

A RARE VISITOR

By Lloyd G. Brubaker, Ranger Naturalist

Park visitors, every year, bring in many animals that are injured, "lost," or just displaced for the moment. One day this last summer an excited gentleman and his wide-eyed family gathered about the museum information desk and exhibited a long-winged, black, and equally-excited bird. It seems that they had picked it up on one of the roads in the valley and, fearing it would be struck by a car, brought it to the museum. It was unable to fly we soon found out, after giving it several opportunities on the parking lot. Its long, ungainly wings beat ineffectually but it could not acquire flying speed. When placed on the ground it crawled about in a most clumsy manner. Its legs seemed too weak to support its body, and the wings kept getting in the way.

I brought it into the museum again and asked several of my fellow ranger-naturalists what species it was. We knew it was a swift but certainly not a white-throated swift. This one wore no white at all. A quick survey of museum specimens disclosed it to be a black swift, Grinnell



and Storer in *Animal Life in the Yosemite* (1924) indicate that this bird is rather rare. No nesting sites have been positively identified, though it has been suspected that they nest in the cliffs below Glacier Point.

Until my tour of duty on the desk was over I placed the now-quiet bird on the back of the pamphlet rack. There it hung, in apparent comfort, by its fore-toes and regarded each passing visitor. It was amusing to watch the park visitors gaze intently up the titles of pamphlets, then rest their eyes on the beady-eyed native watching them. A few would reach out cautiously to see if this bird was real, only to snatch their hands back with a startled squeal when they found it was real, and alive!

That evening I climbed the talus slope behind camp and tossed my rare visitor into the air. He fell briefly until adequate speed was attained, then darted off through the trees. Had he flown off towards Glacier Point, or had I just tossed him that way?





BOOK REVIEW - THE BIG OAK FLAT ROAD

Irene D. Paden and Margaret E. Schlichtmann

For those travelers who have a nostalgic longing to drive old roads - but lead at unhurried pace past the mellowing scenes of a vanished age - the old Big Oak Flat Road to Yosemite has long had special appeal. For State Highway 120 - to call it by its more formal name - has borne proudly the boots, the hooves, and finally the wheels of history up the flanks of the Sierra from the head of navigation on the San Joaquin at Stockton to the Southern Mines - and beyond. Gradually probing farther and farther into the range, it finally reached the brink of the most amazing valley of them all, the Yosemite. When at last the Road had clambered down those soaring cliffs to the valley below - in 1874 - the great freight route to the Southern Mines became also the chief point of entrance to Yosemite, enjoying this distinction till the opening of the All-Year Highway up the Merced Canyon in 1926.

The old Road still remains (now somewhat improved, however). Recently, its staunch admirers have received cause for renewed interest, and a host of new enthusiasts have been developed, by the publication of "The Big Oak Flat Road," written

by Irene D. Paden and Margaret E. Schlichtmann. The book is the result of some fifteen years of careful research and devoted interest in the whole area penetrated by the Road. The authors have spared no pains to talk at length with surviving members of pioneer families, to check all possible sources of vital facts, to visit personally the scenes of historic interest along the route. Stories have been sifted endlessly, to remove the chaff of rumor and personal bias. As a result, the book has the solid ring of authenticity, yet it reads with all the mellow charm of the region itself.

The pioneer families who lived "along the Road" form the background for the historic drama of the book. They shaped the course of history in California, even as they did much to alter the face of the earth in the mountain country with their mining and ranching operations. It is amazing how much of their works, their names, and their influence on the region still exists a hundred years later. With this fascinating book as a guide, the interested traveler can re-enter that charming Never-Never Land of by-gone years, "over the hill and far away." (Dana Morgensen)



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Dan Anderson