its long graceful branches, eating the pink berries, forms a perfect picture, the remembrance of which lingers.

In watching the birds during the breeding season I observed that many of them took no interest in domestic affairs, but put in much of their time consorting with such mixed company as house finches, western tanagers, and grosbeaks, in fig and cherry orchards where some of them met violent deaths. These loafers nearly all looked like immature birds, being less glossy and dignified, and I have since discovered they were nestlings of the season hatched in early spring in the Conchilla valley and at Palm Springs, and perhaps as far as the lower Colorado river country. This was surprising to me as the birds nest so late in the San Gorgonio pass, Warner's ranch and other similar points. In my notes I find the earliest date for a nest to be Banning, June 11, 1893. Fresh eggs at other dates noted were: Warner's ranch, June 12, 1901, Banning, June 23, 25, 27, 28, and July 4, 1893. Young birds can be found all through July, and in only two instances were eggs found prior to June 23. For a month after they arrive or until about June 15, they seem to have nothing to do but amuse themselves and look pretty.

From my desert notes I take the following data: Palm Springs, March 24, 1897, three new nests and a nest of young just ready to "fly the coop;" March 20, 1899, three new nests and a nest of young a few days from the egg; March 6, 1900, nest with two fresh eggs. At Toros I made notes as follows: March 19, 1901, a set of two eggs partly incubated and a nest of half grown young. From this data it would seem that most of the young are hatched in March and April and that in some instances nest building must begin in the latter part of February. Possibly some of the birds rear two broods a year, but from the fact that some adult birds fail to pair and nest in this vicinity, I am inclined to think but one brood is raised. Probably those hatched in March on the desert return there to nest the following March; while those hatched in the San Gorgonio pass, in June and July, nest there the following summer.

The nest is placed in a sycamore tree if one is available, but nests may be found in oak, cottonwood, willow, or mesquite trees. Two eggs is the usual set, though three are sometimes found. I have a set of three found at Warner's ranch and have record of three in set twice at Banning, one found by Nathan Hargrave and one by myself. The nest is saddled on a branch, and in shape and composition very much resembles that of the wood pewee, though larger in size. The male bird does much of the incubating, being seen on the nest more than half the time and exhibiting more solicitude for the home than does his mate.

The Significance of Trinomials.

BY WITMER STONE.

THE following comments were originally prepared as a communication at the Twentieth Congress of the A. O. U. They are presented here at the request of the editor of THE CONDOR, but have been somewhat modified in the interests of brevity and clearness.

Nomenclature is not a subject of much popular interest, but since the varied faunal conditions of California bring it constantly to the attention of the systematic zoologists of the State, the present publication may be warranted.

The writer is speaking solely for himself, and no matter whether his views be ultimately endorsed or condemned by the A. O. U. Committee, he wishes to be understood as always advocating adherence to the Code and Check-list of the A. O. U. as the only way to secure uniformity—the main object for which we strive. He is also well aware much the same problems as here presented have already been discussed by Dr. Merriam, Dr. Allen and others, so that no originality is claimed, but merely an expression of opinion.

The use of trinomials, as established by the A. O. U. Code and adopted by most writers on vertebrates, is generally understood to be the designation of the geographic variants of a wide ranging form, which merge into one another where their ranges join—i. e., incipient species, produced by peculiar environments, but which are not yet entirely isolated from one another. The forms so designated are called subspecies.

As a convenient method of deciding whether a certain race or form should be regarded as a species or subspecies, actual intergradation between contiguous forms was adopted by the A. O. U. Code as the criterion.

When we come to name resident birds of coastwise islands which are but slightly differentiated from the mainland stock we at once confront a problem. Intergradation in the sense of interbreeding is impossible, consequently some writers maintain that all island forms must be regarded as *species* (binomial). But intergradation in the sense of overlapping of characters exists in many cases, and on this ground others term them *subspecies* (trinomial) and in practice a form is judged to be a species or subspecies by the *degree of difference* exhibited between it and its nearest geographic relative. This latter would seem to be the more logical course, since by the former plan we might just as well separate the song sparrows for instance of San Clemente and San Miguel Islands since they are geographically separated into two races, though as yet we cannot detect any tangible difference between them!

Extending the practice of recognizing overlapping of characters as intergradation, we find the geographically isolated though closely allied Florida burrowing owl listed as a subspecies of the bird of the plains, and other similar cases culminating with Mr. Nelson's recently described "subspecies" of the Cuban cliff swallow from western Mexico! This practice is severely criticised by some, but if we regard these forms as species solely on account of geographic isolation, what are we going to do with the martin of Southern Mexico which Mr. Nelson states is indistinguishable from the Cuban martin. Surely we cannot separate it purely on geographic grounds and if we do not separate it we are calling by the same name two forms which have probably developed independently, and thus loosing sight *in our nomenclature* of a fact of evolution, the indication of which facts is, according to the strict adherents of the actual intergradation principle, the main object of trinomial nomenclature. The question naturally occurs can we indicate in our nomenclature all these facts of evolution without seriously impairing the utility of our names as *names?*

The foregoing cases are those in which *actual* intergradation is either impossible or doubtful. Let us now consider some where it is admittedly a fact.

Mr. Ridgway has shown that all of our continental song sparrows pass imperceptibly one into the other where their ranges touch, and as a result we have the little speckled-breasted bird of the California salt-marshes listed as a subspecies of the big gray bird of Alaska, more than twice its size, and which any novice would regard as a perfectly distinct kind of bird.

In the quail also Mr. Nelson has shown intergradation between a whole chain of contiguous races reaching from the eastern United States to southern Mexico and therefore we must link together in a trinomial name our white-throated, bar-breasted, bobwhite (*Colinus virginianus*) with a chestnut-bellied, black-throated, bird bearing no resemblance to it except in generic characters. And yet a race separated by some miles of country and not showing any actual intergradation with its nearest geographic ally, will be designated as a species with a binomial name, even though it be much more closely related to either of the above extremes than they are to each other! This practice to my mind loses sight of the primary object of nomenclature which I take to be the designation of a distinguishable form in nature by a name which, when we see or hear it, will recall that form to mind. Anyone seeing a trinomial name today has no idea whether the form denoted is a slight variation of the stock indicated by the specific name or something totally different perhaps occupying a region hundreds of miles distant, the intervening country being occupied by other forms between which by mere chance the thread of evolutionary development is not yet quite severed.

The result of this use of trinomials will tend to the complete abandonment of this useful form of name. In fact some writers on mammals have already practically lapsed into a pure binomial nomenclature. It seems to me that this tendency is very much to be regretted. A trinomial properly used means just twice as much as a binomial, and with the present practice of naming every slightly differentiated form, a purely binomial system will soon mean nothing except to the specialist on each group—the mind cannot place such a host of names. The trinomial on the other hand properly used gives at once, in the specific names, a clue to the general character of the form referred to.

By continuing the practice of naming island and isolated forms by the *degree of difference* principle as is now done in the A. O. U. Checklist, and by extending this practice to the breaking up of such widely divergent series as the song sparrows and quail (which are comparatively few), I think that the valuable system of trimonials can be preserved. That the series just referred to must be broken *arbitrarily*, I admit, and that they *can* be broken arbitrarily by such a body as the A. O. U. Committee and still meet with general satisfaction there is, I think, no doubt. Genera have been so divided in numerous instances and the conditions prevailing in both cases are the same, i. e., current personal opinion.

The segregation of geographic races and the tracing of evolutionary development constitute one of the most valuable and instructive phases of modern systematic work, but we should realize that all the facts so discovered cannot be embodied in our nomenclature and that if we give up the effort to so embody them, we in no sense mean to belittle them.

To my mind we should aim to keep a name as nearly as possible to its original province and to remember that "nomenclature is a means not an end of zoological science."