

precisely what Braun-Blanquet has done, so far as his results are concerned, and he has termed his concrete combinatory group-units, beginning at the most comprehensive, region, province, sector, district and subdistrict. As a matter of actual mental process, I believe his work was analytic rather than synthetic for these five upper groups. At another place in his book he mentions the association-complex as a combinatory unit, but carries his synthesis no higher and does not attempt to connect the subdistrict with the association-complex. In reviewing the book, as mentioned in Dr. Conard's first paragraph, I could only presume that the analysis and the synthesis met here, since no other intermediate group was mentioned.

Dr. Conard's statement that "association" can never be a geographic term is open to argument. He says himself that they occupy space, which would seem to entitle them to geographic standing. Elsewhere he says that the geographic unit, *Iowa prairie region*, contains associations. On the other hand, the association is a concept and as such can not occupy space. Nevertheless, the geographers certainly use as an accepted term the concept "valley," abstracted from the general characters of concrete individual valleys. It seems that one should not be too dogmatic on this point. There can, of course, be no argument on the distinctness of geographic and sociologic group-units. This distinction is a fundamental feature of Braun-Blanquet's book and is excellently illustrated by Dr. Conard.

There is a further point which needs some attention. The unit-individual of geobotany, the *stand*, is built up by successive combinations into larger and larger geographic groups to the final all-inclusive vegetation of the world. The same stands are built up by successive classifications through the higher abstract concepts of alliance, order and class to the ultimate concept—vegetation of the world. At this point the final groups are at least coextensive, although one is abstract and the other concrete.

Lastly, let me emphasize a final point. The stand, which serves at the basic unit in plant sociology, is itself a combinatory group and may be made large or small, according to opinion. Stands are classified into associations, according to floristic similarity, but the degree of similarity is again a matter of opinion. The nature of the association, therefore, depends on the nature of the stand and on the degree of similarity demanded. Unless a botanist has been in the field with Braun-Blanquet, seen the results of Braun-Blanquet's ratiocination demonstrated and attuned his own mental processes to exactly the same key, he has no assurance that his interpretation of associations in America corresponds with that of our Swiss colleague in the Alps. It is true that the association is in some

ways comparable to the species and that either unit may be cut large or small, according to personal opinion and prevailing fashion. Within any limited region too, associations are just as valid as species. Whether this validity prevails over wide areas may be questioned, as I have elsewhere suggested.¹

Different mills produce different qualities of flour from the same wheat. The association-concept is the product of our mental mills. What we need in plant-sociology is a mental process that gives us a standardized product, and to this end Braun-Blanquet has done very much to help us.

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OBSERVATIONS OF ANIMAL BEHAVIOR

IT is with some misgiving that I relate the following snake story, for what I saw may be either a well-known characteristic of this species or it may seem highly improbable. While walking along a road in southern New Jersey recently, I saw a small green snake, possibly 15 inches long, wriggling on the polished roadbed without making any forward progress. After touching it with the toe of my shoe a few times, it shammed dead, as many other snakes do. Then I turned it over with my foot and, to my amazement, it kept right on rolling over and over, for all the world like a stick, although ripples passed up and down its body as though it employed the snake motion in turning or rolling over and over, sidewise—not like the alleged hoop snake. When it reached the side of the road, however, it went about its business in the usual manner, while I stood there wondering if I really had seen what I thought I saw.

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It was my good fortune to witness recently an incident in the behavior of the honey-bee which seems to me to be worthy of record. In the rear of my house is a bird bath about fifteen inches in diameter and possibly holding, when full, a body of water two inches deep in the center. Yesterday, while pulling weeds within a yard of the bath I saw one bee foundering in the center. In order to save himself he got over upon his back and floated but could not make any headway toward shore and there was no wind to move him in any direction. Presently one of the several bees drinking around the shallow rim flew out over the center, came down close to the drowning bee, and, after the two had successfully locked their feet in some way, flew vigorously toward the shore and landed his hapless mate safely.

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¹ *Bull. Torrey Club*, 53: 1-20, 1926.