

Dr. William Popper delivered a lecture on 'Superstitions of the Arabs,' based on his researches and personal experiences among the Arabic-speaking peoples of the Orient.

One hundred and thirty-five persons attended the meeting. A. L. KROEBER,

*Secretary.*

#### THE BERKELEY FOLK-LORE CLUB.

THE third regular meeting of the Berkeley Folk-Lore Club during 1905-6 was held in the Faculty Club of the University of California on Wednesday evening, January 31. President A. F. Lange presided, Professor W. F. Bade acting as secretary *pro tem*. Dr. W. Popper and Dr. A. W. Ryder were proposed for membership in the club and unanimously elected. Professor G. R. Noyes presented the paper of the evening on 'Servian Heroic Ballads.' Mr. Nikolitzsch, who was present as the guest of the club, read one of the ballads in the original. The paper was discussed at length by the members.

A. L. KROEBER,  
*Secretary.*

#### DISCUSSION AND CORRESPONDENCE.

##### ISOLATION AND THE EVOLUTION OF SPECIES.

I HAVE read with the greatest interest the discussion on isolation and its relation to evolution, commencing with President Jordan's article in SCIENCE for November 3, 1905.

There are many reasons for believing that in the earlier stages of the segregation that produces two or more species from one, geographical isolation, or at least some degree of local isolation, has had in many cases an influential part. It is, however, important to observe that, when the local variety multiplies and passes over into areas occupied by the original stock, its continued separate evolution must depend on some other form of isolation.

One form of isolation that may prevent the variety from being swamped by free crossing is seasonal isolation due to its having gained a separate season for propagating. This form of isolation is mentioned in one of the quotations given in President Jordan's article.<sup>1</sup>

<sup>1</sup> See page 552.

Another form of isolation is what Romanes has called physiological isolation, which he defines as the prevention of free crossing due to physiological incompatibility between the reproductive cells of different groups of creatures.<sup>2</sup>

But this extended use of the word isolation is not found in the works of Darwin, and even at the present time many writers follow his usage by treating the term as meaning the prevention of free crossing due to geographical separation. This limited meaning of the word, as used by Darwin and the writers of his time, led me for many years to seek other terms when discussing the broad problem of the prevention of free crossing. Separation and segregation are the terms I have chiefly used.<sup>3</sup>

I observe that E. A. Ortmann in his discussion entitled, 'Isolation as One of the Factors of Evolution,' appearing in SCIENCE for January 12, 1906, also uses 'separation' as an equivalent for isolation when meaning the prevention of free crossing. In some of the previous discussions on the subject it has been pointed out that sometimes the nearest allies of a species are found in the same district. In such cases the point of chief interest is that some other form of separation will be found to prevent free crossing between the different races and species. Closely allied plants may bloom at separate seasons and so occupy the same district without crossing. In other cases the pollen of each variety may be prepotent on the stigmas of the same variety. Varieties of birds and mammals differing chiefly in color may be held apart by sexual or social instincts. These and many other forms of isolation have been pointed out in my work on 'Evolution, Racial and Habitudinal,' published by the Carnegie Institution.

I have also brought together many reasons for believing that without isolation one species can not be transformed into two or more

<sup>2</sup> See 'Darwin and After Darwin,' Part III., entitled 'Isolation,' pp. 43-47.

<sup>3</sup> See my three papers published in the *Linnean Society's Journal*, between 1872 and 1889, also three articles published in the *Amer. Jour. of Science* for 1890.