THE DIFFUSION OF HORSE CULTURE AMONG THE NORTH AMERICAN INDIANS

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Investigation of the horse-culture complex among the American Indians was undertaken to discover the procedure in a concrete case of culture diffusion, an important anthropological problem of the day. One of the most difficult tasks confronting the anthropologist is the elucidation of the precise complexes by which various traits of culture are produced. Since there is on every hand abundant evidence that many traits of culture are borrowed, or diffused, over large areas, the study of typical concrete instances of diffusion are of the first importance. A number of European anthropologists have been so impressed with the significance of diffusion, that they have developed from it a theory to account for the origin of culture traits. This theory is usually known as that of single origin as opposed to the theory of independent invention. The former asserts that all important traits of culture were invented but once and subsequently gradually diffused; the latter, that the same invention was made independently in many parts of the world, whence its diffusion is but apparent. As everyone knows, the discussion of such problems comes to naught unless concrete cases can be investigated.

The horse-culture complex of the American Indian offers an excellent opportunity to study diffusion, because most of the essential facts are obtainable. The horse was introduced by Europeans at an early date and spread ahead of interior exploration. In particular, many of the tribes west of the Mississippi River became horsemen before their discovery by Europeans. The history of their introduction is briefly outlined by me in the American Anthropologist, Vol. 16, No. 1, pp. 1–25. The investigation here reported is the intensive study of collections of riding gear and horse-using appliances to be found in anthropological collections. The material available gives us a representative series for each important tribe in the horse-using area. The detailed comparative study of these specimens has developed many interesting points among the most significant of which are:

1. The Indian has shown no originality. He devised no important
appliances for using horses. He manufactured his own saddles, bridles, etc., but followed precisely a few definite patterns. Though these patterns appear to us as Indian, that is because the English colonists brought with them the English saddle. The Indian model is fundamentally like that of Southern Europe and Asia during the period of American colonization and still survives among the tribes of Patagonia. In general, the complete data will show that the greater part of the horse-complex of the North American Indian was borrowed first by the tribes in contact with the Spanish settlements and then diffused as far as the Plains of Canada without loss or essential modification of detail.

The one striking Indian variation is the habit of mounting on the right side of the horse instead of the left as do Americans and Europeans. The comparative data on this point make it clear that if left to their inclinations right-handed people will mount from the right. Historical data show the European method to have been first introduced into cavalry tactics by Vespasian and to have survived to this day because the sword is worn on the left side. The difference, therefore, is not due to motor differences in the Indian but, like most other culture differences, to historical factors.

2. The Indian did not take the cart. Yet the Spanish colonists rarely if ever used the horse, mule, or donkey for anything but riding and packing; their carts were drawn by cattle. (The great abundance of buffalo no doubt prevented the development of an Indian cattle culture.) On the other hand, the Indian of the Plains had developed dog traction by the travois long before the horse came. When he got the horse, he fitted the travois to him. In any event, it is probable that the established use and simplicity of the travois would have inhibited the use of carts. Thus, while in the travois we have an instance of the use of an Indian invention with the horse, the presence of the horse had nothing to do with its origin.

3. The rapidity and completeness of horse-culture diffusion in America is a good illustration of how fully traits of borrowed culture may be assimilated. In this instance we have sufficient data to determine the general lines of diffusion but such is not often the case. For example, maize culture was once diffused over a large part of North and South America, for the wild plant is found only in one area which must have been the place of origin. In the Old World the spread of horse culture was most likely strictly analogous to its diffusion in America. Returning to our problem, it will be seen how if a non-historical people
brought Old World horse culture to America, we should be puzzled at the similarities observed between these traits on the two hemispheres, but would probably set it down as another case of assumed independent invention. This investigation shows that the invoking of independent invention, to be more than a plea of ignorance, must rest upon specific data.

The final discussion of this subject will appear in full in the Anthropological Papers of the American Museum of Natural History.

DISCOVERY OF ALGONKIAN BACTERIA

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At a meeting of the Botanical Society of Washington, held April 6, 1915, I spoke upon the subject of 'Prepaleozoic Algal Deposits' and in this connection called attention to the existence of bacteria in association with the algal deposits of the Newland limestone, a formation of the Beltian series of Algonkian rocks in central Montana.

In a preliminary publication I stated that it was quite probable that bacteria were the most important factor in the deposition of the Algonkian limestones. At that time no definite bacteria had been discovered. From the collections made during the season of 1914 many thin sections were prepared. These were examined by Dr. Albert Mann, plant morphologist of the Department of Agriculture, assisted by Mr. Charles E. Resser of the National Museum, with the result that bacteria were discovered in three of the sections, which were cut from an algal form included under the generic term Gallatinia as defined in the preliminary paper upon the Algonkian Algal Flora.

The bacteria consist of individual cells and apparent chains of cells which correspond in their physical appearance with the cells of Micro-