The presence of a cambic Bw horizon in a paleosol profile has a particular importance in earth sciences due to the environmental and chronological information it contains. The interpretation of that information contributes to paleoenvironmental and paleoclimatic reconstruction of the site as well as the identification of different cycles of landscape stability and pedological processes that occurred during Bw horizon development. The objectives of this paper consist in diagnosing the following aspects of a paleosol sequence: (i) the grade of macro- and micromorphological development in the Bw horizon; (ii) the basic pedogenetic processes that favored the horizon formation; and (iii) the main typogenetic processes that determined its development and evolution. In this research, four tephra-paleosols were selected from the north pediment of the Nevado de Toluca volcano in the localities of Arroyo la Ciervita (A.C.) and Zacango (Z.). These paleosols (PT1, PT2, PT3 and PT4) have Bw horizons in their profiles. The Bw horizons have similar chemical and mineralogical compositions. Their absolute 14C ages range between 13480 and probably more than 40000 years B.P. The methodology employed was based on the qualitative and quantitative determination of pedofeatures and associated properties indicative of Bw horizons. These determinations were complemented with micromorphological analyses, chemical elemental composition, and the use of geochemical indices and chemical ratios. The results indicate that the Bw horizons presented a morphopedological development ranging from incipient to moderate. At first, this development was favored by moderate chemical weathering and lessivage of soluble compounds and suspended particles, decarbonatation, translocation of illuvial materials, and moderate lixiviation of bases, iron, manganese and silica. Free iron formed strong chemical bonds with humus and clays, generating very stable organic-mineral compounds. These compounds greatly influenced color and structure development of the Bw horizons. Results also allow inferring that the Bw horizons evolved in geosystems that presented environmental stability cycles, a temperate climate with humidity oscillations, and the presence of a broadleaf-conifer mixed forest. Under these site and bioclimatic conditions, brownification and andosolization were the main typogenetic processes that participated in the Bw horizons' evolution.

Keywords
Tephra paleosols, Bw cambic, geochemical indices, brownification, andosolization.