Bainum began his study of music at age ten playing trombone and alto horn. He attended the University of Illinois, studying English and engineering, and played bass drum in the band under A.A. Harding. After teaching high school for a year, he became director of music at Southern Illinois Normal University (1914–22). Bainum worked toward completing a B.A. in music while serving as Harding's first assistant director (1922–4), then became director of music for the Grand Rapids (MI) public schools (1924-6). In 1926 he was appointed director of bands at Northwestern University, a position he held until his retirement in 1953. From 1942–5, Bainum was Chief of the United States Army Overseas Music Branch of Special Services, responsible for music in the European theater. During his career Bainum served as president, secretary, and treasurer of the American Bandmasters Association and in 1971 was named honorary life president of that organization.