This paper introduces a type of DBMS called the *Intentionally-Linked Entities* (ILE) DBMS for use as the basis for temporal and historical Geographical Information Systems. ILE represents each entity in a database only once, thereby mostly eliminating redundancy and fragmentation, two major problems in Relational and other database systems. These advantages of ILE are realized by using relationship objects and pointers to implement all of the relationships among data entities in a native fashion using dynamically-allocated linked data structures. ILE can be considered to be a modern and extended implementation of the E/R data model. ILE also facilitates storage of things that are more faithful to the historical records, such as gazetteer entries of places with imprecisely known or unknown locations. This is difficult in Relational database systems but is a routine task using ILE because ILE is implemented using modern memory allocation techniques. We use the China Historical GIS (CHGIS) and other databases to illustrate the advantages of ILE. This is done by modeling these databases in ILE and comparing them to the existing Relational implementations.

The paper itself appears in *Transactions in GIS*' special issue distributed at this conference.