

# THE SYSTEM OF AUTOMATIC RETRIEVAL OF URBAN DATA

*Manuel Alvarez Alvarez*

*Centro de Investigación en Matemáticas Aplicadas y Sistemas,  
Universidad Autónoma de México*

The major objectives of this lecture to the Seminar on the Methodological Problems of Urban History were to share some recent advances in the application of computation to the social sciences and to express confidence that the diverse talents, viewpoints, and professional preparation of specialists from several disciplines would permit the formulation of new methods for the synthesis and analysis of available information to solve the problems which confront modern man. To establish a general methodology valid for future investigations in the field demands the creation of a system of information storage and retrieval which would allow investigators to manipulate vast quantities of data. Computers can offer several advantages to social scientists, among them:

1. Increased rapidity in the tabulation of information. A computer requires only seconds to answer questions which would otherwise require weeks of tedious consultation and study in libraries and archives.
2. Greater flexibility. A computer is not restricted in the types of data which may be analyzed.
3. Facilities for expansion and reproduction of materials. The initial effort required to construct data banks is not lost. Data is indefinitely conserved on magnetic tapes and may be amplified by introducing new information at any time.

The implementation of a computer system of this type can be divided into three fundamental stages:

1. Design and definition of the system. The need for interdisciplinary interaction is greatest here since the structure and limitations of the system will be determined by the available information.
2. Compilation, transcription, and careful checking of information which defines the data bank.
3. Actual use of the system by the investigators.

Before working with the computer, the research team critically analyzed the following factors:

1. What did they propose to study?
2. From what base did they begin their research?
3. What conclusions did they hope to reach?
4. What information did they need during the course of their research?

The team then began to gather the information required to solve the problems they had defined. The statistics, obtained from a study of the inhabitants of Mexico City in the years 1811, 1848, and 1882, were fed into a computer, thereby creating the data bank.

The program used is called Sistema de Información Urbana (SIU), a general system for the storage and automatic retrieval of information by means of a digital computer. The data, represented in an alphabetical form which uses words, phrases, or numbers, are carefully checked and fed into the computer. The data retrieval is effected by means of a computer language similar to Spanish which utilizes logical commands and parentheses in its alphabet. For example: "Deseamos recuperar todos los individuos que tengan las siguientes características: ((9/ Plateros, Tacuba) y (46 . Alcalde, Alcalde de la Real Corte) y (40/ Cuautla, Cuernavaca)) deseamos también imprimir adicionalmente las siguientes características (14,15,18)." This question will retrieve information on those individuals who live on Plateros or Tacuba Street, whose occupation is Alcalde or Alcalde de la Real Corte, and whose place of origin in Cuautla or Cuernavaca.