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Automated data processing (ADP):
(a) Coding and abbreviation

APPLICATION OF ELECTRONIC DATA PROCESSING (EDP) TO GEOGRAPHICAL NAMES*

Paper presented by the German Democratic Republic

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In the German Democratic Republic the use of electronic data processing (EDP) to edit, store and process geographical names has been studied for cartographic purposes. The method developed in the German Democratic Republic for the automated processing of map names includes the manual collection and storage as well as the automated processing of map names as to contents and design, and their graphic reproduction (proper names, common nouns, abbreviations, letter and number characteristics and others). By means of a digitizer, the map names are manually collected with respect to their wording, their plan-position co-ordinates and to the parameters required for the processing as to contents and design and for the graphic reproduction. These information items must allow the retrieval and updating of the map names, their systematization under various aspects, the selection and determination of the font parameters of map names for the automated graphic reproduction, changes in the position and the graphic design of the map names according to given rules and other processes. For this purpose, every map name is stored in its wording with the relevant parameter part as an independent data set of constant length and structure.

The wording of map names is stored in its clear text. On the basis of previous experience, a sufficient storage capacity is provided for this purpose, which is used differently in accordance with the length of names and filled up with stipulated space characters.

The parameter part has a constant length and contains, in alphanumeric coding, all data required for the processing of map names as to contents and design and for their graphic reproduction. These data include:

Placement co-ordinates for defined points of map names (in most cases for the south-western corner of the rectangle circumscribing the map name, sometimes also its total length) in the co-ordinate system of the map to be prepared or in an arbitrary co-ordinate system. These co-ordinates are supplemented by coded data concerning the position of the map names in relation to the relevant object. Both elements form the basis for determining or more precisely indicating the map name's position for graphic reproduction.

Data concerning the type and qualitative-quantitative properties (size, importance, rank, administrative affiliation and others) of the objects described by the map name as the basis for the automated selection of the map names as well as the determination and assignment of font parameters according to the rules of characters.

Code numbers or indications of measures for the font parameters (type, colour, height and width, spacing, inclination of font and others) as the basis for the automated graphic reproduction of map names.

These data sets are supplemented by computer-dependent, computer-oriented specifications and instructions (e.g. marking of the beginning of the data set and of the end of the punch tape).

From these basic data and by means of the above-mentioned requirements of relevant computing programs, the control programs for automated photocomposition are determined on office digital computers. During this process, the map names to be represented are selected, calculated in their placement co-ordinates by conversion to scale and exact definition according to the most suitable position in relation to the described object, and fixed as to their font parameters according to the particulars wanted. In this connexion, further processes may be automated, e.g. the listing of names and objects by a corresponding systemization of the relevant map names.

By the running of this control program in the automatic photocomposer, the map-name original is produced which, after checking and possible completion by the cartographer, in the main meets all requirements.

So far, the testing and application of the automated processing of map names have proved their basic suitability, and shown the following advantages: applicability both in the new production and updating of maps; high editing reliability and graphic quality; considerably reduced time in comparison with the previous manual processing of map names.

It is advisable to connect the generation of a memory for geographic names with the construction of a memory for map names so that the necessary investments will pay off more quickly and several institutions may use these units.

Mainly two groups of users are covered:

Producers of maps,

Producers of registers of names, indexes, registers of objects.

Therefore, the placed output of geographic names as well as the non-placed output should, from the very beginning, be considered as a basic condition of the technology of the automated use of the map name memory.

Similarly, there are special requirements concerning the selection of the geographic names.

The following conditions of the output of geographical names follow from these aspects, especially for the indexing to be discussed here:

Punch tapes for controlling photocomposers for non-placed photocomposition,

Punch tapes as input media for the users' own sorting programs,

Lists containing the total sets or subsets of the contents of the memory of map names.

The production of registers on the basis of the storage of map names requires to sort the selected geographic names but it is advisable to separate the necessary sorting programs from the selection and output programs. Therefore, for the latter an output of the selected geographical names in the code of the EDP equipment used should be provided, which can be used as input of the sorting programs.
