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INDEX OF LOCALITIES FOR SOUTHERN AFRICA

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INTRODUCTION

Comprehensive gazetteers are available for many parts of the world, those for African countries being listed in AETFAT Bulletin 20:77 (1969). In an attempt to fill the gap in Southern Africa an Index of Localities for Southern Africa has been compiled. It covers South West Africa, Botswana, the Republic of South Africa, Swaziland and Lesotho. This Index is described hereunder, the method used for its production is outlined and some problems encountered are discussed. Preliminary copies have been produced and it is intended to proceed with publication shortly.

DESCRIPTION

The Index of 769 pages lists alphabetically some 39 000 place names and gives the quarter-degree square in which they are found. The Degree Reference System employed is described by EDWARDS & LEISTNER (1971). Also given for each name is the name of the degree-square and the province or country in which the name is found, the farm number (for South West Africa only) as well as a map reference number. Identical names are listed according to their degree-reference from north-west to south-east.

DATA ACQUISITION

All town, place, river and mountain names were taken from the eleven maps listed in Table 1. As a first step in the listing, quarter-degree squares were marked out on each map. Names were then written by hand on sheets with the following columns: Name of town, etc. (32 columns wide), name of degree-square (18), quarter-degree square reference letters (2), degree square reference numbers (4), map number (2), farm number (4) and province (2). Only names occurring in one quarter-degree square were listed on a sheet. Each locality, together with its associated information, was then punched onto an IBM computer card.

COMPUTATION

The massive task of sorting the 39 000 names into alphabetical order was handled by computer. An IBM 1130 with 3 disk drives and 16 K mem-

ory was used. Programs were written in Fortran IV. Extensive use was made of the IBM Commercial Subroutine Package. Subroutines A1A3 and A3A1 were used to store three times as many names as would have been otherwise possible on each disk. The actual sorting procedure used the NCOMP subroutine to compare pairs of alphabetical fields. Input and output were overlapped with other operations through use of the READ and P1403 subroutines, resulting in a saving of computer time.

The cards containing the place names were read twice by the computer. During the first run, names beginning with letters A through F and G through L were stored on two disks. Letters M through S and T through Z were stored on two disks during the second run. Names recorded on each disk were then sorted into alphabetical order in groups of 300, the largest round number which the computer's memory could contain at one time. The actual sort algorithm, proposed by IBM staff, is faster than the usual nested DO-loop sort. The sorted groups were then merged as follows. Successive pairs of 300 names were alphabetically arranged in groups of 600 until the whole disk was in groups of 600 and then groups of 600 were arranged in groups of 1200. The process of merging longer and longer groups continued until the information on the disk was in alphabetical order from beginning to end. After all four disks had been sorted and merged, the names were transferred to three disks and the Index printed by line printer.

TECHNICAL PROBLEMS

Since the computer could print only a limited number of characters, umlauts, accents and certain other punctuation marks had to be omitted. This makes little difference to English names but many Afrikaans and German names are basically affected. For Afrikaans names no solution to the problem was found. In the case of German names an "e" could have been added after letters that should have had an umlaut. However, this procedure was decided against as it alters the appearance of words for the reader who is unfamiliar with German.

In the preliminary copies of the Index so far produced a blank space within a name takes preference over a letter, thus VREDE PAN appears before VREDEBULT, while a hyphen has a lower rank than a letter, so that GRAAF-REINET appears after GRAAFWATERKOP. The computer programs have since been altered so that the published edition of the Index will be alphabetically arranged throughout.

LIMITATIONS AND USES

The Index has not been submitted to the Place Names Committee or any other official body and must not be regarded as a standard reference for spellings etc. Names are given exactly as they appear on the maps which were consulted. No attempt was made to correct or translate names, or to use modern spelling. No cross references are given to variant or alternative

names. The copies of the Index produced so far are all direct computer print-outs and no spare copies are available for distribution at present.

Apart from using the Index as a straight-forward gazetteer, it is intended to use it for obtaining grid references for herbarium collections as a first step in the task of building up a computerised data bank for the National Herbarium, Pretoria. It is intended, amongst other objectives, to produce check lists and distribution maps by computer for which a rapid means of locating collecting sites is naturally a prerequisite.

ACKNOWLEDGEMENTS

Many persons were concerned in the preparation of the Index but the following need special mention: Misses M. ZEILER and A. VENTER for hand-copying nearly 39 000 entries and Mrs. A. E. MORRIS and Miss L. A. DREYER for assisting with programming and computing. IBM (Pretoria) staff and the Data Processing Section of the Department of Agricultural Technical Services gave technical assistance, and various Government Departments undertook the punching of computer cards.

REFERENCE

EDWARDS, D., & O. A. LEISTNER. A degree-square reference system for citing biological records in Southern Africa. *Mitt. Bot. Staatssamml.* 10 : 501—509 (1971).

Table 1. Maps consulted in the preparation of the Index

1. S.A. 1:500 000 Topo. TSO. 500
Govt. Printer, Pretoria (1950).
2. S.W.A. 1:1 000 000 Surveyor General, Windhoek (1966).
3. S.A. 1:250 000 Topo. Govt. Printer, Pretoria (1944)
(Caprivi Area only).
4. Kruger National Park 1:350 000 T.S.O. Misc. (1830)
Govt. Printer, Pretoria (1962).
5. Bechuanaland Protectorate 1:500 000
War Office No. 3915 (1933).
6. S.A. 1:50 000 Topo. Govt. Printer, Pretoria (1950)
(Used for Pretoria and Cape Town Areas only).
7. S.W.A. 1:500 000 (Kaokoveld — No date or printer).
8. Kaokoveld H. Abel in *Deutsche Geogr. Blätter* 47 (1954).
9. Kaokoveld route map. (de Winter & Leistner, 1957).
10. Bechuanaland 1:500 000 D.O.S. 847 (2462) (1965).
11. Bechuanaland Protectorate D.O.S. (Misc) 282 (1960).

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