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Item No.6(d) of the agenda

THE COMPUTER PROCESSING OF GEOGRAPHICAL NAMES FOR

GAZETTEER PRODUCTION

(submitted by the United Kingdom) [1]

1. Introduction

At the 4th United Nation's Conference on the Standardisation of Geographical Names, the United Kingdom submitted a paper describing how the Mapping and Charting Establishment had developed an automated system for gazetteer production based on the use of micro-computers. In the two years that have passed since that paper we have made considerable changes and improvements to that system, and plan further enhancements.

2. Gazetteer Production: Input

The micro-computer based gazetteer production system in use at the Mapping and Charting Establishment uses the same Hewlett Packard computer (HP9835B) and plotter/printer (HP7245B) as previously described, but is now supported by dual disc drive mass storage device (HP9895A). This gives us considerably enhanced data storage capacity, and quicker and more flexible data access.

The data elements in the improved system have been extended in size and range to cope with current and possible future requirements. Every attempt has been made to design a system to meet most requirements. The data elements and the number of characters allocated to them are given in Table 1.

A feature of the new system is that a series of error traps have been incorporated into the software to lessen the scope for erroneous data input. The system allows the user to select the fields for input for a given gazetteer, and stores this information. On data input only these are prompted for, and the system will not allow a nil-return. Similarly the user can set maximum and minimum latitude and longitude values for the gazetteer. Each input for these fields is checked against these parameters, with values outside the range being rejected. Additional checks have been included to ensure that "sensible" data are input. Thus, for example, accidental lowercase input is automatically converted to uppercase in the Designation, Latitude, Longitude, Grid Coordinates and Administrative Code fields. Similarly latitudes greater than $90^{\circ}00'$ and longitudes greater than $180^{\circ}00'$ are rejected.

Names and related information are captured from the source mapping, and initially recorded on data cards. These are then input to the database. At present latitude, longitude and grid coordinates are collected manually, but the system has been designed to accept digitally derived coordinates where available. An improved, formatted printout is produced for each entry, showing the file record number of the entry, and all the data elements recorded. Each data element is always in the same position on the printout, facilitating easier checking and consequent amendment where necessary.

3. Gazetteer Production: Output

To simplify the sorting (alphabetising) of the records on output, each record is automatically allocated on input to a data file corresponding to the country code, and the initial letter of the name. The position of the record within this file is random but sequential (ie the next available space is utilised). This partial alphabetical sort of data on input enables a much simpler and swifter sorting on output. The size of each alphabetical data file is variable, being established initially by the data controller, but can be automatically expanded should the file become full.

Improvements have been made to our sorting software enabling names to be input in both upper and lowe case, and still achieve the required sorted order. The sorting software previously gave priority to some punctuation marks, and to uppercase before

lowercase letters. As a result the sorted output was not in the required order unless input in uppercase alone. A comparison of our former and current sorted output is given at Annexes A and B.

An output routine is currently being developed which offers the user considerable flexibility. A choice can be made of the data elements to be printed, their order of printing, and page format. This flexibility enables the user to produce printed output to meet a variety of requirements. The use of the multiple entry field allows the distinction to be made between a true gazetteer, with a single entry per name (see Annex A) and a names index, where each occurrence of a name is recorded (see Annex C).

The improvements made to our sorting software allow the same data set to be manipulated and sorted into lexical orders corresponding to national alphabetical orders. While we would normally envisage using only an English lexical order, this in itself is not met by standard computer sorting, and represents a major step forward in the computer processing of geographical names for gazetteer production.

Table 1. Data Elements and Field Size of Automated Gazetteer System.

Data Element	Field size	Comments
Name	40 characters	Expandable to 100 characters
Multiple Entry	2 "	To facilitate multiple entries for the same name
Cross Reference Name	40 "	Expandable to 100 characters
Designation	4 "	3/4 letter alphanumeric
Latitude	5 "	DDMM N/S) Degrees and
Longitude	6 "	DDDMM E/W) Minutes symbols added on output
Grid Coordinates	8 "	Up to 8 character alphanumeric
Administrative Code	4 "	" " 4 " "
Sheet Number	10 "	" " 10 " "

NAME			DESG	LATITUDE	LONGITUDE	GRID COORDS	SHEET
A, Peak	see:	Shek Uk Shan	HLL	22°26′N	114°18′E	KV 224 837	8
A Chau			ISL	22°26′N	114°13′E	KV 138 843	7
A Kung Kok			PT	22°24′N	114°12′E	KV 126 798	7
A Kung Ngam			PPL	22°17′N	114°13′E	KV 145 668	11
A Kung Tin			PPL	22°27′N	114°05′E	KV 012 861	6
A Kung Wan			BAY	22°20′N	114°16′E	KV 186 722	12
A Ma Wan			BAY	22°19′N	113°56′E	HQ 027 712	9
A Ma Wan			BAY	22°32′N	114°26′E	KV 360 953	4
A Ma Wat			PPL	22°31′N	114°14′E	KV 163 930	3
A Po Long			PPL	22°16′N	113°58′E	HQ 071 671	10
A Shan			PPL	22°28′N	114°11′E	KV 110 880	3
A Shan Tseng Tau			PPL	22°28′N	114°11′E	KV 116 881	3
Aberdeen			PPL	22°15′N	114°09′E	KV 065 634	11
Aberdeen Channel			CHNM	22°14′N	114°09′E	KV 073 620	15
Aberdeen Country Park			PARK	22°15′N	114°09′E	KV 075 646	11
Aberdeen Harbour see:	Heung Kong Tsai Wan		HBR	22°14′N	114°09′E	KV 065 631	15
Aberdeen Island	see:	Ap Lei Chau	ISL	22°14′N	114°09′E	KV 064 624	15
Aberdeen Reservoirs			RSV	22°15′N	114°09′E	KV 073 641	11
Aberdeen Tunnel			RD	22°15′N	114°10′E	KV 091 645	11
Afternoon Beach	see:	Kwun Yam Wan	BAY	22°12′N	114°02′E	JV 939 589	14
Aldrich Bay			BAY	22°17′N	114°13′E	KV 140 667	11
Aldrich Village			PPL	22°16′N	114°13′E	KV 141 661	11
Amah Rock	see:	Mong Fu Shek	HLL	22°21′N	114°10′E	KV 092 755	7
Angler's Beach			BCH	22°22′N	114°03′E	JV 965 763	6
Ap Chau			ISL	22°33′N	114°16′E	KV 189 966	4
Ap Chau Tsai	see:	Sai Ap Chau	ISL	22°32′N	114°15′E	KV 181 967	3
Ap Lei Chau			ISL	22°14′N	114°09′E	KV 064 624	15
Ap Lei Pai			ISL	22°14′N	114°09′E	KV 070 614	15
Ap Lo Chun			RF	22°33′N	114°15′E	KV 184 967	5
Ap Ma Liu	see:	Nga Yiu Tau	PPL	22°25′N	114°15′E	KV 185 823	8
Ap Tau Pai			RF.	22°32′N	114°16′E	KV 191 949	4
Ap Tsai Wan			BAY	22°19′N	114°15′E	KV 182 707	12
Approach Beach			BCH	22°22′N	114°05′E	JV 997 765	6
Argyle Street			RD	22°19′N	114°10′E	KV 094 715	11
Au Ha			PPL	22°31′N	114°11′E	KV 112 941	3
Au Kung Shan			HLL	22°32′N	114°25′E	KV 352 959	4
Au Pui Tong			PPL	22°32′N	114°17′E	KV 213 960	4
Au Pui Wan			PPL	22°24′N	114°10′E	KV 089 808	7
Au Tau			PPL	22°19′N	114°14′E	KV 158 720	11
Au Tau			PPL	22°26′N	114°02′E	JV 955 851	6
Au Tsai Tsuen			PPL	22°21′N	114°15′E	KV 175 747	11
Basalt Island	see:	Fo Shek Chau	ISL	22°19′N	114°21′E	KV 283 703	12
Bate Head	see:	Tuen Tsui	HDLD	22°26′N	114°23′E	KV 322 836	8
Bay Islet	see:	Chi Chau	ISL	22°20′N	114°19′E	KV 251 726	12
Beacon Hill			LCTY	22°20′N	114°10′E	KV 090 736	11
Beacon Hill	see:	Pat Ka Shan	HLL	22°21′N	114°10′E	KV 082 744	11
Beas, River	see:	Sheung Yue Ho	STM	22°31′N	114°06′E	KV 029 931	2
Beas River	see:	Sheung Yue Ho	STM	22°31′N	114°06′E	KV 029 931	2
Beaufort Island	see:	Lo Chau	ISL	22°11′N	114°15′E	KV 162 560	15
Belcher Bay			BAY	22°17′N	114°07′E	KV 039 674	11
Bennett's Hill	see:	Pan Nap Shan	HLL	22°15′N	114°09′E	KV 077 637	11
Big Wave Bay	see:	Tai Long Wan	BAY	22°14′N	114°14′E	KV 161 627	15
Bird's Hill	see:	Lung Shan	HLL	22°29′N	114°09′E	KV 075 901	3
Bird's Pass see:	Kat Tsai Shan Au		PASS	22°29′N	114°09′E	KV 080 895	3
Black Hill	see:	Hak Kwai Shan	HLL	22°18′N	114°14′E	KV 158 698	11
Black Point	see:	Lan Kok Tsui	PT	22°24′N	113°53′E	GQ 984 808	5
Blackhead Point			LCTY	22°17′N	114°10′E	KV 086 685	11
Bluff Head	see:	Wong Ma Kok	HDLD	22°11′N	114°12′E	KV 124 571	15
Bluff Head see:	Wong Chuk Kok Tsui		HDLD	22°30′N	114°19′E	KV 254 920	4
Bluff Island see:	Sha Tong Hau Shan		ISL	22°18′N	114°20′E	KV 268 708	12
Boa Vista			HLL	22°15′N	114°13′E	KV 134 636	11

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NAME			DESG	LATITUDE	LONGITUDE	GRID COORDS	SHEET
A, Peak	see:	Shek Uk Shan	HLL	22°26'N	114°18'E	KV 224 837	8
Aberdeen			PPL	22°15'N	114°09'E	KV 065 634	11
Aberdeen Channel			CHNM	22°14'N	114°09'E	KV 073 620	15
Aberdeen Country Park			PARK	22°15'N	114°09'E	KV 075 646	11
Aberdeen Harbour see:	Heung Kong Tsai Wan		HBR	22°14'N	114°09'E	KV 065 631	15
Aberdeen Island	see:	Ap Lei Chau	ISL	22°14'N	114°09'E	KV 064 624	15
Aberdeen Reservoirs			RSV	22°15'N	114°09'E	KV 073 641	11
Aberdeen Tunnel			RD	22°15'N	114°10'E	KV 091 645	11
A Chau			ISL	22°26'N	114°13'E	KV 138 843	7
Afternoon Beach	see:	Kwun Yam Wan	BAY	22°12'N	114°02'E	JV 939 589	14
A Kung Kok			PT	22°24'N	114°12'E	KV 126 798	7
A Kung Ngam			PPL	22°17'N	114°13'E	KV 145 668	11
A Kung Tin			PPL	22°27'N	114°05'E	KV 012 861	6
A Kung Wan			BAY	22°20'N	114°16'E	KV 186 722	12
Aldrich Bay			BAY	22°17'N	114°13'E	KV 140 667	11
Aldrich Village			PPL	22°16'N	114°13'E	KV 141 661	11
Amah Rock	see:	Mong Fu Shek	HLL	22°21'N	114°10'E	KV 092 755	7
A Ma Wan			BAY	22°19'N	113°56'E	HQ 027 712	9
A Ma Wan			BAY	22°32'N	114°26'E	KV 360 953	4
A Ma Wat			PPL	22°31'N	114°14'E	KV 163 930	3
Angler's Beach			BCH	22°22'N	114°03'E	JV 965 763	6
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Ap Chau Tsai	see:	Sai Ap Chau	ISL	22°32'N	114°15'E	KV 181 967	3
Ap Lei Chau			ISL	22°14'N	114°09'E	KV 064 624	15
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Ap Lo Chun			RF	22°33'N	114°15'E	KV 184 967	5
Ap Ma Liu	see:	Nga Yiu Tau	PPL	22°25'N	114°15'E	KV 185 823	8
A Po Long			PPL	22°16'N	113°58'E	HQ 071 671	10
Approach Beach			BCH	22°22'N	114°05'E	JV 997 765	6
Ap Tau Pai			RF	22°32'N	114°16'E	KV 191 949	4
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Basalt Island	see:	Fo Shek Chau	ISL	22°19'N	114°21'E	KV 283 703	12
Bate Head	see:	Tuen Tsui	HDLD	22°26'N	114°23'E	KV 322 836	8
Bay Islet	see:	Chi Chau	ISL	22°20'N	114°19'E	KV 251 726	12
Beacon Hill			LCTY	22°20'N	114°10'E	KV 090 736	11
Beacon Hill	see:	Pat Ka Shan	HLL	22°21'N	114°10'E	KV 082 744	11
Beas River	see:	Sheung Yue Ho	STM	22°31'N	114°06'E	KV 029 931	2
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Big Wave Bay	see:	Tai Long Wan	BAY	22°14'N	114°14'E	KV 161 627	15
Bird's Hill	see:	Lung Shan	HLL	22°29'N	114°09'E	KV 075 901	3
Bird's Pass see:	Kat Tsai Shan Au		PASS	22°29'N	114°09'E	KV 080 895	3
Blackhead Point			LCTY	22°17'N	114°10'E	KV 086 685	11
Black Hill	see:	Hak Kwai Shan	HLL	22°18'N	114°14'E	KV 158 698	11
Black Point	see:	Lan Kok Tsui	PT	22°24'N	113°53'E	GQ 984 808	5
Bluff Head	see:	Wong Ma Kok	HDLD	22°11'N	114°12'E	KV 124 571	15
Bluff Head see:	Wong Chuk Kok Tsui		HDLD	22°30'N	114°19'E	KV 254 920	4
Bluff Island see:	Sha Tong Hau Shan		ISL	22°18'N	114°20'E	KV 268 708	12
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see: Heung Kong Tsai Wan			HBR	22°14'N	114°09'E	KV 065 631	15
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Beacon Hill	see:	Pat Ka Shan	HLL	22°21'N	114°10'E	KV 082 744	11
Beas, River	see:	Sheung Yue Ho	STM	22°31'N	114°06'E	KV 029 931	2
-ditto-			STM	22°30'N	114°06'E	KV 017 913	2
Beas River	see:	Sheung Yue Ho	STM	22°31'N	114°06'E	KV 029 931	2
-ditto-			STM	22°30'N	114°06'E	KV 017 913	2
Beaufort Island	see:	Lo Chau	ISL	22°11'N	114°15'E	KV 162 560	15
Belcher Bay			BAY	22°17'N	114°07'E	KV 039 674	11
Bennett's Hill	see:	Pan Nap Shan	HLL	22°15'N	114°09'E	KV 077 637	11
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Blackhead Point			LCTY	22°17'N	114°10'E	KV 086 685	11
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Bluff Head							
see: Wong Chuk Kok Tsui			HDLD	22°30'N	114°19'E	KV 254 920	4
Bluff Island							
see: Sha Tong Hau Shan			ISL	22°18'N	114°20'E	KV 268 708	12

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