Beginning BASIC with the ZX Spectrum

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*Convent of the Sacred Heart
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Dedicated to my parents

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Preface

The aim of this book is to teach programming in the BASIC language, as used by the ZX Spectrum, to the complete beginner. It is not an 'O' level or C.S.E. textbook, although it does cover practically all the programming skills required at those levels. Mathematics has been kept to a minimum and therefore arithmetic functions such as ABS, EXP, LN, PI, SGN and SQR together with trigonometrical functions SIN, COS, TAN, ASN, ARC and ATN have not been included.

Each unit is written so that it relies only on information already covered in previous units. This means that if the reader works through each unit in turn, he or she will not need to have any knowledge other than that already encountered in earlier units. If, however, the reader covers the units out of order, then difficulties may be experienced unless he or she has previous experience.

The book is best used with a microcomputer at hand as it is recommended that the sample programs are typed in. The program listings are direct copies of the screen, thus providing an easy check that the program has been correctly entered. Each unit gives plenty of opportunity to practise the skills just acquired and solutions to the activities are included at the back of the book. It should be remembered, however, that in programming there may often be several solutions to a problem and therefore if the reader's program works successfully it is just as acceptable as the solution given.

Woldingham, 1984

JUDITH MILLER

Using the ZX Spectrum + Keyboard

Although this book is based on the standard version of the ZX Spectrum, all of the programs and references to BASIC apply equally to the ZX Spectrum +.

If you are using a ZX Spectrum +, there will be minor variations in the steps to follow to obtain certain of the symbols on the keys. Therefore, please disregard the instructions in the text of this book on how to obtain certain 'Extended Mode' and other functions; instead follow the instructions in the *Spectrum + User Guide* or the summary below. You will find that, in all cases, the modifications will make it much easier to enter and manipulate information from the keyboard.

The ZX Spectrum + is essentially a ZX Spectrum, provided with a real keyboard. All software that works on the ZX Spectrum will be compatible with the Spectrum +, and interfacing with other items should be unchanged.

The obvious difference that the user will encounter is that of the feel and use of the full-travel keyboard, which will make keying-in of material much easier.

Earlier criticisms of the keyboard colouring has been taken into account, and the positioning of many of the legends has been subtly altered to increase readability.

There are several differences between the old and new keyboards — 18 extra keys are added to the original 40 keys and, for the first time, there is a RESET button and a conventional space bar.

The RESET button, situated on the right-hand side of the computer, should be used with care — its effect is to switch the computer off and then on, thus losing any program or data in the computer's memory. You will probably want to use it only when the computer has 'crashed' — that is, when the computer fails to respond to any of your instructions.

The main difference between using the Spectrum and the Spectrum + lies in the location and pressing of the following keys: 'EXTEND MODE', 'GRAPH', 'DELETE', 'EDIT', 'SYMBOL SHIFT', 'CAPS SHIFT', 'CAPS LOCK', and 'SPACE'. The operation and principles of use remain unchanged.

See pages 8, 20 and 21 of the *ZX Spectrum + User Guide* for full information on the use of the keys.

Other changes requiring specific mention are:

1. The 'arrow keys' which are used for moving the cursor when editing or when playing many games have been moved from the number keys, and are to be

found on either side of the space bar — with ‘up’ and ‘down’ to the right, and ‘left’ and ‘right’ to the left.

2. A welcome addition is the provision of a separate key to provide the quotation marks — which are used at the beginning and end of most PRINT statements.
3. ‘DELETE’, ‘EDIT’, ‘CAPS LOCK’ and ‘GRAPH’ together with the ‘,’ and ‘;’ keys each now get a key of their own, and ‘CAPS SHIFT’ and ‘SYMBOL SHIFT’ have a key on each side of the keyboard.

How to obtain the different functions on each key

Letter keys

These keys generally have five separate legends on them. On the moving part of the key you will find three items — the letter itself, and either one word and a symbol, or two words.

Just above the moving part of the key, you will find two words or abbreviations.

To obtain the different words and symbols you need to press one or two other keys at the same time as you press the key on which the item is found.

A couple of sample keys are shown below.

Note that the **letter** can only be obtained when the screen cursor is an 'L', and that **keywords** can only be obtained when the cursor is a 'K'

Number Keys

Number keys operate in much the same way, and a couple of examples are shown here.