

# CONTENTS

## APPLICATION



**CONTINENTAL SHIFT** The European market for computers has boomed in the past few years; we look at the task facing software houses wishing to translate their packages

881

## HARDWARE



**RESEARCH FELLOW** The Link 480Z is the second computer from Research Machines aimed at the educational market.

889

## SOFTWARE



**POWER PACKS** We review four spreadsheet packages that are representatives of a new breed of computer software — packing more power into a smaller memory space

886

## COMPUTER SCIENCE



**STITCH IN TIME** Our special projects continue in LOGO as we show you how to create cycloid curves and introduce the principles of 'curve stitching'

892

## JARGON



**INTERRUPTS TO JUSTIFY** A weekly glossary of computing terms

888

## PROGRAMMING PROJECTS



**GHOST APPEARANCE** Now that the adventurer has entered the tunnel we are ready to write the procedures to create random ghosts

883

## MACHINE CODE



**ACTION STATIONS** In this part of our detailed look at the BBC Micro's operating system we concentrate on the use of vectors and learn how to interact with the keyboard and the screen

897

## WORKSHOP



**WEIGHING IN** We examine the calculations required to calibrate the robot's movement-controlling software and write a program to test its collision sensors

894

**LOGO EXTRA** In an extension of our LOGO series, we continue with our investigation of its geometric powers

INSIDE  
BACK  
COVER

## Next Week

• Microprocessors are finding their way into many different machines. We look at computer-controlled cameras.

• Computers can be of educational value to people of all age groups. We take a look at programs for the very young child.



## DON'T VAT THE PRESS

There are strong reasons to believe the Chancellor of the Exchequer is planning to impose VAT on your magazine.

Such a move would turn the clock back 130 years — the last tax on newspapers and journals was repealed in 1855. Since then 'No tax on knowledge' has been a principle agreed by all Governments, even in the darkest days of war.

A free Press is a tax-free Press. No Government should be given the power to impose financial pressure on a Press it may not like.

Tell your MP to say 'NO' to any tax on reading.

Issued by the Periodical Publishers Association, London

**Editor** Mike Wesley. **Technical Editor** Brian Morris. **Production Editor** Catherine Cardwell. **Art Editor** Claudia Zelf. **Chief Sub Editor** Robert Pickering. **Designer** Julian Dorr. **Art Assistant** Lir Dixon. **Staff Writer** Stephen Malone. **Sub Editor** Steve Mann. **Consultant Editor** Steve Colwill. **Contributors** Geoff Bains, Harvey Mellor, Karl Dallas, Joe Pritchard, Steve Colwill. **Software Consultants** Pilot Software City, Group Art Director Perry Neville. **Managing Director** Stephen England. **Published by** Orbis Publishing Ltd. **Editorial Director** Brian Innes. **Project Development** Peter Brooksmith. **Executive Editor** Maurice Geller. **Production Controller** Peter Taylor-Medhurst. **Subscription Manager** Christine Aikin. **Designed and produced by** Bench Partners Ltd. **Editorial Office** 14 Rathbone Place, London W1P 1DE. © APSIF Copenhagen 1984. © Orbis Publishing Ltd 1984. **Typeset by** Universe; **Reproduction by** Mullis Morgan Ltd; **Printed in Great Britain by** Artisan Press Ltd, Leicester

**HOW TO OBTAIN ISSUES AND BINDERS FOR THE HOME COMPUTER ADVANCED COURSE** — Issues can be obtained by placing an order with your newsagent or direct from our subscription department. If you have any difficulty obtaining any back issues from your newsagent, please write to us stating the issue(s) required and enclosing a cheque for the cover price of the issue(s). **AUSTRALIA** — please write to: Gordon & Gotch (Aus) Ltd, 114 William Street, PO Box 767G, Melbourne, Victoria 3001. **MALTA, NEW ZEALAND & SOUTH AFRICA** — Back numbers are available at cover price from your newsagent. In case of difficulty, write to the address given for binders. **UK/EIRE** — Price: 80p/IRE1. Subscription: 6 months: £23.92. 1 Year: £47.84. Binder: please send £3.95 per binder, or take advantage of our special offer in early issues. **EUROPE** — Price: 80p. Subscription: 6 months air: £37.96. Surface: £31.46. 1 year air: £75.92. Surface: £62.92. Binder: £5.00. Airmail: £5.00. **MALTA** — Obtain binders from your newsagent or Miller (Malta) Ltd, MA Vassalli Street, Valletta, Malta. Price: £3.95. **MIDDLE EAST** — Price: 80p. Subscription: 6 months air: £43.94. Surface: £31.46. 1 year air: £87.88. Surface: £62.92. Binder: £5.00. Airmail: £5.00. **AMERICAS/ASIA/AFRICA** — Price: US/CAN\$1.95/80p. Subscription: 6 months air: £51.74. Surface: £31.46. 1 year air: £103.48. Surface: £62.92. Binder: £5.00. Airmail: £5.45. **SOUTH AFRICA** — Price: SA R1.95. Obtain binders from any branch of Central News Agency or Intermag, PO Box 57394, Springfield 2137. **SINGAPORE** — Price: Sing \$4.50. Obtain binders from MPH Distributors, 604 Sims Drive, #03-07-21, Singapore 1436. **AUSTRALASIA/FAR EAST** — Price: 80p. Subscription: 6 months air: £55.36. Surface: £31.46. 1 year air: £110.76. Surface: £62.92. Binder: £5.00. Airmail: £5.65. **AUSTRALIA** — Price: Aus\$1.95. Obtain binders from First Post Pty Ltd, 23 Chandos Street, St Leonards, NSW 2065. **NEW ZEALAND** — Price: NZ\$2.25. Obtain binders from your newsagent or Gordon & Gotch (NZ) Ltd, PO Box 1595, Wellington.

**ADDRESS FOR BINDERS AND BACK ISSUES** — Orbis Publishing Limited, Orbis House, Bedfordbury, London WC2 4BT. Telephone 01-379 6711. Cheques/postal orders should be made payable to Orbis Publishing Limited. Binder prices include postage and packing and prices are in sterling. Back issues are sold at the cover price, and we do not charge carriage in the UK.

**NOTE** — Binders and back issues are obtainable subject to availability of stocks. Whilst every attempt is made to keep the price of the issues and binders constant, the publishers reserve the right to increase the stated prices at any time when circumstances dictate. Binders depicted in this publication are those produced for the UK and Australian markets only. Binders may be subject to import duty and/or local taxes, which are not included in the above prices unless stated.

**ADDRESS FOR SUBSCRIPTIONS** — Orbis Publishing Limited, Hurst Farm, Baydon Road, Lambourn Woodlands, Newbury Berks, RG16 7TW. Telephone: 0488-72666. All cheques/postal orders should be made payable to Orbis Publishing Limited. Postage and packaging is included in subscription rates, and prices are given in sterling.