



# 50 Golden Years Of Practical Electronics PART 1

by Alan Winstanley

## A brave new world

The November 2014 issue of *Everyday Practical Electronics* marks a very special milestone in the evolution of our title: we are proud to celebrate the 50th anniversary of Britain's *Practical Electronics* magazine, a title launched half a century ago in 1964 and which has evolved into today's modern *EPE Magazine*.

*Practical Electronics* was a new addition to the emerging family of 'Practical' home and hobby magazines published by George Newnes in London, joining the radio journal *Practical Wireless*, which first appeared in 1932 and became the largest selling publication of its kind, peaking at 120,000 printed copies a month. *Practical Electronics* would be designed to offer a broader appeal in the world of hobby electronics and was committed, in the words of its editor Fred Bennett, 'to explore, unreservedly, all its practical possibilities'.

The team at *Practical Wireless* had suggested the new magazine and in 1962 Fred Bennett officially went to work for 'PW' – or so he thought. The truth dawned as Fred was eventually tasked with preparing a new title, to be called (probably at his suggestion) *Practical Electronics*, and his close personal involvement with the development of *Practical Electronics* was in reality pre-ordained by Newnes. The gestation period of *Practical Electronics* was surprisingly long, explained Fred in 1989, as more than a year passed while Newnes chewed over some mock-ups for the proposed magazine.

## First issue

Finally, after receiving the go-ahead at the end of 1963, the first issue of *Practical Electronics* was eventually published the following year in October 1964, less than 20 years after the end of the war when the need for thrift,



make-do and resourcefulness rubbed shoulders with highly skilled engineers, ex-military types, keen amateurs and talented professionals alike – all potential readers (and contributors) for the new magazine.

Such was the intense interest in the subject that about 115,000 copies of the first edition were sold. As Fred explained, the November 1964 Vol. 1 Issue 1 of *Practical Electronics* was launched in a post-war era that heralded the dawn of a 'white-hot technological revolution,' as Britain's then Prime Minister Harold Wilson put it. With the Space Race beckoning, there was no doubt that electronics would have a pivotal role to play in the technological revolution that lay just over the horizon. Many exciting discoveries and advances were promised, with *Practical Electronics* playing a key role in enthralling, enthusing and educating its dedicated new readership.



The very first issue of *Practical Electronics* arrived in 1964. It was packed with features and mail order advertisements

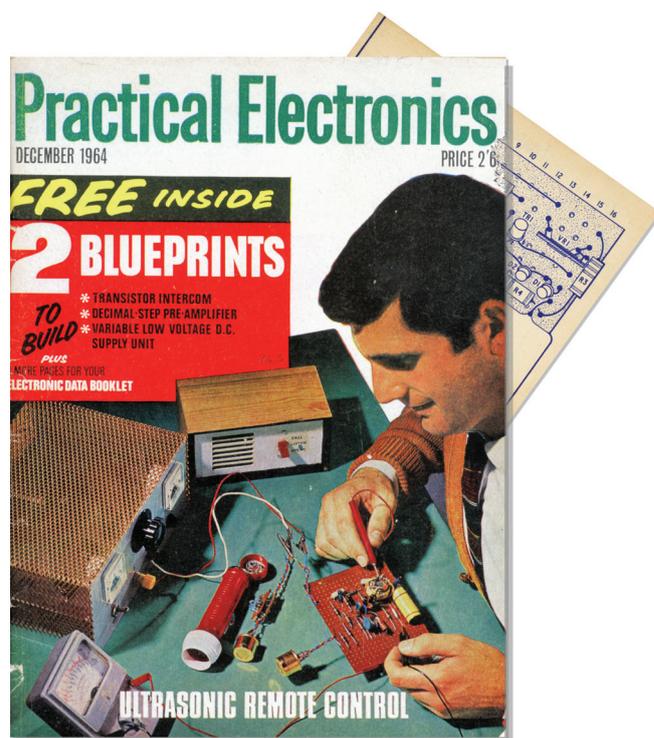
### Limitless talent

Editor Fred Bennett was worried that there would be insufficient material contributed each month, but at no time did this prove to be the case and he soon realised that he had 'begun to tap an inexhaustible source of talent'. He said that 'scores of amateurs and professionals were swift to offer their projects,' and he would often have to make difficult choices about what to publish, and what to reject.

Aided by the advent of the germanium diode and transistor, a procession of constructional projects was eagerly devoured by readers hungry to challenge their skills in building their own electronic circuits. Issue 1 offered a taste of things to come, with a 5W integrated amplifier (all-transistor), a Geiger-Muller ratemeter, a VHF receiver and a Morse practice oscillator. A feature on 'Semiconductors for Automobiles' highlighted offerings by Lucas in electronic ignition systems for (positive earth) cars.

### PCBs and Veroboard from day one

Printed circuit board foils were offered right from the start, with cellulose paint recommended as etch resist and a fearsome cocktail of ferric chloride and hydrochloric acid suggested for etching boards at home. Mercifully, stripboard assembly quickly followed in *Practical Electronics*, with December 1964's issue already having a pull-out blueprint featuring two projects using the new 0.15-inch pitch 'Veroboard System'. This SRBP circuit panel of milled copper strips and a precision matrix of punched holes was a truly brilliant invention, which had launched earlier in 1961, and Veroboard was destined to put home electronics construction within easy reach of hobbyists for decades to come. Readers faithfully followed the magazine's skilfully drawn assembly diagrams and soldered everything together with gusto.



The December 1964 edition encouraged hobbyists to use the new British-designed 'Veroboard System' to assemble circuits

There was plenty for the electronics enthusiast to see and do in this exciting new hobby, and the reader response to early issues of the magazine was immensely gratifying. Clearly, *Practical Electronics* was a magazine just right for its time, and its resourceful and focussed readers devoured its contents every month. The title was also keen to welcome newcomers and much attention was given to explaining the principles and physics of electronics to readers using easily digestible articles and tutorial series, starting with *Beginners Start Here* in Issue 1. Eagerness to educate would become a core value of the magazine and is still with us today.

### Advertising

*Practical Electronics* also carried many fascinating advertisements that formed the critical backbone of the hobbyist's supply line. In Issue 1, an embryonic Sinclair Radionics Ltd advertised a 10W amplifier (the Sinclair X-10) and the Sinclair Micro-6 ('the smallest radio set in the world'), whilst Heathkit had a British catalogue of test, audio and radio equipment that were sold in kit or assembled form – £18. 18 shillings

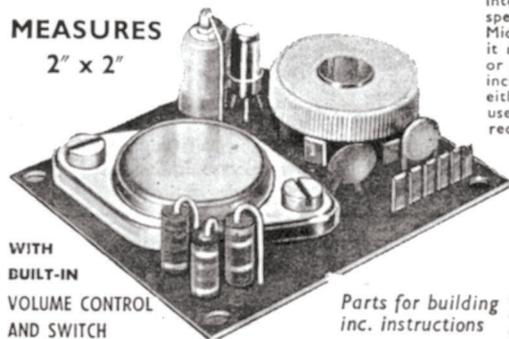


# SINCLAIR TR750 AMPLIFIER

Designed for use with the Micro-6 or Slimline Receivers

## MEASURES

2" x 2"



WITH BUILT-IN VOLUME CONTROL AND SWITCH

This highly original design is primarily intended to provide powerful loud-speaker reproduction from the Sinclair Micro-6 and Slimline Receivers. As such, it makes an ideal car-radio or portable or domestic loudspeaker set. A plug is included for connecting the TR750 to either set. The amplifier can also be used in many other ways including record player, intercom or baby alarm.

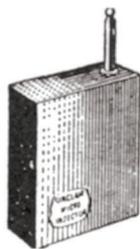
- **OUTPUT** — 750 milliwatts into any standard 25-30 ohm loudspeaker
- **INPUT** — 10 mV into 10K-ohms
- **RESPONSE** — 30-20,000 c/s  $\pm$  1dB

Parts for building inc. instructions **39/6**    **READY BUILT AND TESTED 45/-**

## SINCLAIR MICRO-INJECTOR

Invaluable to constructors for fault tracing

Two Sinclair Micro-Alloy Transistors (M.A.Ts) are used in a special circuit to generate and inject a test signal into any part of the equipment at any frequency from 1 kc/s to 30 Mc/s so that faults can be rapidly located in any radio or audio apparatus. This is the smallest, most efficient probe of its kind ever offered to constructors and the lowest priced too. The standard 6d. battery required to power the Sinclair Micro Injector will easily give 6 months' service. Full instructions are included with every instrument, complete or in parts. Building is very easy.



Parts inc. M.A.Ts and case come to

**27/6**

Ready built and tested **32/6**

## SINCLAIR MICRO-AMPLIFIER

Designed to laboratory standards



Thousands of these fantastically small amplifiers have been built by constructors, modellers, experimenters, laboratories, commercial firms, etc. Frequency response from 30 to 50,000 c/s  $\pm$  1 dB.

Power gain 60 dB (1,000,000 times!). Instructions show you how to make an F.M. transmitter, broadband R.F. or sub-miniature hi-fi amplifier with an output suitable for any earpiece or even loud-speaker. A fascinating unit to build and use. It is no bigger than a three-penny piece!

Parts and instructions come to **28/6**

## SINCLAIR X-10

For details of this revolutionary new 10 watt combined hi-fi amplifier and pre-amp see our preceding pages.

## Salute to a new Journal

Now that transistors are so freely available to everyone, we feel that *Practical Electronics* had to come. We are confident that this exciting new journal is going to meet the needs of an ever-increasing band of constructors whose interests are taking them into fascinatingly new fields, and who will want more varied and ambitious activities as electronics progress. So good luck to *Practical Electronics*. As a forward looking team ourselves, we wish you every success.

## SINCLAIR TRANSISTORS

MAT 100	High gain, low level ...	7/9
MAT 101	Extra high gain, low level	8/6
MAT 120	High gain, medium and high level ...	7/9
MAT 121	Extra high gain, medium and high level ...	8/6
ADT 140	For FM, TV, VHF and UHF	15/-
"Magnagain"	Power Output up to 30 watts ...	18/-

## BOOKS FOR CONSTRUCTORS

- ★ "22 Tested Circuits Using Micro Alloy Transistors" Post free **5/6**
  - ★ "Tested Short Wave Receivers Using MATs" Post free **5/6**
  - ★ "Tested Superhet Circuits for Short Wave and Communication Receivers, using MATs" Post free **6/6**
- All three ordered together, 16/6

If you do not wish to cut the coupon from this page, please mention "Practical Electronics," November, when ordering

To SINCLAIR RADIONICS LTD., COMBERTON, CAMBRIDGE

Please send items detailed below:— £    s.    d.

NAME.....

ADDRESS.....

TOTAL £ .....

For which I enclose CASH/CHEQUE/MONEY ORDER .....

Pre. 11

The first advert in Issue 1 from Sinclair Radionics, whose DIY kits were already moving towards miniaturisation

bought a 'deluxe valve voltmeter' kit. Many home constructors sent for a Henry's Radio catalogue, the London-based mail-order component supplier being a lifeline for many constructors in these, the glory days of the hobby. Henry's advertisement graced the back cover for many years, while inside the magazine, the pages were crammed with myriad advertisers whose tantalising merchandise was just a phone call or mail-order coupon away. E-commerce was thirty years distant and so everything was handled by post or (if you were lucky) a local electronics or radio surplus shop might meet your needs. At one point, such was the terrific demand for magazine space in *Practical Electronics* that advertisers were actually being turned away!

The February 1965 *Practical Electronics* carried a competition called 'Magic Boxes' and, with a two-guineas prize on offer, inquisitive readers were invited to reverse-engineer an electronic

puzzle and write in with their solutions. Such was the enthusiasm that more than 500 submissions arrived in the following week's mail. Something else appeared for the first time in that issue: a throwaway line under the Magic Boxes heading exclaimed 'Ingenuity Unlimited!' and readers queued up to submit their own answers to the Magic Boxes conundrum. The title stuck, and *Practical Electronics* eventually adopted it for a column of readers' own circuit ideas. In fact, it was 'IU' that first sparked this writer's own interest in hobby electronics back in 1975, the December issue. Reader interaction, as far as there was any, was conducted strictly by letter post, which meant a two-month lead-time on the *Readout* letters page.

### Sounds of the Sixties

Readers would have to wait until the October 1967 issue to see their first integrated circuit project. It used a four-pin



linear amplifier from Mullard as the heart of a record player audio system. Integrated circuits like these heralded (or maybe threatened, depending on your point of view) another revolution in electronics design and assembly. Just as there had been much rivalry between the thermionic valve and transistor camps of the electronics fraternity, the dawn of the IC era promised to challenge them further still. In the closing years of the 1960s, more IC designs appeared, this time using devices from Plessey. Engineers who worked for major British manufacturers such as Plessey, Mullard and Lucas, as well as lecturers and professionals all regularly submitted articles of the finest quality and their work often graced the pages of *Practical Electronics*, which helped the magazine to maintain its quality feel with an authoritative and dependable tone.

In 1968, a young Mike Kenward joined the team as a technical sub-editor, following a successful interview with Fred Bennett. The magazine's editorial masthead was very restrained in the early days; only the name of the editor, 'F.E. Bennett' appeared. Mike was soon contributing heavily to *Practical Electronics* and indeed was the subject photographed for the July 1969 cover promoting an Optical Remote Controller, a device that was supposedly wired directly to a TV chassis!

The publisher George Newnes was a part of the International Publishing Corporation, founded in 1963 along with Odhams Press and Fleetway Publications. In 1968 IPC Magazines was created, its name appearing discretely under the Editorial of *Practical Electronics* from that moment on. Since IPC claimed to trace its roots back to 1853, it seemed to bode well for a magazine title's longevity!



A young member of *Practical Electronics*' Editorial staff – Mike Kenward – on the July 1969 cover, promoting an optical remote control system for TVs

## Digital electronics and the 1970s

Into the new decade of the 1970s, and what lay in store for the electronics hobbyist? The answer came in the December 1970 issue with the title's first digital IC project – the *Digi-Clock* by RW Coles. This complex design used no less than 20 TTL logic chips and four cold-cathode tubes for a digital display. 1971 saw some highly significant designs being published, including the *PE Aurora* (April 1971) sound-to-light system, a design at last made feasible by semiconductor mains switching, and the *PE XEE* (June 1971), a sensory buggy which was hailed by BBC TV's *Tomorrow's World* as a sign of things to come in the technology world. Not every project turned out to be viable, though; a long-running DIY desktop digital calculator – the *PE Digi-Cal* (July 1972 onwards) was built with TTL logic and took no less than eleven monthly articles to complete. Unfortunately, it was obsolete almost before constructors turned off their soldering irons because single-chip calculators came onto the market around that time.

Another milestone was reached in June 1973 when a small new Signetics integrated circuit was announced to the *Practical Electronics* readership: the NE555V timer. This deceptively simple little 8-pin marvel became a staple item in every hobbyist's tool chest – and 40 years on it still is.

The advances in linear and digital dual-in-line ICs were unstoppable, with data sheets and application notes from Texas Instruments, National Semiconductor, Motorola and many more signposting the way that the industry was headed. Hobbyists followed hard on their heels, and interest in hobby electronics showed little sign of abating, helping *Practical Electronics*' circulation settle at a healthy 95,000 copies a month.

Success and the rapid pace of change could be a headache. Projects, tutorials and adverts all jostled for space, as ever-more advanced designs of astonishing complexity (for a hobby magazine) appeared, including CCTV cameras, electric organs and pianos, analogue computers, music synthesisers, electronic ignitions and a plethora of technically ambitious projects. There are far too many projects to mention, but the *PE Scorpio* ignition system and *PE Gemini* stereo amplifier are just two of many much-loved, outstanding efforts by their freelance contributors and the advanced hobbyist was spoiled for choice. Many of these key projects are remembered with fondness by their constructors to this day.

## An everyday answer

There were so many new and exciting developments in microelectronics to explore in the 1970s, plus ever-more challenging projects put into print that competition for column inches was unrelenting. It became clear that it would be hard for *Practical Electronics* to continue to cater for all abilities and the journal risked spreading itself too thinly. Interest also came from the education sector, as schoolteachers and lecturers welcomed the support and value that *Practical Electronics* offered to their classes of budding electronics hobbyists and trainee engineers.

It was realised that even a simple two or three-transistor circuit could be very challenging for a beginner to tackle successfully. Often, transistor pinouts and diode orientations were a great mystery for novices, and there was no World Wide Web to provide technical data. In fact, suppliers' mail order catalogues were much prized for the component data that they (hopefully) contained. The desire to satisfy the needs of the higher end of the scale of abilities, while also endeavouring to cater for beginners and newcomers undoubtedly put pressure on editorial resources.





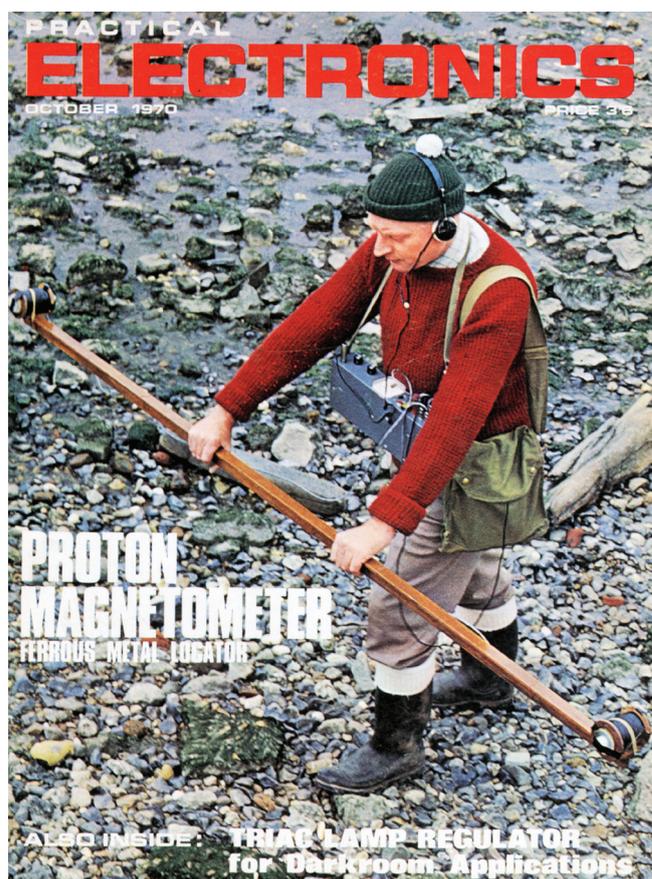
**Everyday Electronics** was aimed at novice electronics hobbyists when it was launched in 1971. The introductory November issue included a free gift of Veroboard

As a result of this need to cater for a wider scope of readership abilities, in 1971 the team behind *Practical Electronics* decided to spin out the more basic, entry-level content into a new journal to be run by the same team. Thus, *Everyday Electronics* was born, promising 'Projects easy to construct and theory simply explained'. Its first November 1971 issue (price 15p.) offered some simpler home projects for the less-experienced hobbyist to tackle and a small pink paper envelope contained a free piece of Veroboard. The contents of *Everyday Electronics* were deliberately un-intimidating, easily assimilated and well presented, sufficient to encourage the novice to have a go with confidence. A *Windscreen Wipe Control*, *Home Sentinel* opto switch, a *Snap* electronic game and a record player were all on offer. Apart from *Shop Talk* (component buying advice, written by a young Mike Kenward) there also appeared Part One of a ground-breaking electronics educational series called *Teach-In* by Mike Hughes, who started by offering readers some sound soldering advice. From the first issue, *Everyday Electronics* was already finding its feet.

Into the mid-1970s and *Practical Electronics* led the way again, this time with a design for a *Proton Magnetometer* ferrous metal locator. The article was characteristically comprehensive in its coverage of theory and practical assembly, with all diagrams expertly drawn by hand throughout. The issue was also notable for its cover photo of editor Fred Bennett, using the device on the banks of the River Thames.

#### Pong!

Another revolution was also under way in the 1970s, this time on our TV screens. Television



The founding editor of *Practical Electronics*, Fred Bennett, seen here trying the *PE Proton Magnetometer* on the banks of the River Thames in London

viewers were mesmerised by the sight of a little white square bouncing around a blank screen and darting to and fro, with two users able to bat it back again using a simple control. Television video games had been born, starting with tele-tennis or 'Pong'. There had never been anything like it, and enthusiasts of tele-tennis were soon glued to their screens into the small hours of the night. Dedicated integrated circuits were now being released that dispensed with the need for boards full of logic chips, although some of the IC solutions were buggy and much work was needed to improve the reliability of this latest wave of semiconductor chips.

June 1977's *Practical Electronics* had a *TV Sports Centre* on the cover, showing Production Editor Dave Barrington eagerly playing tele-tennis with, he told me, a secretary borrowed for the photoshoot from IPC staff. July 1978's issue had the more complex *PE TV Game Centre*, which promised 14 games of digital TV entertainment, although none of them looked anything like the motorcyclist or tennis player depicted on the cover! Primitive cartridge-based TV game consoles appeared in the shops for the first time and colour arcade games in pubs (the rest, as they say, is history).

#### Next month

In the second part, more advances in electronics technology are celebrated starting with the new age of home computing and then the single most significant digital device that changed the face of hobby electronics for ever. We trace *EPE* magazine's heritage over the past 20 years, showing how Britain's last remaining hobbyist electronic magazine has evolved from a number of competing titles. More fascinating cover shots of key issues are included, so be sure not to miss Part Two next month!





by Alan Winstanley

**In Part Two of our 50th Anniversary celebration of *Practical Electronics* magazine, we chart the progress of Britain's last remaining hobby electronics magazine from the 1970s to the present day.**

#### **New technologies**

In the 1970s, semiconductor technology raced ahead: silicon had supplanted germanium, circuitry had gone 'digital', new light-emitting diodes offered colour, speed and power efficiency, CMOS technology was starting to emerge, and large-scale integrated chips were being released with applications in every sector of technology. A stylish Sinclair digital watch could now be built in kit form, as could a Sinclair 8-digit wrist calculator.

#### **The chips byte back**

*Practical Electronics* continued in the same vein of presenting projects of intermediate to advanced complexity, submitted by freelance contributors. One emerging area was really starting to make its presence felt: computing. Thanks to Intel, the era of the microprocessor was upon us, and *Practical Electronics* was keen to meet this challenge with tutorials, starting in 1975, followed in 1977 by the series *Microprocessors Explained*, written by RW Coles (who had previously designed the magazine's first digital IC project in December 1970).

The dawn of the home computing era became something of a double-edged sword. There were electronics hobbyists hungry to know more about programming and building computer kits, especially in the USA, but this new field could be a distraction from 'core electronics' project construction. Of course, those newly interested in computing also drifted into electronics as a complement to their hobby. In fact, *Practical Electronics* said that the Personal Computer Show held in Atlantic City in August '76 showed how the new hobby of home computing had taken both the electronics industry and retail trade completely by surprise.

The year 1977 would be one of upheaval, as IPC Magazines moved some operations away from London to Poole in Dorset, on the south-west coast of England. Editor Fred Bennett remained in London as editor of *Everyday Electronics*. Mike Kenward accepted the post of editor of *Practical Electronics* in

# 50 Golden Years Of Practical Electronics

## PART 2

Poole; he had returned to England after working for *Electronics Today International* in Canada. Having become divided, the two magazines went their own way and to some extent *PE* and *EE* became rivals. December 1977 was the last London-based edition and Mike's new team took over from the January 1978 issue of *Practical Electronics*.

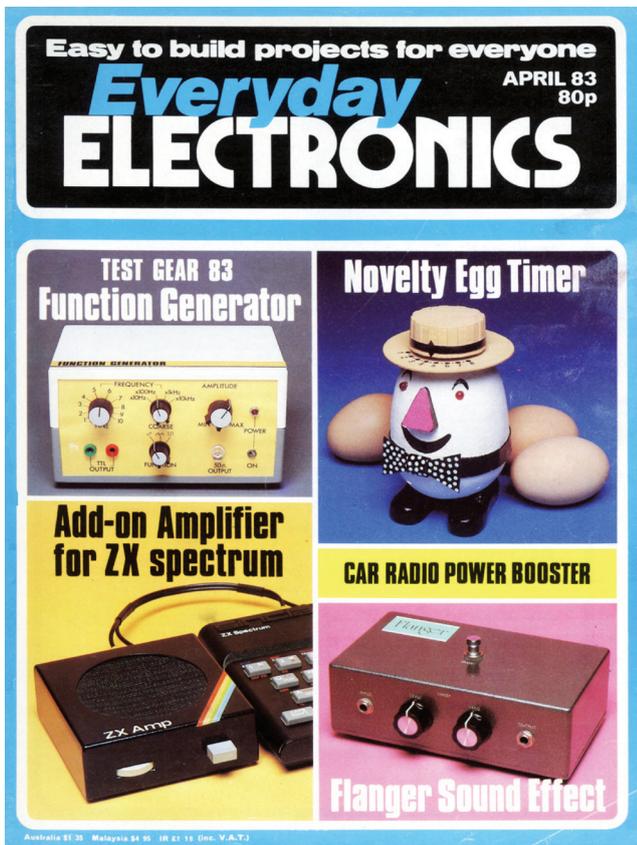
#### **Digital takes off**

It has been said that *Practical Electronics* had resisted the temptation to carry many hobbyist-designed computer projects as developments were still racing ahead. Perhaps memories of the ill-fated *Digi-Cal* desktop calculator were still raw! A computer kit by MITS called the Altair 8800 claimed to be the first Intel 8080-based 8-bit computer kit to rival commercial units and *Practical Electronics* swiftly and characteristically rose to the challenge by publishing the *PE Champ* microprocessor development system. *Practical Electronics*' immensely successful *Compukit UK101*, a 6502-based design with 8K of RAM, followed in August 1979. It ran Microsoft BASIC and software could be uploaded on cassette tapes and some expansion possibilities tantalised the taste buds of hobbyists. A new branch of electronics technology – a computer hobby in its own right – had taken shape and the plethora of magazine titles on sale reflected that.

The July 1980 issue saw another milestone home computer product appear, one that would become the clarion call of home computing in Britain: the brilliant Sinclair ZX80, then the ZX81 and the Sinclair Spectrum, all light years ahead of the modest Sinclair amplifiers and radios that first appeared in November 1964's launch issue. Computer projects, including modems and Teletext followed, then in 1981 the *PE Car Computer*, a design with unsurpassed capabilities, and the *Telectric Digital* electricity cost meter, which also found its way onto BBC TV's *Tomorrow's World*. Home computers such as the BBC Model B and the Vic 20 were prime material for more computer-based projects in the years ahead.

The late 1970s had been a period of great turmoil in Britain, with industrial problems, recession and strikes doing great harm and the after-effects of this were felt in a decline in readership as well as advertising. Gone were the days of turning away advertisers from the magazine's overcrowded pages and both titles were caught up in





The April 1983, *Everyday Electronics* would be the last in this traditional style. Note the add-on project for the Sinclair ZX Spectrum home computer

industrial supply problems, with deliveries becoming erratic at times. *Everyday Electronics* then entered the computing fray with a restyle, the April 1983 issue was the last before it morphed into *Everyday Electronics and Computer Projects*. The May '83 cover project sported a *Real-Time Clock* for Apple II and BBC Micro computers.

### End of the IPC era

In 1985, IPC Magazines decided to dispose of a number of their titles including *PE* and *EE*. Following a brief period of stabilisation under its new owners, Intra Press, in 1987 *Practical Electronics* acquired a new editor: John Becker. Already known to many readers for his designs, including a post-Chernobyl *Geiger Counter* featured (again) on *Tomorrow's World*, John became editor literally overnight and quickly settled to produce *Practical Electronics* under the auspices of its new owner.

As I write, I have the November 1989 issue of *Practical Electronics* open at John's 25 Years Silver Celebration. The revised magazine itself would be different from before, and contained a lot more news, features and theory but less sleeves-up practical hobby electronics – much less. John was a true thoroughbred electronics hobbyist at heart, and had tremendous skills in design and authoring, as readers appreciated at the time. One did wonder whether it was a marriage made in heaven, and a decade later John confided to the writer that he did not always agree with the direction that its publisher seemed intent on going.

Both magazines were conscious of the competition as a multitude of titles jostled for the attention of subscribers. *Electronics Today International* hailed from Australia and the British version of *ETI* gave *Practical Electronics* a run for its money. Initially published by Modmags, *ETI* was perhaps a bit rebellious and it published projects and features in a style that was anything but stuffy or formal: if *PE* wore suits then *ETI* wore jeans! Another Modmags



*EE* was rebranded as *Everyday Electronics and Computer Projects* from May 1983, to appeal to the rapidly increasing number of home computer enthusiasts who, it was hoped, would explore microelectronics

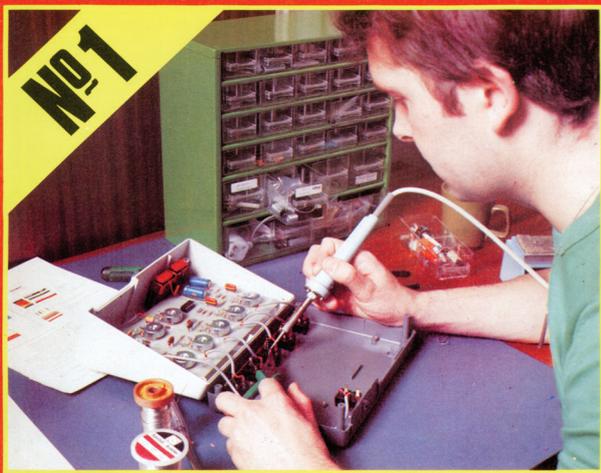


*Electronics Today International (ETI)* rivalled *Practical Electronics* in the UK; its less formal approach found many friends. It merged into *EPE*'s format in 1999



# Hobby Electronics

November 78  
40p



## Component Codes

What the colours mean

## DIY Stereo Amplifier

Full constructional details

## Bedside Radio Project

Music for insomniacs

## Home Computers

What are they?

## Metal Locators

Discover how they work

## Understanding Hi-Fi Specs.

We take the lid off

## Into Electronics

A series for newcomers

## DIY Digital Clock

Time well spent

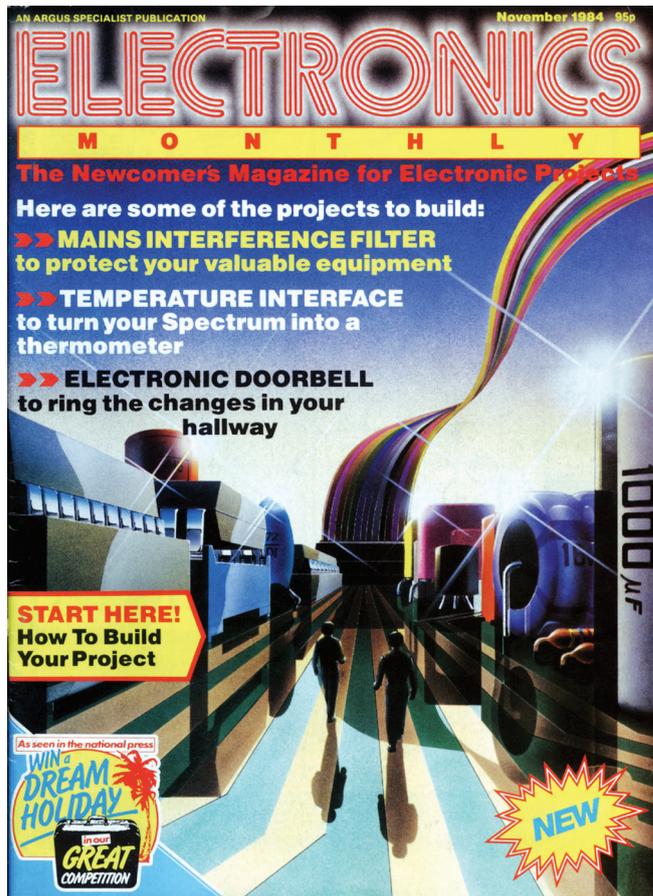
Issue No.1 of *Hobby Electronics*, November 1978 was aimed squarely at the electronic hobbyist beginner's market – it became *Electronics Monthly* in late 1984

title called *Hobby Electronics* (November 1978 to October 1984 issues) took aim at *Everyday Electronics*. It eventually came under the same editorial auspices as *ETI* and changed to *Electronics Monthly* from late 1984. The 25th anniversary issue of *PE* also carried an item on a new niche magazine devoted to vintage radio called *Radio Bygones*, edited by *Practical Wireless's* Geoff Arnold, and eventually *RB* also became part of the *EPE* family.

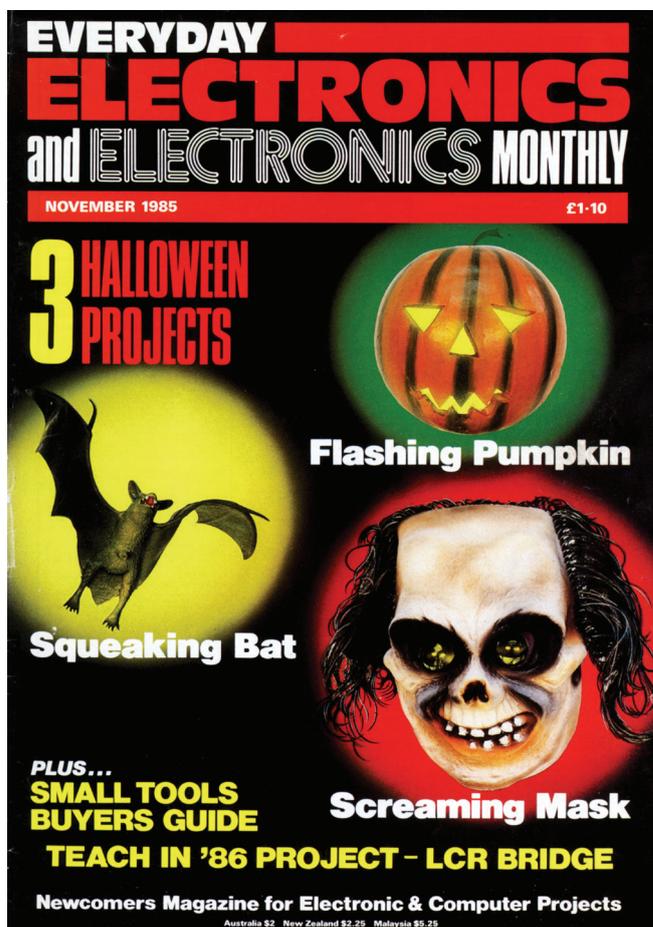
By now, *Everyday Electronics* was revitalised and on the march, and bought up the interests of *Electronics Monthly*; so from the November 1985 issue the title changed to *EE&EM* and it enjoyed a buoyant run for the next seven years. A new publishing company owned by its editor Mike Kenward acquired the title *Everyday Electronics* in a seamless transition, so it was business as usual for readers. Indeed, in March 1986's editorial for *EE*, the first issue produced by the fledgling Wimborne Publishing Ltd, Mike reported a revitalised interest in constructional projects and a resurgence of courses in schools and colleges. He added that magazine readership had increased dramatically over the past few months, with sales of books and boards at an all-time high. One theory was that readers' interest in the new computing phenomenon had sparked an interest in interfacing and building peripherals.

### The rise of the MCU

I will never know how events at *Practical Electronics* were panning out in the late 1980s, but I suspect that the writing was probably on the wall. Suffice to say that when I visited the *Everyday Electronics* office in late 1992, with a *Mini Lab* and *Micro Lab* under my arm to discuss *Teach-In '93* with editor Mike, there on the noticeboard was a mock-up of next month's magazine – sporting the brand new title of *Everyday with Practical Electronics* ('incorporating *Electronics Monthly*'). That's how I learned of the merger, as Mike, being



The first *Electronics Monthly* of November 1984, which in turn was snapped up by *Everyday Electronics* just a year later

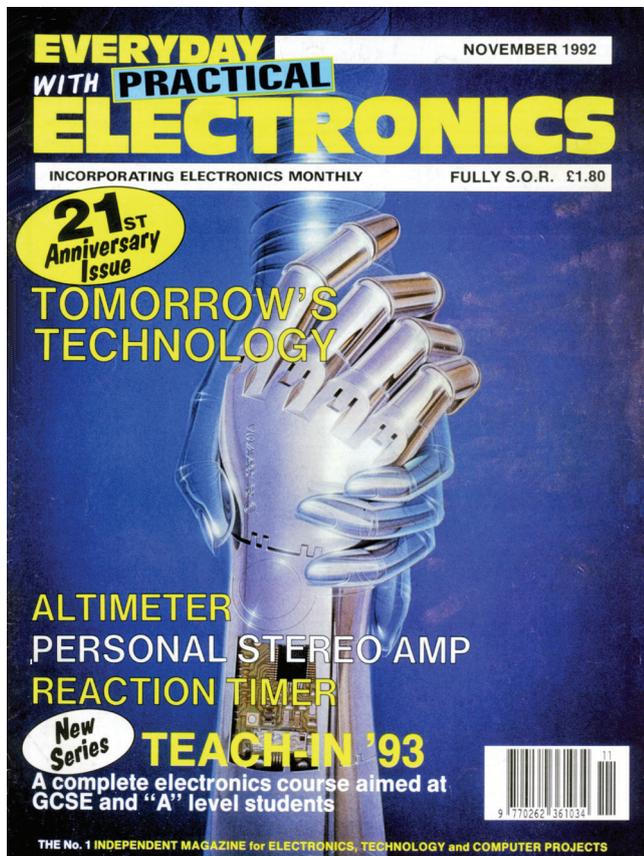


Another rebranding exercise and *Everyday Electronics and Electronics Monthly* is launched! The Screaming Mask was just a co-incidence, we think...



progressive as always, had very skilfully acquired the rival title and brought its readers back under his umbrella. *EPE* was duly born from the November 1992 issue, which was celebrating the 21st Anniversary of the original *Everyday Electronics*. 'Never before had we encompassed such a wide spread of articles,' said Mike in his November Editorial.

In the electronics hobby as a whole, techniques and technologies were changing faster than ever, and our hobby often trailed developments within industry itself. In a

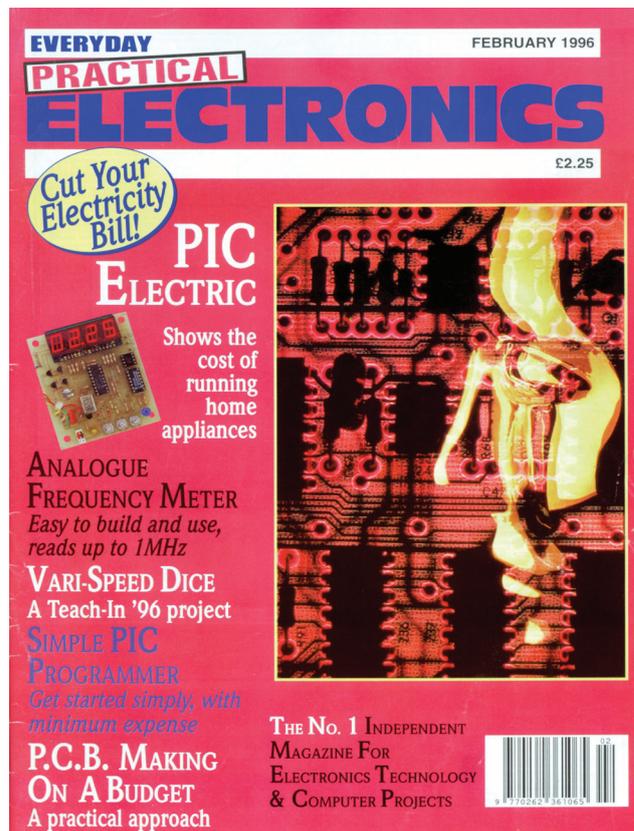


The next iteration was *Everyday with Practical Electronics* (incorporating *Electronics Monthly*) from the November 1992 issue – *EPE* was born

burgeoning magazine market, the home computer sector was by now extremely buoyant and home users grappled with Microsoft Windows 3.1, floppy disks and modems. There was much more competition for a reader's pocket money, with video games and bulky computer magazines elbowing their way onto the scene.

Hobby electronics was perhaps in danger of suffering from another cyclic downturn, but one very clear trend was rapidly emerging as the hobby turned yet another corner in its evolutionary lifecycle: the microcontroller unit had arrived. The MCU would change the face of hobby electronics more than any other device in the past twenty years, and a powerful 'PIC' micro would eventually be cheaper than the 555 timer had been in its own era. March 1995's issue carried an article *Understanding PICs*, and PIC-powered projects soon followed thick and fast, many expertly written by John Becker who was now *EPE*'s technical editor and who skilfully designed complex PIC projects apace. John realised the PIC's potential straight away, and starting from scratch he began utilising PICs in his projects with an impressive breadth of imagination. Other contributors, such as the much-missed Andy Flind, also produced some unforgettable designs, including the *EPE Mind Pickler* mind entrainment and relaxation system. The hobby was re-inventing itself all over again.

February 1996's issue included a small project that would have a profound influence on *EPE*'s PIC-hungry readers:



PIC microcontrollers were fast becoming mainstream building blocks in our hobby. This February 1996 issue promised a *Simple PIC Programmer* by Derren Crome and a *PIC Electric Meter* by John Becker

a *Simple PIC 16C84 Programmer* by Derren Crome. Built on stripboard, this little project kickstarted the prospect of readers experimenting with these devices for themselves, and *EPE*'s pages filled with ever-more appealing PIC designs that brought new levels of project functionality to hobbyists, along with a major reduction in their constructional complexity. Included in this issue was a *PIC Electric Meter* by John Becker. Hobbyists could now program a single PIC on a home computer rather than struggling with boards full of logic, and this transformed hobbyists' capabilities.

### Microchip PICs

Early on, *EPE* decided to focus on the Microchip PIC family rather than spread itself too thinly across other devices and run the risk of being a digital 'Jack of all trades but master of none'. That is just how it happened, with the early interest shown in the PIC and the great support received from Microchip ensuring that *EPE* would soon dedicate itself to that family of devices. The fact that *EPE* also gave away its PIC microcontroller project source codes (many resulting from John Becker's unstinting efforts) as free downloads when an FTP site opened in 1996, further cemented the relationship with the PIC. (However, magazine articles could still be delivered to a fax machine using *EPE Fax on Demand!*)

There are far too many glorious and memorable PIC projects to list individually, but their legacy source codes are preserved at [www.epemag.net](http://www.epemag.net). John Becker's *PIC Tutorial* series (March – May 1998) was proclaimed as the best ever PICmicro course, and was also released on CDROM. He went on to write *Teach-In 2000*, easing us into the new millennium with a PC-based tutorial series supported once again by generous levels of free interactive software that often accompanied his work. Sadly, John passed away in June 2009, but he left us his incredible legacy of material for future generations of hobbyists to enjoy.



## The Internet arrives

The expansion of the Internet also influenced the magazine and its readership. In the mid-1990s, *EPE* had to explain to its readers what the Internet was about, starting with an article by the writer published in July 1996 (*The 'Net – what's in it for you?*). The *Net Work* column arrived a month later, giving readers updates on Internet trends and techniques.

A website URL slipped onto the October 1996 cover and a simple website went online, and for the first time our overseas readers, previously frustrated by the costs and delays of airmail, could feel more engaged thanks to the real-time website and email. Part of the original site is still online in our Resources section at [www.epemag.com](http://www.epemag.com).

## Silicon Chips

Humour occasionally crept into our pages. The April 1980 *Practical Electronics* issue announced some discoveries by a Welsh high-tech company (Llys Electronics) that mined its own pure silicon from sand found on Prestatyn beach. Their powerful new ZMOS transistors featured a 'HEX-NUT' package and had micro-bore pipework that needed water cooling from a 30-gallon header tank. BBC Wales was duly taken in by this Silly Electronics April Fool, causing much mirth at the time. April 1996 *EPE* broke the story of *Chromo Floristics* – electronic colour control of plants using 'chromatic irradiation' with computerised LEDs. An impressive prototype with parallel port was shown along with a purposeful-looking BASIC program. This brilliant parody was again written by John Becker and the nation's media clamoured to learn more about the exciting discovery. The series *Ohm Sweet Ohm* offered some genteel humour in the 1990s and was written by Max Fidling – a pseudonym of the present writer, the surname picked at random from the phone book.

## Download revolution

The Internet was clearly not going to go away and *EPE*, which had never rested on its laurels, became (we believe) the first magazine in the world that could also be downloaded from the web. As online payments were very hard to implement in the UK, our US team designed a custom system. In the late 1990s a new US operation run by Clive Maxfield (whom I had bumped into online, on Usenet), Dean Hudson and Alvin Brown created the website behind *EPE Online*. At last, anyone with Internet access anywhere in the world could download their own issue at the speed of light (nearly anyway). Clive ('call me Max') still blogs for *EPE* today. Then, right at the end of the decade, in addition to a new *EPE Online* graphic, March 1999's *EPE* sported another name change and a familiar logo, becoming *Everyday Practical Electronics with ETI*.

## Testing times

Into the new millennium, and *EPE's* tried and tested formula was sorely challenged when several factors conspired in a perfect storm that created much uncertainty in the early 2000s. If there wasn't a general downturn in magazine circulations then a surge onto the world-wide web was widely predicted (incorrectly) to spell doom for printed magazines everywhere. The magazine presentation was looking tired and there were worries it would not appeal to the younger readers whom the hobby needed to attract and who were critical for its future. Key *EPE* staff also went into semi-retirement midway through the new decade, including founder member Dave Barrington who had been with *Practical Electronics* since Issue 1 in 1964, and John Becker sought a well-earned retirement as well.

Arguably, mainstream interest in traditional discrete electronics and its physics and principles was falling too, as witnessed by the decline



March 1999's *EPE* sported another name change and acquired the *ETI* logo, now so familiar to many readers

in quality contributions to the reader's own column of circuit ideas, *Ingenuity Unlimited*. In earlier years, an entire supplement of *IU* ideas could be printed due to the volume of contributions, but not now. More than anything, the old-school model for using freelance contributors finally ran out of steam. With pressure on editorial and technical resources rising fast, it became difficult to handle external material the traditional way, especially when it needed substantial re-working to make it publishable to the high standards that readers rightly expected.

## A new publishing model

If *EPE* was to survive then drastic measures were needed. With the old way of doing things no longer viable, *EPE's* owner Mike Kenward took the brave and radical decision to use projects produced by Australia's *Silicon Chip* magazine. Their designs were thoroughly tried and tested in-house and the material was prepared to a very high, if differently styled, standard of presentation. *EPE* would therefore publish its constructional projects by joint arrangement with *Silicon Chip* and the January 2006 issue was in full colour for the first time, as Mike invested heavily in making the magazine more attractive. *EPE's* editorial features continued largely unchanged, with home-grown series such as *Teach-In*, *PIC n' Mix*, *Circuit Surgery*, *Net Work*, *New Technology Update* and *Actually Doing It* all appearing as before.

With most electronics magazines in the USA shutting down altogether, the deep financial recession of 2008 could have sounded the death knell for the hobby electronics magazine. Further streamlining took place at *EPE* when in 2012 our US site closed down, but an all-new website quickly sprang up in Britain: it had come home again! A new editor was also appointed, and *EPE* is now safely in the hands of Matt Pulzer, who has a very long association with the publishers and its readers. In 2012, a Pocketmags version for tablet users was released, followed by a new PDF version for online subscribers.



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The world gets smaller, and after a dizzying voyage the final iteration – it is hoped – saw a redesign of *EPE* as high-quality projects from Australia's *Silicon Chip* were incorporated. The magazine was printed in full colour for the first time

### Here comes the future

In the Anniversary edition of November 1989, *Practical Electronics*' Editor John Becker celebrated the past 25 years and mused about life 25 years hence – today in 2014. He correctly predicted driverless cars (Google), computer speech recognition systems and reckoned that the 50th Anniversary review could be spoken into a computer. We also have some low-energy products that he felt would be forced onto us by legislation – how very true. The EU recently banned the production of vacuum cleaners rated more than 1600W; lawnmowers, kettles, car air conditioning and hairdryers may be next in the firing line.

And what might *EPE* readers – and their families – see in the next 25 years? Products and devices in 2039 will be more mobile, networkable and always-on, wirelessly charged, wearable, disposable and recyclable than they are now. Today, much of our ADSL and FTTC depends on decades-old copper wires connected to our home, but tomorrow the 'cloud' will host most of our software services, made feasible



by greater bandwidth and better fibre optic and wireless communications. There will undoubtedly be many ID and security-related challenges that will impinge on our personal freedoms, with biometric and scanning systems playing a major role in tracking citizens going about their everyday lives. Predictive text, speech and AI will result in computer systems second-guessing more of what we want to say or do, and then doing it for us. I am not sure that losing the need to use our brains will actually be a good thing!

Thanks to NASA's Space Launch System (SLS) a space shot to Mars is now a real possibility and there is no doubt that tomorrow's engineers will provide solutions that are smaller, faster, more accurate but use less power than before. The hobbyist will still be here, joining in the electronics revolution in one form or another.



Image: NASA/MSFC

Whether there will be magazines like *EPE* still printed on 'dead trees' or there will be anything left that the home constructor can properly solder and coax into operation, only time will tell.

Celebrating this 50th Anniversary of *Practical Electronics* – with some *Everyday* experience included – has been a very humbling experience, with much awareness on the writer's part that we 'stand on the shoulders of giants', to quote an uncharacteristically humble Isaac Newton. Every issue since 1964 has represented much hard work and dedication by its contributors and staff, not to mention printers and distributors, all committed to enthusing the hobby electronics fraternity, embracing new developments head on and offering readers satisfying new projects to build. It has been thanks to Fred Bennett for having the foresight to drive *Practical Electronics* onwards to success and also *EPE*'s publisher, Mike Kenward, his family-owned company and team, that we can still produce a hobby electronics magazine in Britain. Most of all, it is also thanks to you, our readers, for staying with us for the past 50 years and enjoying the ride along the way. Fingers crossed, here's to the Diamond Jubilee in 2024 and beyond!



A very rare photo of the 'boss' Fred Bennett and young assistant editor Mike Kenward presenting a prize to *EE* reader David Riley (right) in the December 1973 issue of *Everyday Electronics*

Editor John Becker in at the deep end: John toasts readers after reaching the milestone of 25 years of *Practical Electronics*, in a special November 1989 issue

