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CITIZENS' BAND

MARCH 1991

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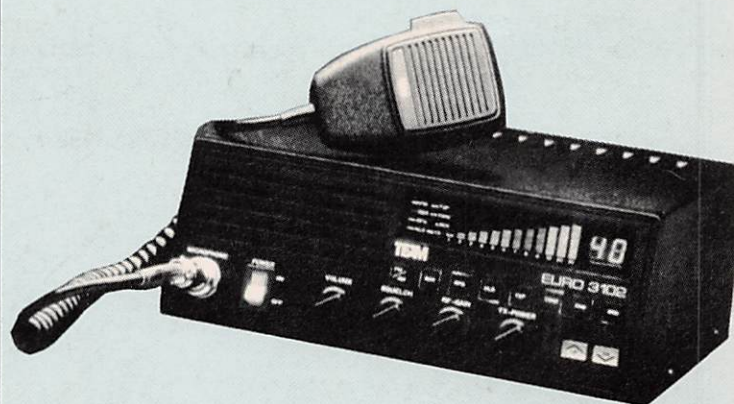
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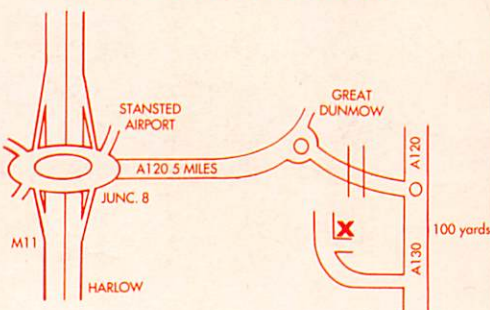
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CITIZEN'S BAND

Championing CB in Great Britain, Europe and around the world

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Captain Sparx

The good captain investigates the beginnings of portable radios - by mule!

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Our monthly pullout guide to listening in.

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UPDATE

USER GROUP FORUM

The latest CB meeting between representative groups and the Radiocommunications Agency took place in December 1990. Opening up on behalf of the RA, Mrs Allan was asked a number of questions relating to items from the previous meeting. With these duly answered, the meeting went on to discuss items under the new agenda.

It was pointed out that no decisions had been reached with regards to either the continuation of the present CB licence or the future use of 27/81. The reason given for this delay was down to the recent ministerial re-shuffles and the new appointment of Mr Redwood, replacing Mr Hogg. The new Minister feels that 'he needs time to get some background knowledge of radiocommunications'. These items would be dealt with and answers will be given to the user groups.

The RA have now completed their year-long CB monitoring which they feel enables them to show relevant user use. At the previous meeting, the user groups asked for one site to be changed and re-assessed, to which the RA carried out tests at the Pershore Police College, Cannons Hill Park, Birmingham over a 24-hour period. These tests proved that their original choice of site was, in fact, better in respect of user statistics, and the RA stated that they would

forward a summary of the full exercise, although it would not be available until after the Minister had made his decision about 27/81.

The final draft of the new European CEPT PR 27 CB standard is now complete and this will very soon be put before all national standards organisations and, in order for the document to be passed, it must receive a majority of 71% of the total votes from ETSI members. On behalf of the UK, a group known as WG8X will be invited to offer their views on this document, which the RA will take account when voting. The RA feel that this new standard is a step in the right direction and hopes that it will be well received by the WG8X. However, the user groups show great concern once again over the section which prohibits locking PTT switches once this new standard is accepted.

It was also mentioned by a user group representative that ETS-BA was being tolerated in countries such as Germany, France and Austria. Also that the Italians had, once again, not made their feelings known because they oppose anything that limits CB users from having complete freedom. Greece have yet to make their minds up and it can be expected that Cyprus will follow the decision taken by Greece. With regards to the RA's invitation for one user group representative to be invited to join the WG8X meetings, the groups have decided to take up the invitation, which now allows CBers to have a say in

certain matters.

There seemed to be some confusion over the whole issue about requested antenna changes. The RA, after much consultation, feel that they may accept $\frac{1}{4}$ and $\frac{1}{2}$ wave di-poles although these tests will be carried out via computer simulation. They feel these have to be done in this manner because actual tests could pose problems in the fourth and fifth harmonics, which are around the frequencies used by civil aircraft. A brief outline was given as to how these tests would be carried out and the RA made it very clear that they would be considering any objections received from the Civil Aviation authority (CAA) but they could see any results carrying a dB gain being opposed by the CAA. The user groups asked if the RA would be seeking information from other countries so as to access their interference problems, if any. In reply, the RA made it clear that they are not concerned about other countries. It was stated by a user group representative that, despite waiting for changes in the past few years, nothing has been achieved, despite other CEPT countries having adjusted their antenna regulations. The RA stated that they have received a copy of the German antenna test reports into directional antennae and that they were satisfactory until the 4 watts power limits had been increased. However, in the UK, immunity for electrical items such as TVs is far lower than in other

countries, therefore antenna restrictions have to be much tighter. After 1992 and the introduction of EMC, the low manufacturing standards of these items will be more strict and interference levels tighter; this may then allow for some changes to be made. The RA expect to finish the stimulated computer antenna tests by the end of January and will make the results available to the user groups.

Once again, the user groups voiced an objection to the future ban on locking PTT switches under the new ETS-BA, the main objection being that it restricts CB users with special needs. The RA answered that this new entry into the standard is, in fact, an International Radio Regulation (IRR) and sets would not be given type-approval if they are submitted with this facility. One of the user groups asked if a user would be breaking the type-approval if they took out the standard mike and replaced it with a locking PTT type. The RA felt that swapping like for like would not be a problem but a mike with the locking PTT facility could be grounds for making the set's use illegal. Although, at the moment, locking PTT switch mikes can still be used on 27/81 because these sets are not subject to type-approval.

Discussions turned to a possible future use of passing computer data via CB between the present 27/81 frequencies. One option suggested by the RA was to send digital data down the existing microphone socket

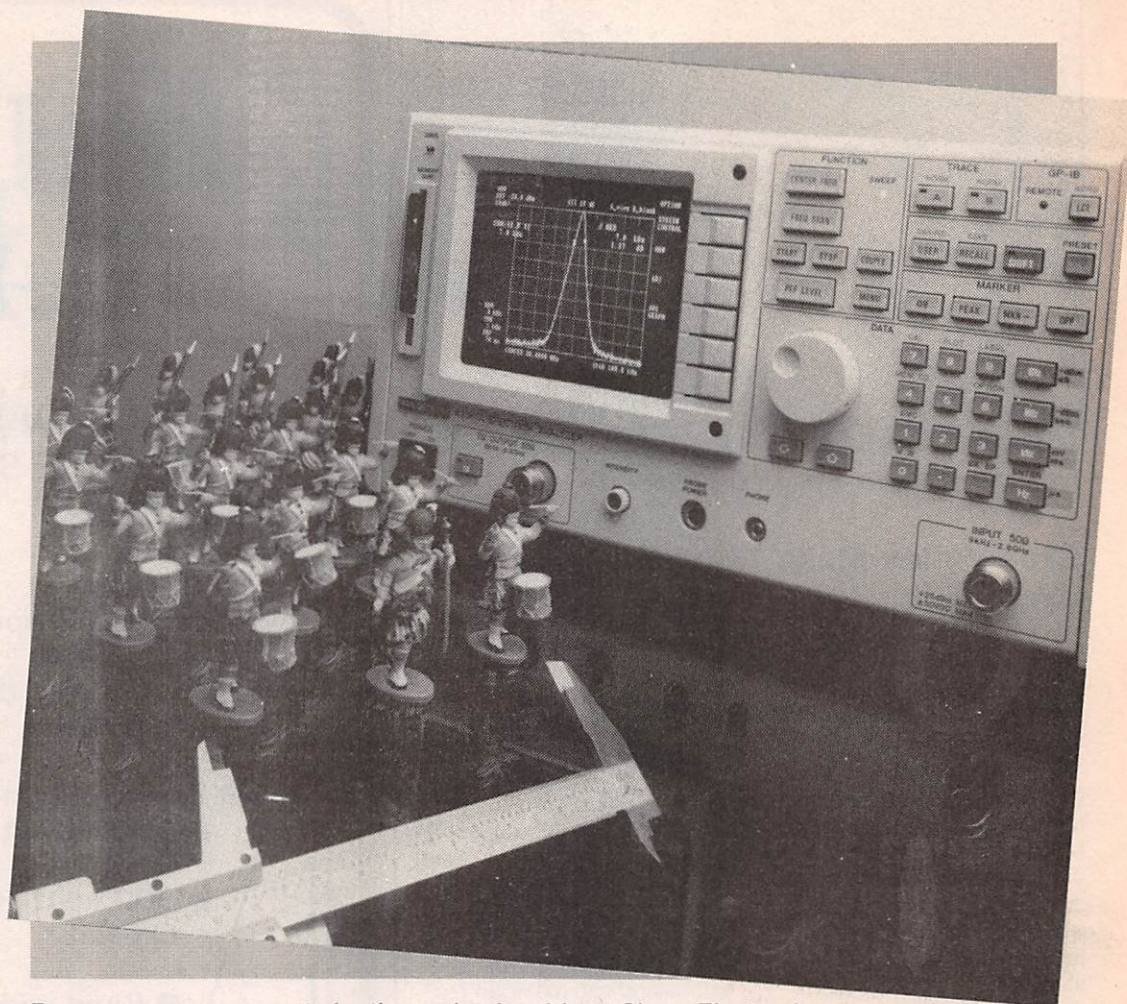
and, although it would be difficult, it is not impossible. Perhaps at a baud rate of between 300-1200. These links would give an increased use for allocated radio spectrum presently used by CB radio, even for short distance use.

The RA's department of the RIS circulated guidelines of how best to assist the RIS when reporting CB abuse of any kind, and asked that the groups make this information known to as many Cbers as possible. Some concerns were voiced by the user groups about one section of the guidelines, and the call for a nominated person from the user groups to act as a co-ordinator for forwarding information and complaints. It was felt that the user groups would, under this request, be accused of acting directly for the RIS against users, which they would not agree to do. The outcome was that the user groups fully support any requests from the RIS to receive correct information, but that all complaints must go directly to and remain the duty of the RIS.

In reply to a previous request made to the RIS, they have decided to send the groups a quarterly report on CB court cases in the previous quarter-year. The user groups feel that this might help to deter would-be abusers from certain anti-social CB activities. The RA also gave a broader outline of the licence revocation issue which is now being covered at Chesterfield.

The meeting finished as usual with Any Other Business, at which point a number of questions were raised including one about DSRR: the system is still going ahead within the 934MHz CB band and the draft specification will soon go out to a public enquiry. The question of a breaker who has been visited by the RIS no fewer than seven times was also raised. The RIS answered that each case is treated individually and felt that there must be some grounds for these visits.

The next meeting was agreed for around June 1991 and the groups will be advised in the usual way.



Frequency measurements for the professional from Chase Electronics

New from Chase

Chase Electronics recently introduced a range of portable RF spectrum analysers with integral occupied bandwidth and adjacent-channel leakage measurement software.

Built by Advantest, the 3000 series analysers offer synthesiser accuracy and integral tracking generators. A 'multi-marker' function allows the simultaneous monitoring of up to eight frequency and level points. User-definable soft keys simplify operation.

Designed for communications transmitter measurements, the 3000 Series assures high accuracy and ease-of-use for measurements in PMR, CT2, TACS, GSM and PCN systems.

A memory card allows data storage for archiving, sequential testing and common-routine screen set-ups. These lightweight units have built-in AM/FM demodulation and can be

used to make off-air frequency measurements with 1Hz resolution.

The general-purpose capabilities of the range are supplemented by low-frequency models with a minimum operating frequency of 100Hz. Input impedance can be specified as 50 or 75ohms, the latter useful for television applications.

Total display range is 120dB, with 70dB quasi-peak dynamic range for EMI (CISPR) applications. GPIB interface is standard, with a controller function as an option. The total measurement range goes from 100Hz to 3.6GHz.

For further information, contact John Birkett, Chase Electronics Ltd, St Leonards House, St Leonards Road, Mortlake, London SW14 7LY. Telephone: 081-878 7747.

Coastal Communications

In our December 1990 issue (*Back Chat*), Mr Norris of

Worthing asked where he could purchase CB equipment in the West Sussex area. Further to the two contacts we mentioned in reply, South Coast Electronics Ltd kindly sent the following information:

'Our company has a wide-ranging stock of CB equipment by leading manufacturers including Midland, Moonraker, Maxcom, Eurosonic, Team, Jesan, Sonic and Nevada. This stock includes base and mobile aerials for both 27/27 and 934MHz, power supplies, RG8/RG58/H100 cable, meters, microphones and scanners by Bearcat, Black Jaguar, Jupiter and Fairmate.

We believe we have the largest range of citizens' band radio equipment in stock to be found in West Sussex and hope that Mr Norris will find this information of value.'

South Coast Electronics are situated at 3 Broadwater Boulevard, Worthing, West Sussex BN14 8JE. Telephone: 206770.



It's that time of year: Eyeball time again!

Cree Valley Mass Eyeball

The Cree Valley Breakers Club have just announced the dates for their eighth mass Eyeball at Auchenlarie Holiday Farm.

This very popular get-together will be held on the weekend of Friday 3rd to Monday 6th May 1991. Caravans can be hired at a cost of £45 for three nights, while sites for caravans or tents cost £4 per night. Trade stands are also welcome.

The programme for the weekend includes entertainment by Nat and the Residents, darts, dominoes, Junior Miss Eyeball, Glamorous Granny, Miss Eyeball 1991, Club Quiz and a Country & Western session.

Admission prices are: £1.50 (Friday); £2 (Saturday); £1.50 (Sunday) or three nights for £4. SAEs to: Mass Eyeball, Saltire, 6 Beddie Crescent, Wigtown DG8 9HX, Scotland.

Somerset Knights

Celebrating their 10th birthday, the Somerset Knights International DX & QSL Group, in conjunction with the Abbey Hill Steam Rally are holding their Eyeball on the 4th, 5th and 6th at the Show Ground, Yeovil, Somerset.

Trade and Club stands are welcome and there is plenty of overnight and weekend parking available. The fun weekend includes helicopter rides, funfair, working steam engines and vintage commercial vehicles, all-day

food and bar facilities and live evening entertainment. Enquiries to: The Secretary, Somerset Knights, PO Box 26, Yeovil, Somerset.

Telephone Exchange

Maplin Electronics recently announced the introduction of a home and business telephone exchange system, which retails at £199.95 (including VAT).

Any one of up to four extensions can make an internal call in privacy, and if the exchange line is busy, it can let you know when it becomes free. Incoming calls can be answered from any extension and transferred to another if required. Intercom calls can be made between extensions even if the outside exchange line is in use. In addition, any extension can be used as a baby 'phone to monitor a sleeping child. If required, extensions can be barred from making external calls.

Installing the system is simple and no special tools are required. The unit is an advanced microcomputer-controlled system which combines a combination of telephone control and premises security.

Here, advantage is taken of the special features to set the alarm from any telephone and automatically dial a local number should an intruder break in or a fire start - in this respect, the system acts as a fire alarm.

Contact Maplin Electronics, PL Box 3, Rayleigh, Essex SS6 8LR. Telephone: 0702 552911.

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HIGH PERFORMANCE, LEGAL BASE STATION ANTENNA

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WIN! WIN! WIN!



This superb **MONSTER** truck video awaits the lucky winner of our **CB HANDLE** competition

EVERY MONTH we are going to ask you to send in your handle and your reasons for using it. **EVERY MONTH** we will judge the most appropriate and amusing reasons and award the monthly prize.

EVERY ENTRY will receive a Citizens' Band magazine certificate registering your handle with the magazine.

COMPETITION DEADLINE:
22nd February 1991, so **HURRY!**

Mean and mad! Big and bad!

How did Front Runner get all these huge trucks into just one video? Monster Mania is a must for all truck fans. Watch the Crimson Crusher, Nitemare, Graveyard, Awesome Kong, Rambo and many more monster trucks smash and bounce their way around the American monster truck circuit.

The action is non-stop, the commentary manic. The engines sound like Formula 1, the cabs are 20 feet off the ground and the tracks are assault courses littered with car wrecks which the monsters crush like eggshells on their way round. Most events conclude with an interview in which the driver is congratulated on staying alive through such an incredible smash: "Thank the good Lord that you are alive and well and able to stand beside me here".

SEND TO: CB HANDLE, ARGUS HOUSE, BOUNDARY WAY, HEMEL HEMPSTEAD, HERTS. HP2 7ST. Or fax your entry on 0442 66998.

Usual competition rules apply (details available from editor).
The winner will be announced in the April issue.





Quite a full postbag for this month, some complimentary and some not so. Some having a moan and some quite threatening! Then, of course, there's the news

joy or annoyance. Perhaps the following will explain just what I mean! I received a letter from Grace (Patchwork) of Darlington, who was pleased to see the photograph of the Hertfordshire T.H.A.M.E.S. unit at the Bravo Hotel Eyeball last year. Grace used to be a member of the team before moving up north and although many miles away, she still carries on helping people.

Also received was a letter from Micro Chip (Jim) and Lancashire Lass (Barbara), who were pleased that I took a snap of the newly formed Bedford Pilgrims DX Group at the aforementioned Eyeball. This sadly failed to get published (sorry folks), but I do promise to print something about them in the future. Even so, they didn't get upset.

Then comes the 'other' type of letter, the one which points out that in my column I've failed to mention one or more persons when reporting about a specific Eyeball. In this case it comes from Bill (Songwriter) BH 115, from Newport Pagnell. He claims that in my report about the BH Eyeball I highlighted the "glory grabbers", whilst leaving out a specific person who in his words "done

In January's issue I reported the Kilo Bravo Reunion and although there were one or two pictures printed, some went unpublished. This situation will now be rectified along with my congratulations to the KBs for presenting a £400 cheque to the Sheffield Children's Hospital. Oh yes, also my regards to the Bishop and Jezabel from Leeds.

First up

First out of the bag this month comes from Dave (Muddler) 1 WR 142, founder of the Warminster Eagles DX Club. From the tone of his letter it seems that he is more than peeved! It reads: TO ALL WARMINSTER EAGLES DX CLUB MEMBERS. "I feel that I must apologise to the many friends that I have made during the 5 years that I have used the CB radio, and that have been members of the Warminster Eagles during my time as Chairman . . . I have now seen fit to resign from the group as a member . . . Some people may still be under the impression that I am in some way connected with the WEs. I am not, nor do I wish to be, given its present condition . . . I can only apologise to the many members who during my Chairmanship helped to build a strong reputation for the club".

Many of you will, I am sure, already know that Dave is taking a break from

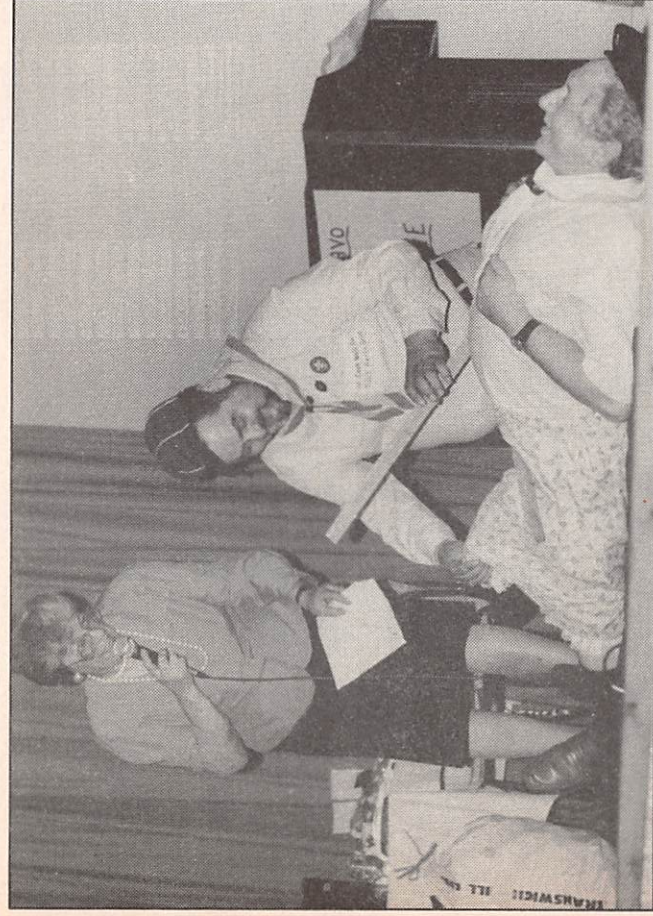
'active' CB life, and he has asked me to mention that due to other commitments the Warminster Radio Group Eyeball at Longleat is cancelled for 1991.

At a stroke

Isn't it funny how with the stroke of an Editor's pen, he or she can bring either



"School Master taking the lesson" at the KB 90 reunion



Tent making the Scouts' way



The Scouts' answer to Miss Whiplash



The ging, the gang and one who can't find the goolies



Short back and sides

Eyeballs and Events:

30th March 91

1 Sierra Bravo Evening Eyeball. Hanson Park, Stevenage, Herts. It starts at 7pm and tickets are £2.50 each (buffer included). All proceeds are going to The Lister Hospital, Stevenage. For tickets and information write to PO Box 23, Stevenage, Herts, SG1 3TF, and make all cheques etc. payable to: 'Sierra Bravo DX Group'.

6th April 91

Black Diamond Radio Club Eyeball at the Recreation Centre, Caerphilly, S. Wales. The eyeball is during the day with a dance in the evening. Payment is on the door or contact PO Box 16, Caerphilly, Mid Glam, S. Wales.

If you have something to say, news or information send it to me at: (1 WR 94) PO Box 752, Warminster, Wiltshire BA12 9XQ.



The first ugly Scout Troop
CITIZENS' BAND MARCH 1991

most of the work to put that Eyeball on".

Can I just make a few things clear to you Bill, from one BH member to another. If you bother to read the piece again you will see that I never credited any specific person, persons or Committee members for putting on the Eyeball. This was because I wasn't sure who to credit – and if I had left even one person's name off the list, that could have caused more problems. When I go to any CB function, I always prefer to do a cross section report and leave the host club to send in their own account. That way they can thank who they like, but this very rarely happens. Please remember that as a CBer I go out to enjoy myself like everybody else (if that's alright with you, Bill!). I enjoy the chats with friends, listening to gossip (most unprintable), meeting new breakers, taking photographs and having fun.

The Editor's copy included a photograph and mention of other people, but it never got published. And for the last time – *I do not have the final say on what gets printed in either this column or this magazine, nor do I have any say in what photographs get published.* It is inevitable that some things must get left out at one time or another. That is down to our Editor and I respect his judgement. And excerpts from your letter such as, "not one word of praise from anyone so please put it in your column if not I shall with others that feel the same inundate your magazine with complaints until you do", will get you nowhere.

I have spoken to the Chairman of the club and the person who you mentioned in your letter. If you would like some paper and a few pens, please let me know! Or this year send in your own account of the Eyeball, I am sure it will make interesting reading.

Whilst at the Whisky Mike Star and Garter Appeal (more about that in a minute) I bumped into a few BH members including their Chairman, Les (Early Bird). He handed me a piece of paper which stated that Neil (Big Brown Bear) – BH 99 and Ruth (Nutmeg) – BH 123 were guests at the Stort Valley Radio Group Christmas bash held at the Three Horsehoes PH, Ringshaw.

Neil & Ruth won the first prize in the raffle which was a Maxcom E rig. They very kindly donated it back for auction and raised £61, which was given to Queenie, alias Jack Rabbit, towards his charity appeal for the West Lea School for Delicate Children. Well done to all those concerned.

Talking of children my sister-in-law has just returned from a holiday in Gambia. She tells me that children in that country are forced to beg on the streets for a pencil and paper so that they can attend school. No pencil and paper – no school. Makes you think how lucky some of us are, doesn't it!

The final letter (or rather package) for this month arrived from Gordon (1 CC 555) of Southampton. It contained some interesting news about CB magazines in other countries and two historic items. The first is a new united Germany stamp and the second is a piece of the Berlin Wall from near the Brandenburg Gate. My thanks to him for these treasures.

News from Pat (Skipper) is that Bob (Warrior One) WB 163, was involved in an accident before Christmas when his car was rammed by a fire engine. He spent a week in hospital recovering from broken and bruised ribs and cuts to his head and elbow, but is now home. Via Stuart (Joe 90) who received the following sad news from Ron (Ram-a-Dam). On the 13th November '90, Doreen (Lady Fisher) passed away. Our condolences to her family and her husband, Joe.

Star and garter

The Whisky Mike S.A.G.A. (Star & Garter Appeal) presentation took place at the home in Richmond, Surrey just prior to Christmas. At this moment in time the total raised is not known, but I am sure that this will be made known in the future. The WM Chairman Alan, WM 01 (Day Dreamer) gave out the group's membership awards to the 3 previous winners (miniatures of the actual trophy) and the master trophy (the actual number 41 bailing pin from the sailing ship Lord Nelson) went to George (Bad Penny). With a 'special efforts' trophy to a resident of the home Joe (G7 CIN), who despite being confined to a wheelchair works very hard for the appeal. Brian (Chicken – GO PAX) and Stuart (Joe 90 – G7 HJN) took to the Sussex hills for the sponsored modulation and had 218 contacts in one night on CB, with the last one into Athens at 9+ on CEPT. And Richard

(Bounty Hunter – GO???) worked 2mtrs and HF from the home's very own radio shack. In true CB spirit the Bravo Hotels from Bedford and Herts made the journey to present the group with a trophy award for their years of dedication helping others, these included some of the aforementioned names and Roger (Mariner One).

A couple of columns ago I mentioned the formation of a new group called the 1 Sierra Mike DX Group. This band of nomads who always support many CB Eyeballs are becoming ever more popular and have taken out a PO Box for contact. For all those who would like some information or for members who have not yet received details the box address is: (1 SM DX Group) PO Box 685, Halfway, Sheffield S19 5UY.

Triode's trolley

My final for this month concerns a friend of mine Dave (Triode) who went into his local Texas Superstore to buy a small pot of gloss paint. He walked in, collected his paint and joined the checkout line. Twenty minutes later he was one person away from the till, when the woman in front decided to pay for her goods by cheque, goods which were not 'in' her trolley. She payed the young girl on the till and just stood there motionless. Dave enquired whether she intended to move and the woman said that "she was waiting for her husband to bring along the goods" and until then she wasn't going to move. Just at that moment a second till was opened and Dave rushed across to pay for his tin of paint, only to find out that the till was for 'cheques only'. So he rather loudly passed a remark about "30 seconds to choose his paint and 25 minutes to pay", which was picked up by the very young Manager who was standing by the till, and who laughingly tried to turn



Tom without his video camera in Scotland

Dave's comment into a joke for the rest of the customers.

Now Dave is a senior citizen who can sometimes have a short fuse but, rather than lose his temper he politely handed the young manager his paint and walked

out of the store, only to return one hour later. He went through the entrance, took his trolley (which every customer must take even if its only for one item) and wondered around the vast warehouse filling his trolley.

He filled it to the brim with small items and then went over to the paint section and chose another tin of paint, then once again ventured up to the line of paying customers. After a further 15 minutes it was his turn to pay, and there in front of him stood the young manager with a smile on his face.

Dave picked up the paint from the trolley and placed it on the counter, then pushed the overflowing trolley to one side. The manager's face turned from a smile to a look of concern as he stepped forward to question Dave's actions. "Excuse me, sir" said the manager, "but you haven't payed for these other goods!" "Oh yes," says Dave, "I've decided that I don't want them now thank you," he replied.

Just at that moment there was a crash of trolleys from the line of customers waiting to pay, and a further ten people moved empty handed past the manager, leaving their overflowing trollies at various angles and blocking the pay exit. The manager turned to see what was happening, as Dave tapped him on the shoulder and says, "nor do my friends want their goods either, now you can spend all afternoon putting it all back on the shelves."

At which Dave and his ten elderly CB friends got into their cars and drove off.

Strike one up for the OAP CBers.

SHEPHERD MAN



Chris and Linda in Scotland

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CAPTAIN SPARX

Join the Army and see the Rig

Citizens' Band owes its existence to a wartime partnership between the civilian radio industry and military genius – not to mention a Mule or two

Our former warrior and consumer of NAAFI canteen doughnuts, Captain Sparx reveals what it was like to be around when every rig was painted army green and had a code number on its rear end (as indeed, did some of the men).

As the Gulf Crisis developed in the later months of 1990, the subject of military electronic communication came into close focus, not least in consideration of a sort of electronic swamp-out identified by the initials HERO. This acronym might suggest the identity of that CB Club Secretary selling raffle tickets six nights out of seven. But the heavy electronic resource overload identified by HERO is an intensely serious matter, relating to the ever mounting use of electronic and distant signalling to control weaponry.

For some time, a phenomenon has been observed, whereby missiles or aircraft apparently 'respond' to stray signalling. Thus, missiles can go off at almost any time, though the risk is still a relatively small one, or aircraft be misdirected from actual target.

In peacetime, we can live with these hazards, and really have no choice – except to go back to the bow and arrow, which may be no bad idea. However, in any future war situation, HERO will be one of the factors determining which side wins, assuming anybody does.

Strangely enough, this prospect of equipment overload was even discussed during the second world war – the first time that radio was used on such a large scale. And when yours truly, the debonair Captain S. was involved in civil defence chores some years later, it was assumed that in any future combat, a potential foe would

knock out (as he hoped) much of our military and civilian communication by triggering a massive electromagnetic impulse over the North Sea, via a thermonuclear device.

"This acronym might suggest the identity of that CB Club Secretary selling raffle tickets six night out of seven."

At the time, the 1960s, this seemed a good reason for hanging on to older and less vulnerable equipment using hot bottles, i.e. radio valves. Thus I did not



Forerunner of CB radio, an early US Army walkie-talkie, weighing 30lb. Later models were to weigh much less. Note the frame support to protect the rig



The true grand-daddy of CB radio – and American Army rig, about 14" long and with a handy send/receive switch on the side. Operated simply by extending the antenna, this rig weighed 5lb and had a 7 valve circuit

throw out my all valve radiogram until 1988, by which time I had an electromagnetic impulse hit me one night, i.e. a heart attack.

Walkie Talkies

Forerunner of the Citizens' Band and other compact two-way communication gear, of the time we know and love, the military walkie-talkie of the second world war was, in part, seen as a way of continuing communication if all other technology in the field went down.

The United States Army Signal Corps – generally equivalent to the British Army's Royal Signal Corps – had been experimenting with battlefield radio for some time, and we learn today that the US cavalry had been ahead in this area. So far, we have yet to meet any CBV enthusiast who uses his hand-held on horseback, but given the clogged up condition of the car parks, this might be an answer to all our problems.

Whilst the US Army had been examining designs and prototypes for



Ten years before the Japanese small radios!

their uses, the American radio industry had been making plans to meet a consumer interest in 'pocket radio', ie sets that could be easily carried on holiday or indeed anywhere else.

Though the Japanese consumer electronics industry is often credited with producing the first miniaturised radios, it is worth noting that major US companies were working in this field, a decade before the Japanese civilian industries took up the idea. Thus, the British magazine, 'Wireless World' covered the possibility of 'a personal receiver' back in August 1941, some months before the attack on Pearl Harbor, Hawaii, brought the USA into the second world war.

According to the press report, a number of amateur and professional designers had presented their ideas, for a system that could be used by the police and other services. Bright ideas abounded, as you would expect, and one of the prototypes showed a police weather-jacket with radio equipment stitched in, as it were. Of course, these ideas went back to Nikola Tesla, the inventor genius who, though of Slavic origin, spent much of his life in the USA. Long before the first world war, let alone the second, Tesla had predicted a world wide radio communication network using miniaturised two-way transceivers. Shades of the Dick Tracey wrist watch radio!

Valves on horseback

In some senses, the second world war became a sort of test-bed for miniaturised two-way radio equipment, as the US Army, as well as the other services, worked with the civilian industry to develop models and designs. Thus, the term 'walkie talkie', sometimes shown as 'walkee talkee', covered a range of models, of differing weight and performance. Some of these models were shown in official photographs printed in radio magazines, but there

was no doubt far better gadgetry tucked away somewhere.

They used valves, though these had also been reduced in size, though the technology certainly called for rugged heavy metal casing which tended to add to the weight of the rig. A nine valve job, measuring 6in x 6in x 8in needed a rather large pocket (but then it had been developed for use by the cavalry, which probably owned saddlebags) and the operator also needed to carry a pack, some 10in x 9in x 2in for the battery, mike/loudspeaker unit and spare oscillator unit. It could be used resting on a spike-stand, ie thrust into the ground, and at 16lb was an obvious advance on earlier gear.

Certainly, military press information indicated the equipment's rugged success in the Pacific and North African campaigns of the early years of the war. The model that most resembled the 'walkie talkie' that so entranced young Britons after the war, used seven valves and worked on extension of the telescopic antenna. War surplus stores abounded with this gear later on, ie when the conflict was over, and it might be said that in the USA at least, the interest in the walkie-talkie triggered the drive for a legal Citizens' Band.

Of course, the equipment in the war-surplus stores was obsolete, such was the pace of development. The heavyweight original transceiver, using some thirty frequencies between 52.80 and 65.80 MHz, had been so bulky as to need a canvas hold-all or back-pack for its load, some 33lb. Battery operation at continuous output could be rated as high as twenty hours.

Today, it may seem hard to realise

how fast this development was. Remember that the civilian radio industry anticipated a major consumer market in 'small/miniaturised' radio at the end of the war, whilst the advancing military technology showed that some of the proposals for police and services communication, projected in the 1930s and early 1940s, could now be put into effect. In Britain, little of this was really so: television rather than radio seemed to be the most likely rescue plan for an industry that had been down in the dumps in the late 1930s. The British press more often considered the issue of teaching Morse to large numbers of army recruits, and whether Morse would



A recruiting poster pose, although the set was obsolete by D. Day (invasion of Europe 6 June 1944)



A "Wireless World" picture of 1941 reminiscent of Dick Tracy's wristwatch radio

be relevant to the postwar shape of amateur radio. Especially heart-warming to the 1990s is the idea that the 'crash' schemes of technical training, necessitated by the war would bring up to standard the indifferent record of Britain in technical training. Whether or not the moustachioed majors of the War Office checked out the little rigs of the US Army, we cannot tell.

Certainly, wartime press releases from the British Army gave little away, and it would be fair to suggest that the British leaders decided to stick with what they knew would work, at least for the time being. However, the experts at the British Army School of Signals and in other establishments, obviously kept ahead of developments, and there were some useful British innovations, like the use of 'throat' microphones, which meant that transceivers could be used in battle conditions, without the operator



A great British invention: Mule Back Radio. Note the handy size of the rig

needing to divert his attention from more pressing concerns, eg dodging the occasional bullet.

More often seen in the papers though, were enchanting photographs of radio signalman innovating like mad, as brave Brits do in any tough situation. Thus, the

wonders included a Mule Back Radio, whereby a mule had been enrolled to carry a British army rig, definitely more heavy than the kind of small stuff being used by the Yanks. CB radio development in Britain might have been much more ecologically oriented, had

the CB licence required ownership of a decent mule, able to point himself in the direction of the clearest signal source.

Another wartime picture showed an invasion beach scene, with a radio operator wheeling a rig in what seems to be a pram. But London Zoo used a model close to that back in the 1920s, when it made programmes for the BBC

"Wonders included a Mule Back Radio, whereby a mule had been enrolled to carry a British army rig."

'Children's Hour'. Still, as they saw in CB Country, you have to pick up your ideas from somewhere.

With British expertise in radiolocation, or radar, we were able to apply much of that to the new developments in television, eg in lower cost and better quality of cathode ray tubes. But the US Army returned to civilian life a generation of men very radio-minded, to an extent that was not the case in Britain. And that explains why the USA was the world's premier nature in CB. Much as Citizens' Band has helped people in many ways, there are times when listening to the kids and lids on the channel, you might wish for a really good electromagnetic impulse. Only thing is . . . I doubt that they'd notice.

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CB

Bench

"C'mon Danny, you said we'd have another session soon," pleaded Ritchie to the service engineer.

"Well, I guess we could.

"I really would like to cover as much as we can this lunch time," continued Ritchie as he replaced the cover of a radio he had just repaired.

"What's so all-fired important about doing it today?" inquired Danny.

"Well, my brother and his family are coming to stay for a few weeks tomorrow." Danny thought for a moment.

"Come to think of it, I do remember you saying something about that, but what does that have to do with us looking at the basics of electricity?"

Ritchie rose from his stool and carried the radio from his bench to the rack.

"I guess I'd better explain," replied Ritchie. "It's Melissa, my niece."

"Melissa?"

"Melissa. She's discovered that she's really interested in radio and electronics, and no-one else in my brother's family knows the slightest thing about electronics.

That means that to Melissa the next six weeks are a good time to pick my brains on the subject."

"I think I'm beginning to see your urgency. Surely you know enough about it to be going on with though?"

"I thought so, too," replied Ritchie, "but I was talking to her on the telephone a couple of nights ago, and she's really excited about coming to stay and wants me to explain all the basics about a.c. and d.c. current, resistance, capacitance, inductance, and

Danny and Ritchie continue their investigation of the principals behind radio electronics and CB in particular

FIGURE 1 - OHM'S LAW

$$\begin{array}{ll} \text{Let } E = \text{Voltage} & I = \frac{E}{R} \\ I = \text{Current} & \\ R = \text{Resistance} & \text{Therefore} \\ & R = \frac{E}{I} \\ & \text{and} \\ & E = I \times R \end{array}$$

everything." Danny was silent, so Ritchie continued. "The trouble is that although I know that a capacitor or coil offers opposition to current flow, and I can tell you the formula for calculating it, I'm lost when it comes to explaining how it does it."

Danny had just completed the repair job on his own bench, and switched off his test equipment. He spun around on his stool to face his assistant.

"Now I know why you wanted to talk about atoms and current flow a while ago," he grinned. "You set me up, didn't you?"

"I suppose I did," admitted Ritchie. "But you don't mind really, do you?" he laughed.

"I guess not. You'd better come over here and we'll make a start."

Ritchie eagerly pulled his stool over to Danny's bench and seated himself comfortably.

"Now, where do you want to begin?" inquired Danny.

"Well, you've talked about

conductors and insulators, and how the free electrons in a material enable a current to flow through it. I think I can explain voltage, current, and resistance, but you'd better just offer your explanation."

"Right," said Danny. "We'll actually start off with the coulomb, which is a quantity of electric charge. You won't need to use coulombs anywhere near as often as other units of measurement, but you should know about them. One coulomb is an electric charge equal to approximately 6.3 times 10 to the power of 18 electrons; in other words, a lot of electrons."

"You said it!"

"Now, the rate at which a current flows is measured in amperes, and represented by the symbol 'I'. A current flow of one ampere is equal to a charge of one coulomb passing a given point during a period of one second. It's not too difficult to work out that two amperes is a charge of two coulombs per second, three amperes is three cou-

lombs per second, and so on. The thing to remember is that amperes represent the rate at which a current flows."

"With you so far," said Ritchie. "I must admit that I didn't know the relationship between coulombs and amperes, though."

"As I said," replied Danny, "you don't often need to use coulombs in electronics work." He paused. "Now we come to electro-motive force. If you think back to our previous discussion you'll remember that we decided that for a current to flow there must exist a difference in charge between two points. Electrons then flow from the more negative of the two points to the other point in an attempt to equalize the charges. When we use some external energy, either magnetism in a generator or chemical action in a battery, that energy is used to maintain a charge so that a current can flow continuously. That energy is known as electro-motive force, or e.m.f. for short, and it sets up a difference in electrical charge between two points. That difference in charge is called a *potential difference*. We often just used the term *voltage* to refer to either e.m.f. or potential difference, as both are measured in volts."

Ritchie looked deep in concentration.

"I'm not sure I see the difference between e.m.f. and potential difference."

"It is one of the finer points," agreed Danny. "Without getting too involved, all you need remember is that a potential difference, or p.d., is just a difference in charge, or voltage, between any two points. An e.m.f. implies that some external force is acting upon the electrons to maintain that charge. A potential difference exists between two charged bars, but there is no e.m.f. - as soon as they are joined by a wire electrons flow briefly from one to the other until

their charges are equal. A battery on the other hand is a source of e.m.f. - the chemical action keeps moving electrons from the positive to the negative electrode."

"I see what you mean," said Ritchie. "I hope I can explain all of this to Melissa."

"I should think you can," said Danny encouragingly. "Next we come to resistance. We've already discussed how materials with few free electrons oppose the flow of electricity, and therefore have a high resistance. Materials such as copper or silver have a very low resistance and allow current to flow easily. Resistance, as you know, is measured in ohms, and there exists a relationship between current, voltage, and resistance."

"*Ohm's Law*," interjected Ritchie.

"Correct. There are several different ways of stating Ohm's Law. You can say that with a constant resistance, current increases as voltage increases. You can also say that with a constant voltage current decreases as resistance increases." Danny pulled his note pad toward him and wrote a simple formula (Figure 1). "Here," he continued, "is the familiar formula for Ohm's Law. It tells you that current is proportional to voltage and inversely proportional to resistance. As you know, you can rearrange the formula in two other ways." So saying, he added these to his drawing.

"This is familiar territory," said Ritchie, quickly. "Let's move on to the stuff I don't know how to explain."

"Very well. I take it you can describe how resistance causes the current in a circuit to slow down, and how resistances in series add."

"That I can manage."

"Good. How about resistances in parallel?"

"Well," said Ritchie, a little uncertainly, "I know how to calculate the value of resistances in parallel, but I'm not

sure how I'd explain it."

"We'd better look at that then," said the engineer. "You should explain that in a series circuit the same current must flow through every component, be it a wire, resistance, battery, or whatever. You should then explain that in a parallel circuit the same voltage appears across each resistance. Like this." Danny sketched two simple circuits (Figure 2).

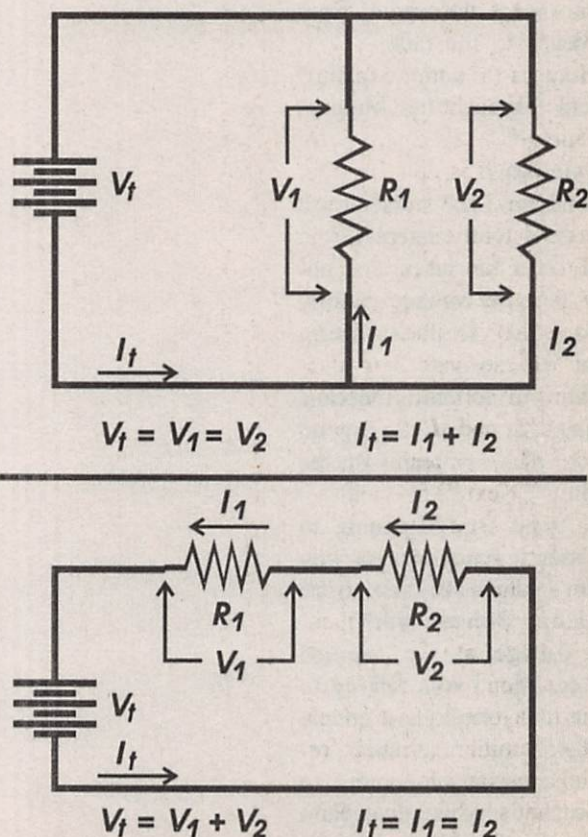
"And," added Ritchie, "you can use Ohm's Law on each section to find the current flow through each resistance."

"You can," confirmed Danny. "You could then use Ohm's Law with the total circuit current to find the overall resistance, which leads me to *Kirchoff's Laws*."

Ritchie looked up.

"Kirchoff's Laws? You're sure throwing a lot of things at me today. I don't ever

FIG 2 - VOLTAGE AND CURRENT IN A PARALLEL AND SERIES CIRCUIT



recall learning Kirchoff's Laws."

"Whether you learned them or not, you use them nearly every day," explained Danny. "Kirchoff's First Law states that the sum of all currents flowing toward a junction is equal to the sum of all currents flowing away from that junction. If you take a parallel circuit with two branches and measure the current in each, you will find that the sum of those currents equals the total current flowing in the parallel circuit."

"I see what you mean," said Ritchie, "but I never realized there was a law for it. What's Kirchoff's Second Law, then?"

"Kirchoff's Second Law states that the sum of the voltage drops across resistances in a series circuit is equal to the total voltage applied to that circuit. Again, it's something which you've known for a very long time."

"I sure have. How does this affect parallel resistances?"

Danny added another sketch to his note pad (Figure 3).

"Here is a simple circuit with two branches. You can use Kirchoff's First Law to tell you that I_t is equal to the sum of I_1 and I_2 where I_t represents the total current flowing through the circuit. You know that the voltage across R_1 is equal to the voltage across R_2 , so you can also determine a formula for calculating I_1 and I_2 ." Danny added these notes to his sketch. "Next," he continued, "you substitute the Ohm's Law equations for the current values in the first equation. Because you then have voltage at the top of each equation, you can convert it to a one. That gives you the familiar formula for parallel resistances."

"So that's where that formula came from!" exclaimed Ritchie. "I've sometimes wondered about that."

"So now you know," said Danny. "A great many equations you use in electronics are derived from others. All you often need is a basic understanding of mathematics. Is Melissa good with maths?"

Ritchie looked up quickly.

"I think so," he said. "I sure hope she can understand substituting equations though; she's only twelve."

Danny smiled to himself, surprised.

"Twelve? Mmm, she's taking an interest early. It's a pity that so few girls actually take an interest in electronics and radio when they're young." Danny thought for a moment. "I don't suppose you know whether she's done any trigonometry at school, do you?"

"I don't know. Why?"

"Because she'll need it when she comes to examining capacitance and inductance. It looks as though you're going to be a maths teacher for the next few weeks, too!"

Danny stood up and, with a stretch, headed for the

workshop's kitchen.

"If I'm going to talk some more I must have some coffee!" he called out from the doorway.

Ritchie sat quietly at Danny's bench, looking at the drawings in front of him.

"Danny!" he called, a few moments later.

"Yes."

"I don't suppose you'd consider coming over this weekend and explaining all this, would you?"

The serviceman appeared in the doorway and carried two mugs of coffee back to his bench.

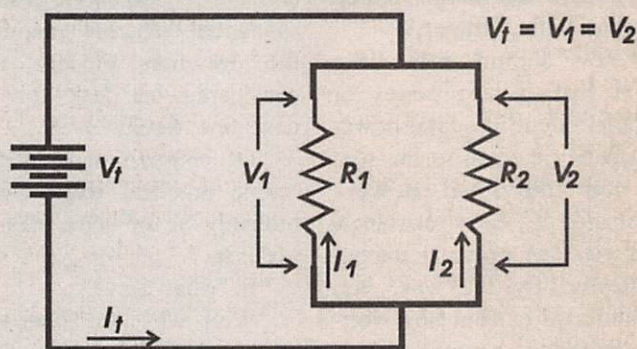
"Actually," he said, as he reached under his bench for his lunch box, "I'd love too. It's been a long time since I've worked with a young person on electronics; I enjoy it. Unfortunately I've already arranged a camping trip into the mountains this weekend."

"Oh." Ritchie was silent.

"But," continued Danny, "perhaps we could do it next weekend instead." Ritchie's face brightened at the prospect.

"Thanks Danny," he said

FIGURE 3 - CALCULATION OF PARALLEL RESISTANCES



From Kirchoff's First Law:

$$I_t = I_1 + I_2$$

From Ohm's Law:

$$I_1 = \frac{V_t}{R_1} \quad I_2 = \frac{V_t}{R_2} \quad I_t = \frac{V_t}{R_t}$$

Therefore

$$I_t = \frac{V_t}{R_1} + \frac{V_t}{R_2}$$

and

$$\frac{V_t}{R_t} = \frac{V_t}{R_1} + \frac{V_t}{R_2}$$

By eliminating V_t :

$$\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2}$$

happily.

"That's okay. Now, shall we cover some more ground while we eat?"

"Please do."

Danny examined the note pad on his bench as he thought about the next topic he should consider.

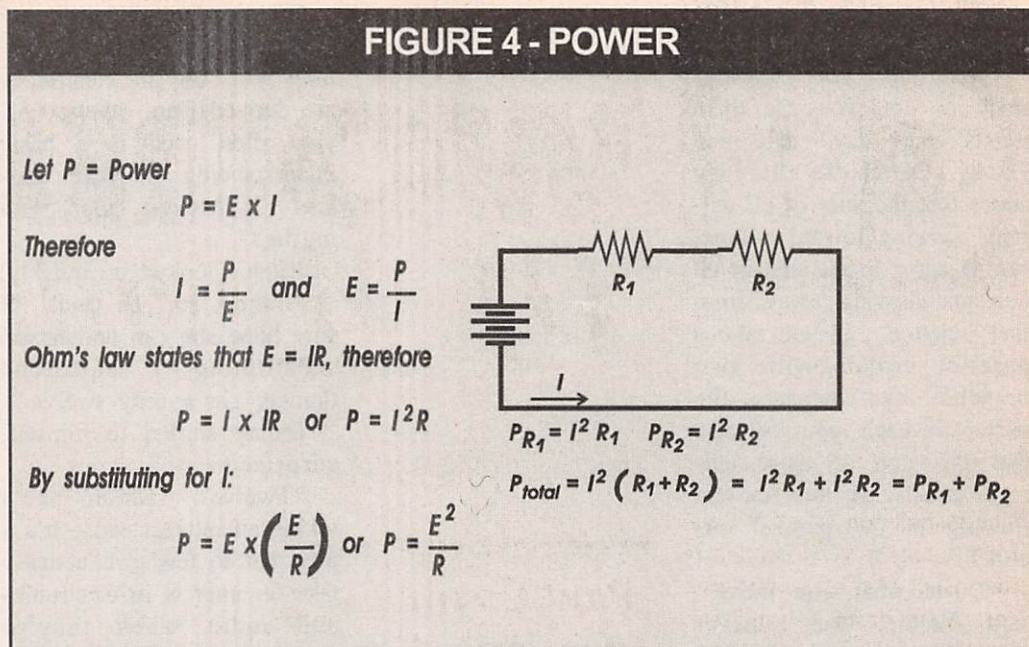
"I think," he stated, "you should try to explain something about power. As I'm sure you know already, power is the rate at which work is done. In the case of electricity, work done is the movement of electrons from one place to another. In a light bulb, for example, the more power that is used the brighter the light. Electrical power is measured in *watts*, and is determined by the voltage and the current in the circuit." Danny added another formula to his note pad (Figure 4). "This shows you that power is proportional to voltage and current. You can rearrange it, of course, to show that voltage equals power divided by current and that current equals power divided by voltage. I think you're quite capable of explaining how to calculate the power dissipated by each resistance in a series or parallel circuit."

"I can do that," stated Ritchie with certainty.

"You should make the point that in any series or parallel circuit the total power dissipated is equal to the sum of the individual powers dissipated by each resistance, and you can prove it mathematically. By the way, you should also explain how voltage divides in a series circuit, then you can calculate the power dissipated by each resistance in that circuit. I think you should also make the point that many components, including resistors, are rated for a maximum power, and that higher powers may cause damage due to heat."

"Anything else?"

"You can do some algebra again if you want to. You know that power is voltage multiplied by current, and



Ohm's Law tells you that voltage is equal to the product of current and resistance. By substitution you find that power is equal to current times the product of current and resistance. To put it another way, power equals current squared times resistance." Danny added the equations to his drawings. "You can also substitute for resistance in the power equation, which tells you that power also equals voltage squared divided by resistance."

Danny sat back on his stool and took a large bite from a sandwich. Ritchie examined the drawings closely, and considered his task for the next few weeks.

"Of course," said Danny, "some practical work would probably be of some help to Melissa."

"In what way?"

"Well, why don't you take some assorted resistors from the spares cupboard, and a few batteries, terminal strips, and so on, and let her try out some simple circuits?"

"Like series and parallel resistances?"

"Yes. There's a spare multi-meter around somewhere that will do for measuring voltages and currents. You can set up different circuits, let Melissa measure the voltages and currents flowing in them at various places, and then

show her how the values she obtains fit into the equations. Trying something out in practice is always an excellent way to learn it."

"I think I may just do that," said Ritchie. "I can see I'm not going to have very much spare time in the evenings." He thought hard for a moment. "Or money next month," he added.

"Money? Why's that?"

"It's her birthday in about eight weeks. She wants a short-wave receiver to set up in her bedroom at home."

Danny looked most interested.

"She really is seriously interested, isn't she?" he said.

"I know. I'm just wondering what she'll want by her fourteenth birthday. It will probably be oscilloscopes and spectrum analyzers by then! She's already talking about her own den for electrical work during her next Summer holiday."

Danny rose from his bench once more, emptied the crumbs from his lunch box into the waste basket, and drained the last of his coffee. A picture slowly emerged in his mind of Ritchie spending hour upon hour at a bench with his niece, his brain being picked for information. Just, in fact, as had often happened to himself.

CB

WORDS *Of Warning*



The installation of a CB radio in a truck is very similar to the installation of a radio in a car. Apart from the physical location of the transceiver and antenna, and the routing of the cables, there are few differences. But these differences are of vital importance.

Potential problem

One potential problem is the use of 24-volt electrical systems on trucks. When connecting power to a transceiver in a car with a 12-volt electrical system, it is only necessary to connect one power wire to the chassis and the other to a suitable "hot" point in the wiring.

Because many trucks use a 24-volt system, the situation in this case is a little more complicated.

***Paul Coxwell
goes into the
dos and don'ts
of installing
mobile
transceivers in
trucks***

Two ways

There are two ways to connect a 12-volt transceiver to such vehicle:

1. The first requires the use of a converter unit which accepts the 24-volt supply from the vehicle and provides a 12-volt output for the radio. The converter is simply connected in the power lines to the transceiver (Figure 1). Many CB suppliers sell converter units for this purpose.

The second method is not always practical, but can be employed where the power

wires to the radio can be run back to the truck's battery compartment.



Chassis connect

Because most 24-volt trucks actually use 12-volt batteries in series, it is possible to connect the radio across just one of them. It is most important that the radio is connected across the battery which has one side connected to chassis (ie the chassis to 12V battery rather than the 12 to 24V battery). Connecting the radio across the wrong battery may cause a short-circuit (see Figure 2).

When connecting in this way, it is most important that a fuse be included in the "hot" supply line at the battery-end of the wire. This protects the relatively long run of wiring to the radio in the event of a fault.

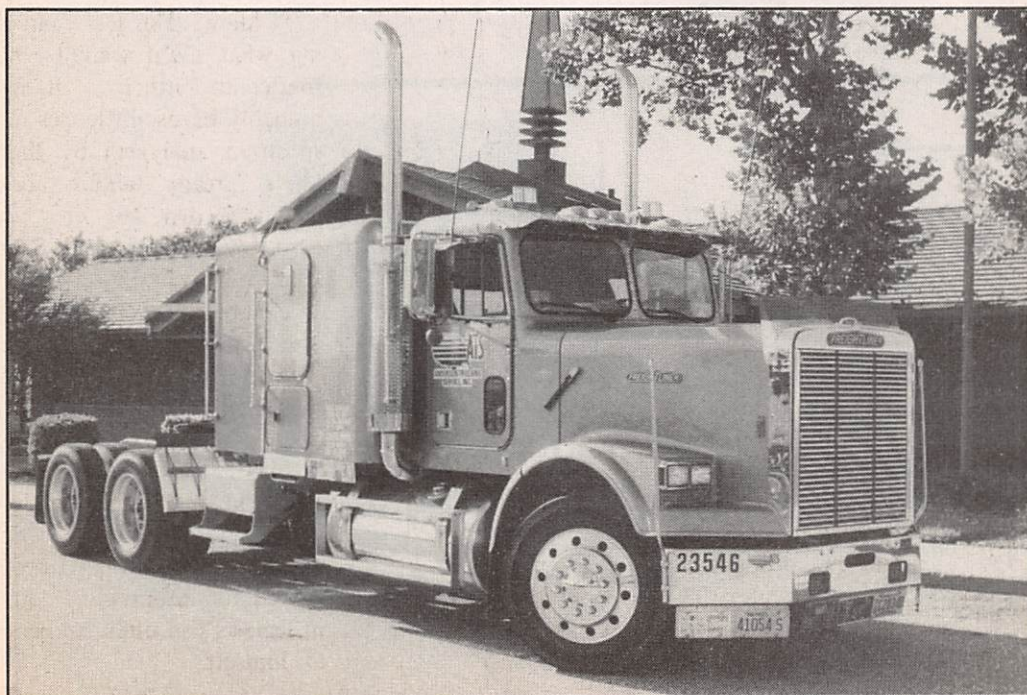


FIGURE 1 USING A 24V TO 12V CONVERTOR

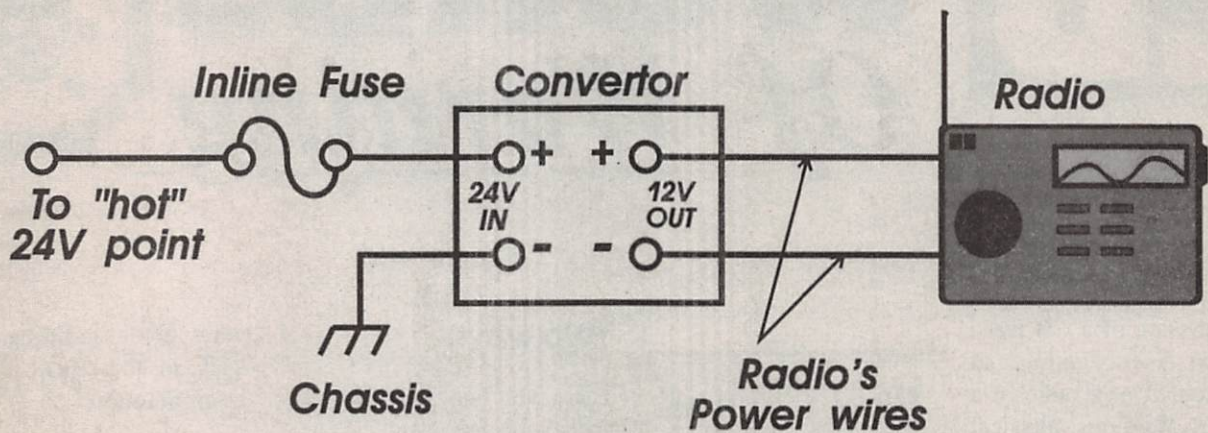
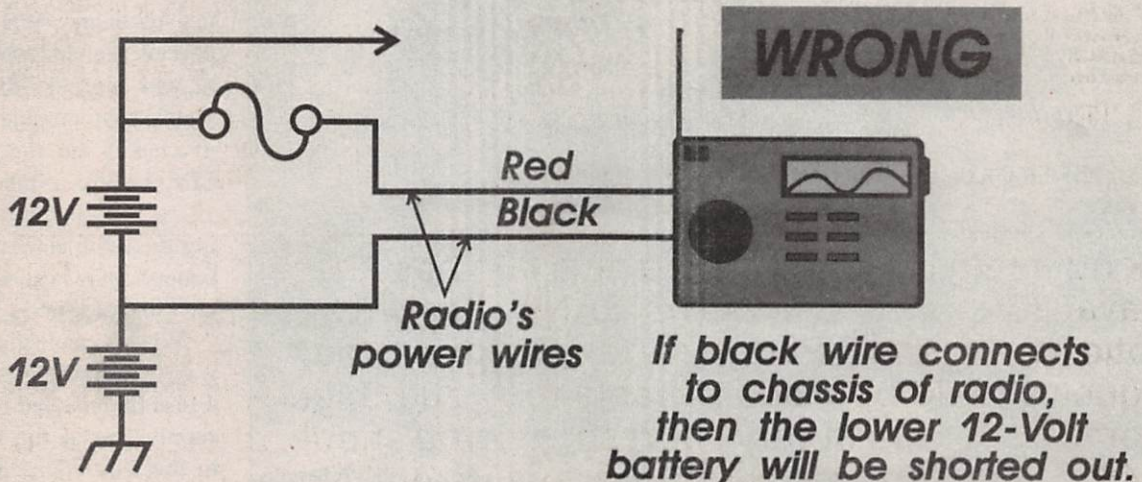
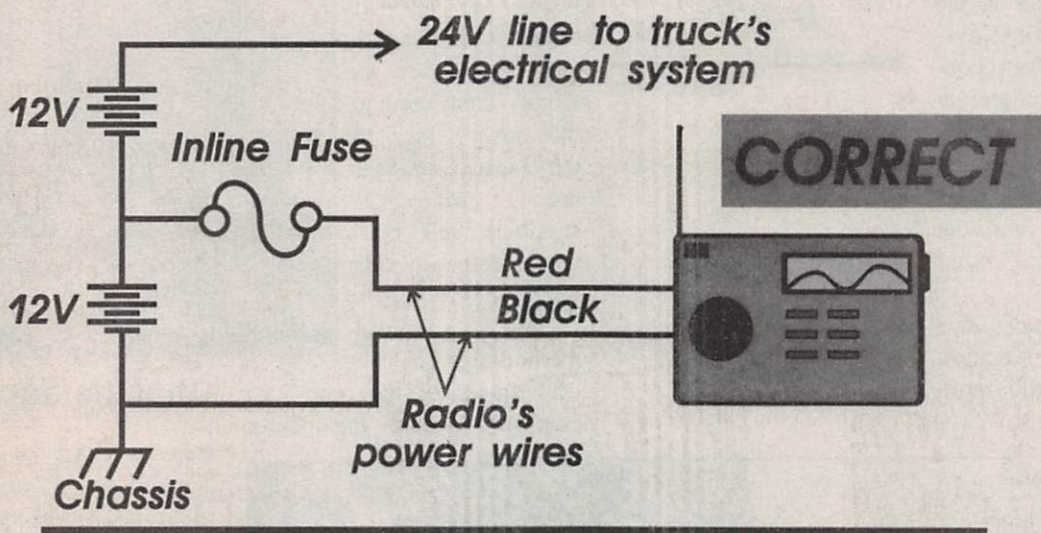
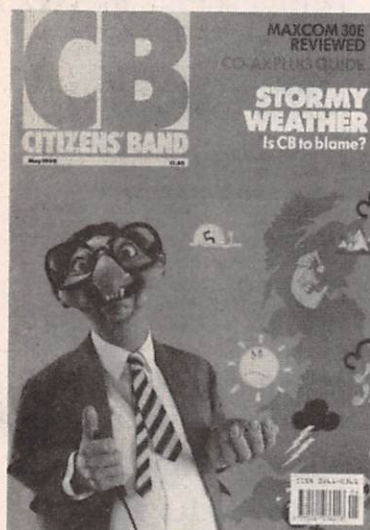


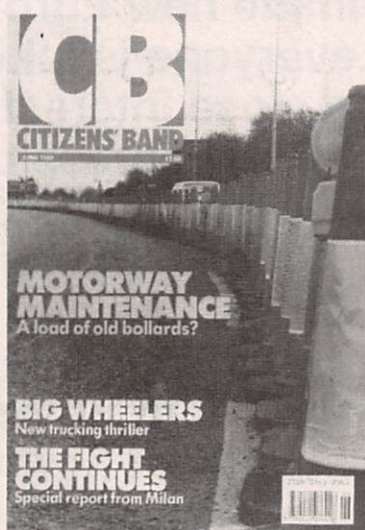
FIGURE 2 CONNECTING THE RADIO ACROSS ONE BATTERY



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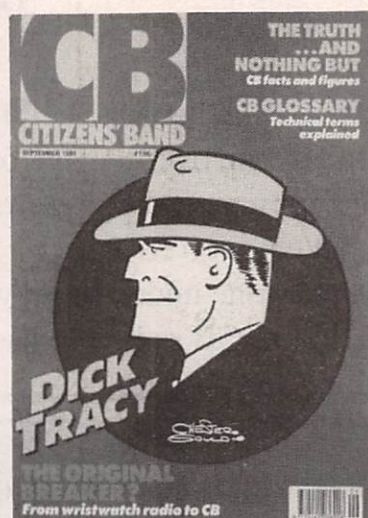
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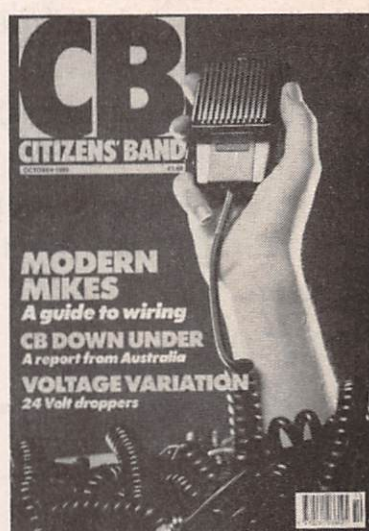
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CB EUROPEAN

After the revolution in November 1989 and the subsequent opening of its borders, Czechoslovakia has experienced a rapid development in CB radio. Before 1990 it was difficult to buy CB radio rigs and aerials in Czechoslovakia because the country never manufactured such equipment.

Those interested in CB radio have yet to form their own organisation, although CB radio clubs have already been formed in the larger towns and cities. There is a magazine on amateur radio - Amaterske Radio - but the term "CB radio" hasn't yet caught on.

Channels

Since March 1982 the ministry of telecommunications has permitted the use of 20 channels:

1, 3, 4, 5, 7, 8, 9, 11, 13, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26 and 27.

AM/FM and SSB are permitted while the allowed output power of antennas was recently increased from 1 Watt to 4 Watts.

The CB equipment must be authorised by the

In the new Europe, everyone is taking a close interest in the progress of citizens in the former "Eastern Block". As part of an occasional foray into Europe, we look at how CB Radio is doing in Vaclav Havel's Czechoslovakia

relevant authorities in Prague. A licence is granted to anyone over the age of 18 for a period of 5 years and costs 60 Kroner.

Anyone under 18 may still use CB radio but has first to apply for a special

permit stating the reasons for its use.

Cross Border

Cross-border radio communication is not permitted and stations may not operate from a private home antenna. Hand held radios are permitted as are mobiles with a maximum aerial length of 1.5 metres.

Anyone visiting Czechoslovakia with CB radio equipment must apply to the ministry for telecommunications for a special permit. The transmitting and emergency channels are not fixed but there are certain recognised channels eg emergency channel 9 and transmitting channel 4.

File=EUROPE			
Country	Czechoslovakia		
Capital	Prague		
Language	Czech		
Second	Slovak		
Religion	Catholic		
Second	Protestant		
Area sq/km	127869	Population	15573000
		Life/expect	70
National GNP	89260 M US\$	Per cap GNP	0 US\$

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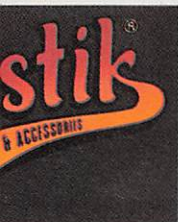


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MULTI-PURPOSE



A value for money multimeter from Maplin reviewed by Paul Coxwell

From time to time we are examining some of Maplin Electronics' range of test equipment, this company representing a middle-ground supplier offering equipment that is above the cheap 'junk-meters' found in many CB type stores, but below the expensive laboratory equipment of some other suppliers.

Maplin offer a range of a dozen or so digital meters, ranging from a small pocket type costing £20 up to a bench type costing £160. After some examination of specifications in the catalogue, the M6000 was chosen as representing the best mid-range unit, offering extensive measurement facilities and good accuracy at a reasonable price of £36.

The first feature of the meter you will probably notice is its colour – a bright orange! The case is styled in the usual fashion for such meters, and measures approximately $7 \times 3\frac{1}{2} \times 1\frac{1}{2}$ inches. There is a small stand at the back which hinges out to allow propping-up on a bench, and although adequate for gentle use, it appears a little too weak to withstand less careful handling. That said however, the stand would most likely be used when working at a proper bench, so this really is a small point.

The display is a $3\frac{1}{2}$ -digit, half-inch LCD type. Below this is a power switch, and a bank of eight range selector switches. Finally, at the bottom are four sockets for connecting test leads. The meter is capable of reading up to 1000V

DC, 750V AC, 20A AC and DC current, and 20M resistance. The ranges, resolution, and accuracy are shown in the accompanying table. The input resistance/impedance on all voltage ranges is $10M\Omega$, so there should be no problems with the meter affecting the circuitry under test. Frequency response on the AC voltage ranges is 45 to 400c/s up to 20V, and 45 to 120c/s up to 750V. Six of the push-button switches allow decade selection of ranges (2, 20, 200 etc.). The lower switch selects between voltage/current readings, and resistance readings.

The distinction between voltage and current is made by plugging the positive test lead into a different socket. The top switch serves a dual purpose. When using the meter for voltage or current measurements it selects between AC and DC. On the resistance ranges it selects the test voltage used on the probes. The high position gives a maximum voltage on the probes of 3V, and may be used for most measurements. Switching to low however, guarantees a maximum voltage of under 0.6V, thus allowing the meter to be used on components wired in a transistor circuit without the semiconductor junctions affecting the results. This statement holds true for most of the latest circuitry using silicon transistors, but the older germanium devices may still give rise to false readings, so be careful.

Supplied with the meter are a pair of test probes, screw-on clips to allow

conversion of either or both probes to clip leads, and an instruction book. The latter includes a schematic of the meter (although it is very small and difficult to read), and calibration instructions should you have an extremely accurate bench meter and wish to recalibrate your M6000 every couple of years or so.

Order Information:

Maplin Electronic Supplies
PO Box 3
Rayleigh
SS6 8LR
England

Phone (0702) 554161
International + 44 702 554161

Ask for YJ78K for the meter itself (£35.95), and YN72P for the case (£3.95). There is a handling charge of 50p for each order. Maplin accept payment by cheque, Visa, MasterCard, and American Express.

If you are outside Britain you may deduct 15% for British tax, which Maplin include in their prices. Call them for current delivery charges to your area.

The Verdict

After getting used to the rather brightly-coloured case, you should have no problems using the M6000. The extensive ranges cover just about everything you'll ever want in tube and

transistor radio servicing. Indeed, the AC current ranges are unusual in less expensive meters. As with virtually all digital multi-meters, the slow response time (particularly on the AC ranges) prevents accurate measurements on rapidly changing voltages, so you should consider the M6000 a compliment to

your conventional analog meter rather than a replacement. This is not a criticism aimed at this meter, but just a general fact of life regarding digital meters. Analog meters are better for fluctuating voltages, and for such things as peaking and nulling adjustments, whereas digital meters score for highly

accurate measurements of steady voltages.

All in all, the M6000 gives an accurate, inexpensive general-purpose meter for bench use or carrying around. At £40 including case and packaging, you are certainly getting your money's worth.

SPECIFICATIONS

DC Voltage

Range	Resolution	Accuracy
200mV	100µV	0.25% + 1 digit
2V	1mV	0.25% + 1 digit
20V	10mV	0.25% + 1 digit
200V	100mV	0.25% + 1 digit
1000V	1V	0.25% + 1 digit

Input resistance = 10M all ranges.

DC Current

Range	Resolution	Accuracy	Max. volt. drop
200µA	0.1µA	0.5% + digit	0.25V
2mA	1µA	0.5% + 1 digit	0.25V
20mA	10µA	0.5% + 1 digit	0.25V
200mA	100µA	0.75% + 1 digit	0.25V
2A	1mA	1.5% + digit	0.5V
20A	10mA	2% + 5 digits	0.3V

AC Voltage

Range	Resolution	Accuracy
200mV	100µV	0.5% + 2 digits
2V	1mV	0.5% + 2 digits

20V	10mV	0.5% + 2 digits
200V	100mV	0.5% + 2 digits
750V	1V	1% + 2 digits

Input impedance = 10M shunted by 100pF all ranges.

AC Current

Range	Resolution	Accuracy	Max. volt. drop
200µA	0.1µA	0.75% + 5 digits	0.25V
2mA	1µA	0.75% + 5 digits	0.25V
20mA	10µA	0.75% + 5 digits	0.25V
200mA	100µA	0.75% + 5 digits	0.25V
2A	1mA	1.5% + 5 digits	0.5V
20A	10mA	3% + 5 digits	0.3V

Resistance

Range	Resolution	Accuracy
200Ω	0.1Ω	0.5% + 1 digit
2000Ω	1Ω	0.3% + 1 digit
20kΩ	10Ω	0.3% + 1 digit
200kΩ	100Ω	0.3% + 1 digit
2MΩ	1000Ω	0.75% + 1 digit
20MΩ	10kΩ	1.5% + 1 digit

NEXT

PLUS ALL YOUR REGULARS:

- Captain Sparx with some CB controversy
- Shepherd Man over the air
- Carry on QSL
- Fiction - part two where the story *really* begins...

PLUS a question and answer session for beginners to the hobby and your very own comments in our letters page.

Mercy Dash

Read how CB played its part in a convoy of compassion to Romania. CB and good works are common companions so you'll not be surprised by this account of carrying aid to Romanian orphans. When who knows who is listening in?

MONTH

COMING SOON

CB on the farm.

How CB is taking off in Eastern Europe where East Germans are exhausting the supply of equipment and the Soviet Union has just gone legal!

CB Guides to portable, mobile and base rigs.

CHAT BACK!

If you've got a story to tell which involves CB - the equipment, the clubs, the people, the travel - then why not share it with your fellow CB users around the UK?

We are interested in publishing all types of article about the use of CB around the country. We'd like your pictures too, of club meets, of your truck, van, 4x4 or car proudly displaying a new aerial or CB under the dash.

Do you use CB at sea, on the road, on the farm, campaigning on the doorstep?

How and why are you

communicating with CB equipment? We'd like your story and we'll pay you a modest fee to make it worth your while. We look forward to receiving your work, receipt of which we will acknowledge and we'll let you know when we intend to publish within a few working days.

How to present your work

Write between 2 and 4 A4 pages of double-spaced text. If you are using a wordprocessor (home or business computer) then send us

a floppy disk (which we will return) with the article saved on it and/or a doublespaced printout. If you do not have access to a wordprocessor then use a typewriter and send us a double spaced copy. If you don't have access to either wordprocessor or typewriter then give us a ring to discuss how best to submit the story. Call Mark Webb on 0442 66551.

Send your article to:

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TALKING TARTAN

More Scotch from the Rock - CB affairs north of the border

The annual get-together at Solway Pirates' October Eyeball at Southerness, Dumfriesshire, proved one thing - CB is still in a healthy state - as far as the users involved are concerned. The weekend was as busy as it has ever been and the organisation was up to the usual high standard associated with Solway Pirates. The weekend's activities were tackled at their usual 100 mph rate. It was hectic! For those who wanted a quiet weekend the message was clear. On your bike! If you can't stand the heat get out of the kitchen - or wherever it is you do your socialising.

The weekend was full of messages for CBers. First of all if you want to get involved in Solway '91 better get a move on now. Big H and his committee are already well on their way to a sell out for next year's event. Anyway, back to last year and the tournaments provided those with the competitive bent the opportunity to tell everyone how unlucky they had been and how they nearly won. The lucky winners were:-
Darts - Flash, Wishaw.
Dominoes - Big H, Solway.
Furthest Travelled to the Eyeball - Berlin Bear.
Eyeball Queen - Honeysuckle, Viewpark.

Brian Babington, President of Natcolcibar presented a new Trophy to Solway Pirates for competition in an event of their own choosing. It should be aimed towards Europe in some way.

Aquarian (Dougie) was well supported in his 24 hour darts Marathon in aid of charity. In all he threw 5751 darts and clocked up some impressive statistics. His efforts included:-

- 180 - 7 times
- 150 - once
- 140 - 23 times
- 100 plus - 117 times

Thanks to his team of helpers for keeping count, collecting darts and returning them to the Oche, but mostly for their support in keeping him going. Anyone out there keen to better this effort?

On the serious side of CB there were also messages. Sunday's Scottish Association of CB Clubs Open Forum was well attended and very lively. Most of the flack was hurled in the direction of RIS Officer John Brigstock, Area Manager for Cleveland. Mr Brigstock gave a brief talk on Department matters before asking for questions from the floor. He had a few comments to make including the opinion that antenna restriction may be relaxed after reports in the Autumn. He felt strongly that the possibility of legal SSB operation was almost nil. That comment was greeted with scepticism by users who remember a Home Office Minister who promised that "there would never be a CB service in the UK."

Mr Brigstock spoke at some length on the subject of PO Box closures, outlining Department policy on the subject. Skip was a fact and anyone taking advantage of it on legal equipment and on legal frequencies was quite entitled to do so. In these circumstances he could see little advantage in broadcasting a PO Box AD - except that in most cases it was shorter than domestic addresses and lent itself to callsign use for identification. The general policy of RIS was that contacts made on illegal frequencies, or illegal equipment, and where a PO Box number was broadcast in such instances, then RIS would apply to British Telecom to have the box closed. This request was generally granted.

How the policy was implemented in the different RIS areas varied according to interpretation. In his area where a PO Box AD was broadcast on illegal frequencies or SSB it would be used as grounds for closure. Mr Brigstock admitted that it would be unfortunate if the user was not a member of the group responsible for the PO Box, or if it was a purposely committed act against the PO Box user group. In all instances the registered PO Box holder should ensure that there is no illegal use of the facility.

The PO Box exchange became quite heated and Alasdair Hutton intervened

with the message that lambasting RIS Officers is not the way to effect changes in the system. The officers are merely operatives carrying out directions from above. The road to change is a political route and proposals must be driven home via MPs, MEPs and any other political animal who is able to put pressure at the appropriate places.

From the Chair, Rock-A-Jock's message was that CB users must "get off their butts and make themselves heard". In many instances they only complain to each other about the failings of the system. Many of the points brought up from the floor could have been tackled by complaining to the authorities or local MPs. Looking for someone to take up the challenge on your behalf should be second stage of a campaign.

Brian Babington (Natcolcibar) gave a talk on the complexities of standardising CB in Europe and mentioned The ETSI BA document which is to be the European Standard for CB. In many instances those countries which had a dual CB system would retain the non-standard system as a purely local set-up. Of 22 countries concerned in Europe only 7 had so far intimated acceptance of the standardisation specification, though most were expected to follow suit eventually. Brian will be attending the next European CB Federation meeting in Hungary.

Ian Oliver, MSGB (VOL) covered quite a range of topics in his discourse on CB in the UK. As Secretary of the Users Group he was in close contact with RA as well as attending the User Group forum meetings at Waterloo Bridge House as a National Officer of MSGB. Until the Antenna Report is forthcoming at the end of the year it would be futile to speculate on what the future held in store. The possibility of computer use for short message transmission is still at a very preliminary stage and more will be heard of that as it unfolds. UK CEPT rigs must now be marked CEPT PR27GB for use in other EEC member states, especially Denmark where they say that those rigs wrongly marked PR27GB will not be allowed in. The old style markings will still be on sale for another 12 months before the changeover is complete.

The final message came from China Chilo, Edinburgh. He had been discussing the meeting with other CBers and the verdict was that it had all been heard before. Fair comment, but then if nothing is done then absolutely nothing changes. Authority moves very slowly indeed but things have changed over the years. Little and not very often maybe - but they have changed. DTI now talk to user group representatives and listen to their comments and suggestions, as was the case in the matter of Back Chat units for blind users.

The Back Chat unit has been with us

for years. Used by blind breakers to speak the channel number it was a vast improvement on Braille type knobs and things which had been used before then. These units were generally supplied and fitted by CB for the Blind at no cost to the recipient – but no one had bothered to tell the Authorities about them! Although they were technically illegal, the DTI allowed their use until the necessary legislation could be written into the statute books. This has now been achieved for 27/81.

CEPT is a different matter and, until a manufacturer is found who will modify their rig to take a retro-fitted unit, plugged in externally, then a Back Chat unit connected inside these sets is still technically illegal. DTI have said that so long as this is the only alteration to the set they will take no action until the matter is resolved.

The Old Timers held their Eyeball again in the Village Hall, Glencarse, Perthshire, on 13th October, presided over by Pasquanel (8am). Admission was £1.00 for the afternoon session and £1.50 for afternoon and evening. Rob Roy (Tommy) made the trip from Glasgow but got detoured on the way to see a few friends in the inveralmond area, Chieftaim (Hamish) and his good lady and then to Dundee to pick-up friends of many years – Honeysuckle

(Joan) and Tweedy Man (John). When he eventually got to Glencarse, he was delighted to put some faces to handles he had known for some time. Black Fox (Wullie) from Crieff; Sugar Queen and Mustard Man from Dundee; Snowball (Jean) Arbroath; Tower Man (Wullie) Clackmannan; Special Brew and Shamrock Lady Post Seaton; Fisherman Cowie; Sparky, Lulu and Greenfinger (Alan) and Lucky Dip (Tom).

I have heard of the passing of a CB acquaintance of some years, Afgan, of Scotstoun in Glasgow, died in his car after a head-on collision. He was one of those people you talk to many times but never meet. He was an active CB user and a member of the Four Sevens group who were so called because they mainly used channels 7, 17, 27 and 37.

On a happier note the Halloween Dance organised by 2nd City Breakers of Glasgow was a resounding success – reportedly the best function the club has put together – and there have been a few! Friends came from far and near to join in the fun including Shepherd Man and Screwdriver from London, Thunderhips and a load of friends from the Westfield Breakers Club in Edinburgh and Cinderella and Firecracker from Girvan. The prize for best Fancy Dress was won by Wheelbarrow (Liz) dressed up as an

Indian Squaw and the Party Game of Bottle the Carrot was won by Thunderhips, ably directed by Allegro Man. The Club's next dance will be at the same venue, the White Rose Hall, Caroline Street, Glasgow on March 2nd 1991.

The news from Girvan is that Maid Marion had to resign as Secretary for personal reasons and Muskrat has been recalled to Committee duty once more to join Chairman Whisky Royal, Treasurer Galloway Lass and Committee Members Calamity Jane and Firecracker. The Club is still operating on a full calendar and once again they are involved in a Winter League with Solway Pirates and Cree Valley Breakers. Carpet Bowls, darts and dominoes are the events contested.

Finally this month, a comment on graffiti, especially the messages written on the back of vans and lorries. You know the type: "Don't Wash-Plant Seeds!" "Also available in white!" etc. comments on signs bearing the names of towns and villages. The best I have come across in this field was a message added under place name Crook of Devon. It read "Twinned with Thief of Bagdad!"

If you have seen better then write in and let me know: Rock-A-Jock, PO Box 1, Glasgow G69 6EF.

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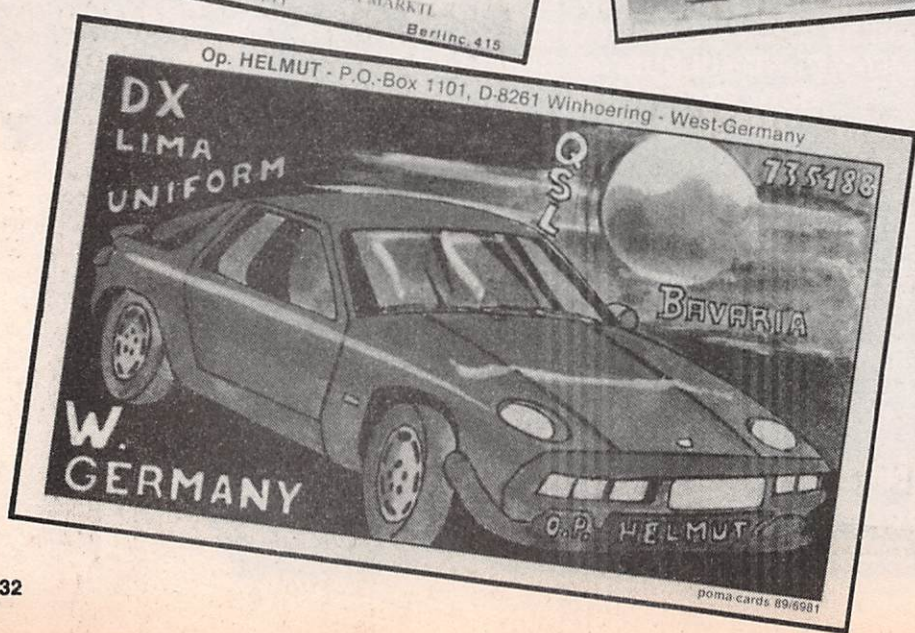
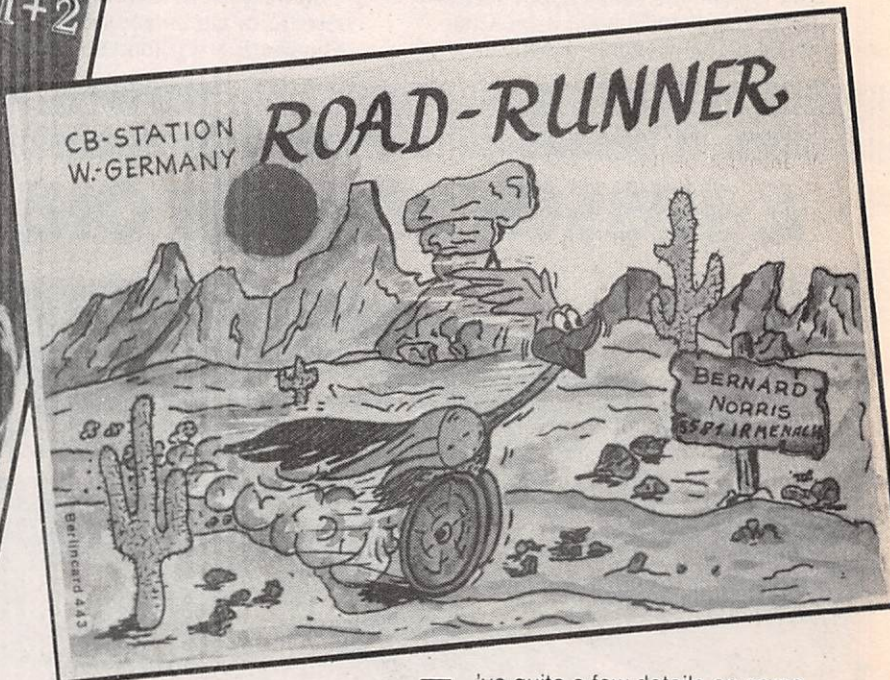
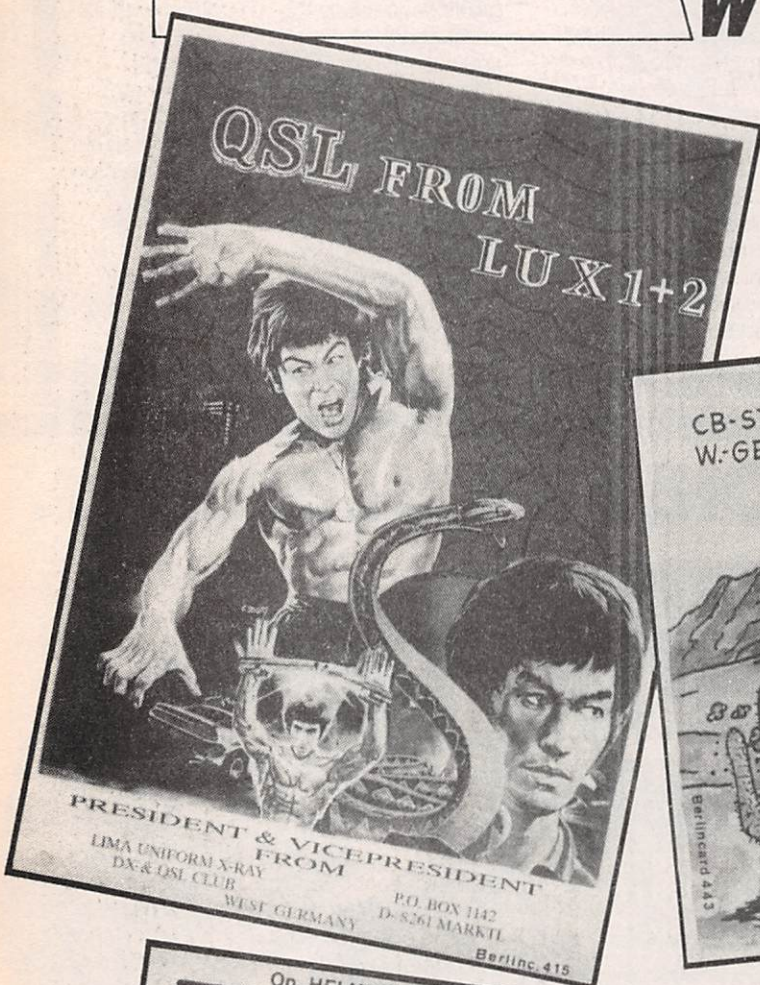


COMMUNICATION THE

QSL WAY



David Shepherdson brings us right up to date with news of eyeballs around the country plus the continental guide to QSLers



I've quite a few details on some of the Forthcoming Events and Eyeballs we can look forward to this year so let's get on with them. First up is the Cutty Sark Meet which will be held over the weekend of **13th-14th of April**. Another well attended event around this time of year is the Currie Card Swap meet in Co Durham, usually held over the second or third weekend of April. I have, however, been hearing rumours that this will be held this year in tandem with a new Eyeball on **May 5th** at the Stanley Youth Centre.

At the time of writing, however, I have not had this confirmed, also I would just like to point out that I have not received any details of the May Eyeball at Stanley direct from the organisers, what I have

came via Bunny of the Scottish CB Newssheet, thanks Bunny! Apart from the date and location, all I know is the Club, Derwent Valley Breakers and a contact address, usual place for that.

April 20th sees the first of this year's Lichfield & District's C&W Eyeball at the Burntwood Memorial Hall, Rugley from 1930 hrs to 2345. Admission tickets £1.50 (Children £1.00), maps, details, tickets etc. for a SASE to the Club address.

May 11th sees the first Eyeball held by the Fenland Tigers DX Group at the Anglia Motel, Fleet, Hargate in Lincolnshire. It runs from 10am to 6pm and will be held in the Motel's grass field. St John's will be in attendance, and the facilities of the motel will be available. Contact the Club for further details, map, etc.

I now have details on the Tango Papa's Southport do which in previous years has been held in the Floral Hall on the sea front. This year, however, there is a new venue and a new format. Rather than continue in the same old way, the Club has decided on a real change and the Charity Eyeball is now an all new Family Funday and Charity Eyeball! The new venue is the Moels Cop High School, on the junction of the B5276 Moels Cop Road and the A570 Ormskirk/Southport Main Road. Weather is unimportant as the venue is big enough to cope with an indoor or outdoor event. The date is now Bank Holiday Sunday, **26th of May** and starts at midday, admission fee is only 50p. In addition to the Eyeball there will be bouncy castles, rides and games for all ages, displays and all sorts. There will also be a Disco & Bar-B-Q in the evening. CB clubs and traders who are interested in a stall, or anyone wishing further info, drop a line to the TP Charity Committee at the Club. All proceeds to

DX Group ON INFORMATION FOR **BELGIUM**
16 ON001
op: ALAN
Po Box 6 6090 COUILLET Po. Box: 6 6090 COUILLET

TO RADIO	QRG	DATE	QTR	MODE	R-S-T	Q.R.M	Q.R.N	Q.S.B

I hope to meet you again on the air. Good DX, 73-88 to you and your family.

REMARKS:

MOBILE HOME TX Mic Ant PSE TNX QSL

go to a local charity so it's all in a good cause. Hopefully I'll look forward to seeing some of you there as well!

June 16th sees the latest Sheffield Eyeball at the British Steel Sports Ground, Bawtry Road running from 10am 'til 5pm.

June 22nd and 23rd are the dates for the Kilo Charlie's 9th Annual South Coast Eyeball held as usual at the Portslade Community College (nr Brighton). Saturday sees the C&W Evening Extravaganza whilst the Eyeball's on Sunday. That's all that I have room for this month, July and later Eyeballs will be included next month.

If you are organising a CB/QSL 'do' this year please let me know as soon as possible! All that I receive in good time will stand a good chance of appearing in these pages. Obviously, the earlier you can get the details to me, the more

times the details will appear. (Always providing I have the room, unlike this month!)

Euro get together

As promised last month, I've managed to get some details on a few European clubs together. Top of the pile is the Flash DX & QSL Club of Switzerland run by Daniel (1-FS-01). Joining is free; just a contribution towards postage. From the UK this can take the form of either one US dollar or a couple of IRCs and five Personal QSL Cards. For your IRCs or dollar you can expect your Lifetime Unit Number, Wall Certificate, an 8 page Club Info Booklet, 3 'Currie' Club Cards, 5 different Club Stickers, Exchange Cards and Club Forms, latest Newsletters and quite a little bit more.

The Lima Uniform X-Ray DX & QSL Club of Bavaria to which membership costs DM25 or 15 US dollars along with 20 personal QSL Cards. The Club caters for the 11 Meter Band and the motto is 'DX is our aim - QSL our game'. Your membership package consists of 2 Club Certificates, Unit Number, ID Card, Club Invites, 15 Club Cards, Stickers, a list of country prefixes, Club Roster, Pen, Seals and Rubber Stamp, Phonetic and Morse Code, Club Extras, Recommendable Clubs, Clubs to Avoid List, Welcome Letter, President's Cards, 20 Exchange Cards, German and European Flag Stickers, Calendar, Postcard and so on.

I'm afraid that personally I always treat these 'Clubs to Avoid' lists with a heavy pinch of salt (or being environmentally-friendly) lo-salt (!) as although they are issued in good faith, it only takes a bit of bad luck with the postal system losing a letter for a perfectly good club to end up on such a list. Which leaves the person or club who took it on themselves to include

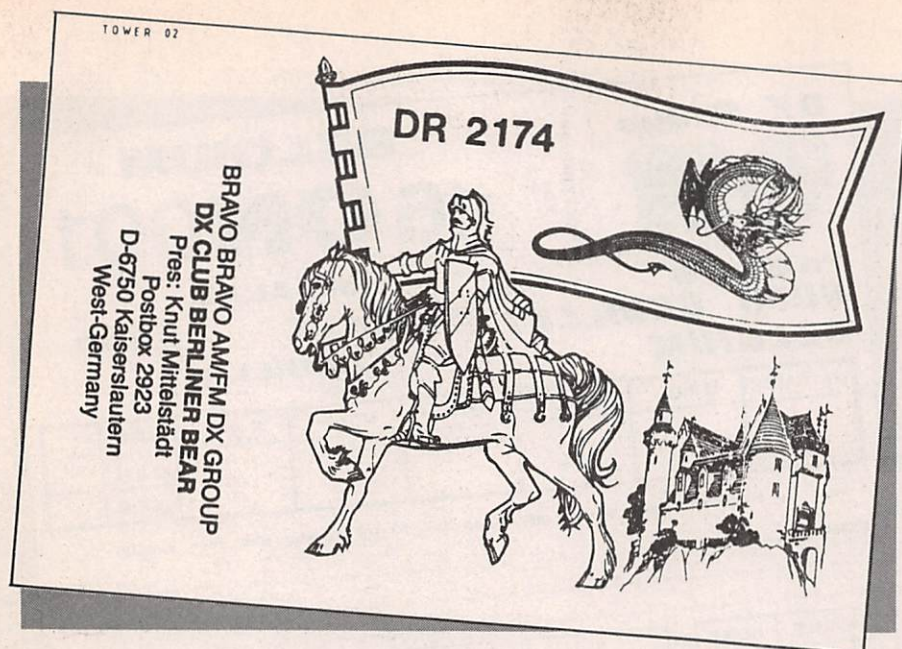
B A V A R I A **Für King Arthur!** **55** **73**

DX & QSL CLUB KING ARTHUR

P. O. - Box 1101
D-8261 Winhöring
BAVARIA
WEST GERMANY

QSL 100%

★ WORLD-WIDE FRIENDSHIP ★



such a club on such a list liable to all sorts of trouble!

Staying in Bavaria with details of the King Arthur DX & QSL Club. Again, like the Lima Uniform, it is another 11 meter band club and membership costs DM30 or 17 US dollars. Although I have said that the clubs cater to 11 meter band users, membership is open to all QSLers of course. Your membership package consists of a Club Certificate, ID Card, Unit Number, Stamp, Invites, Seals, Roster, Extras, Present, Pen, Surprise, Country Prefixes, Tourist Info, Presidents and Vice-Presidents Cards, List of Recommended Clubs, Welcome Letter, 10 Club Cards, Exchange Cards and Invites, Postcard of Bavaria with XYL membership free.

Also in Germany is the double Club of the Berliner Bear and Super Stinky Clubs. Membership to the BB costs £5 and 10 Personal QSL Cards while the SS costs £5 and 30 Personal QSL Cards. Apart from the difference in quantities of cards, the packages are similar so the details below of one, apply quite well to the other club, OK? Your £5 and cards gets you your Unit Number, Certificate, ID Card, Club Cards, Stickers, Pen, Car Sticker, Log Sheets, Presidents Cards, Flag Stickers, Invites, Welcome Letter along with various information and you XYL/M gets free membership. Send by Registered Post but be prepared to wait for your package as Knut is often out of Germany, sometimes touring the UK.

In Belgium there's the Ocean Nancy International to which membership costs 2 IRCs and between 5 and 10 personal QSL Cards. For this you can look forward to receiving your Unit Number, Wall Certificate, Exchange QSL Cards and a few extras as available. One thing to bear in mind when sending to Belgium, as far as I can remember it is not permitted to have any call signs or name in the address, also do not send by Registered Post, this is 'Not legal for a Postal Box in Belgium and not

accepted by the G.P.O'

Just about the last for this month, 'cos I'm almost out of room as usual, is the Antequera QSL DX Swap Club of Spain which costs £10 and 10 of your QSL Cards. The Club requests that you wrap your money between a couple of postcards or QSL Cards and send it Registered Postage. For your £10 you can look forward to receiving a super package with two Certificates, Unit Number, Spanish Stamps and Viewcards, Club Stamp (unmounted), Stickers, 10 and Q Codes, Spanish Coins, Club QSL Cards, Exchange Cards and Invites, Roster, Calendar, Frequency Chart, Swap List, Tourist Info and one of the 'Bull Posters'. There are various Club Cards available, details of these will be sent with your package.

For anyone still unsure of what an IRC is or where to get them, they are the Overseas equivalent of a SASE. The International Reply Coupon is available from most main Post Offices, costing around 60-70p BUT they are only worth about 20-30 pence when exchanging them for stamps! When sending money abroad you will usually have to send cash so try to wrap it between a couple of extra cards, use a bit of sellotape to secure it so that any coins don't 'travel' during the journey and rip through the envelope and wherever possible, try to use Registered Post, not available to Belgium remember. It would be in your own interest even though it will cost you an extra £1 or so.

Also, whatever method of postage you use, for heavens' sake use a STRONG envelope of a sensible size. Don't use one so big that everything shifts loose as you run the risk of losing everything in the post. Try for an envelope into which everything fits snugly, without forcing as you can then run the risk of ripping the envelope, thus weakening it before you even post it!

Continental QSLers

A few QSLer Names from around the

European Continent now starting off with Stefan Poisel of Germany, Radio Station ALDER 01, Herbert Karl (Fuzzy) again in Germany. Then there's Bernard (Road Runner), Franz (LUX 01), Helmut (Lima Uniform) of Bavaria, not forgetting Klaus (Old Wom) and Ronald Kron (Magier).

A request from Jean (Lady Jane) of Italy, can anyone help her with a RTTY programme for a C64 Computer? If anyone can help, please drop her a line, payment guaranteed, but please, NO CALLSIGNS on the envelope, not permitted in this case, thank you.

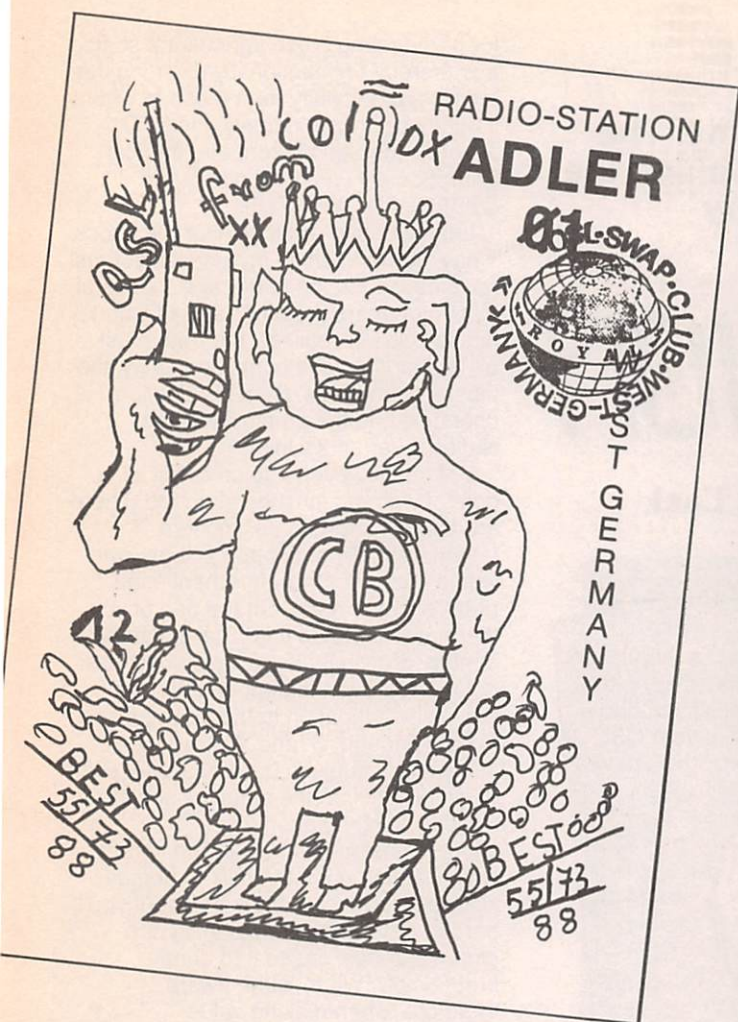
I've had a rather abrupt letter sent to me to the effect that I had included an address in a recent issue when I shouldn't have.

May I just first of all point out that any letters or cards I receive I assume to be sent for possible publication *unless* you specifically ask me *not* to. If you don't wish me to show your card or pass on a change of address, please say so, and make a note on the back of the card as in the time it takes between my receiving your letter and any mention appearing, cards will often separate from letters! In this particular case Richard (Ziggi) was so upset, he didn't even remember to let me know his new address in the letter. However, I think it is PO Box 244, Sheffield.

That's it, out of room once more, back to normal next time, if you want a mention then please drop me a line direct to 3 Tarn Villas, Cowpasture Road, Ilkley, West Yorkshire LS29 8RH and NOT via the mag as this can take several months to get to me!

Any news of *Forthcoming Events* are always welcome, the sooner the better please and if you want a reply, then please don't forget a SASE or similar. Don't forget, clubs can always write to me asking for inclusion in the New Club Directory, just mark your envelope or letter if at all possible, thanks.





QSL Club Addresses:

Antequera QSL DX	PO Box 92, E-29200 Antequera (Malaga), Spain
Berliner Bear	PO Box 2923, D-6750 Kaiserslautern, West Germany
Cutty Sark (Eyeball)	c/o PO Box 112, St Leonards on Sea TN34 6NX
Derwent Valley Breakers	85 Hollyhill Gardens West, S. Stanley, Stanley, Co Durham DH9 8NP
Fenland Tigers DX	PO Box 2, Holbeach, Lincs PE12 8ER
Flash DX QSL	PO Box 524, CH-4144 Arlesheim, Switzerland
GBQDC/Currie Clubs	PO Box 5, Consett, Co Durham DH8 8LT
Kilo Charlie Eyeball	PO Box 161, Brighton, East Sussex
King Arthur DX	PO Box 1101, D-8261 Winhoering, Bavaria, Germany
Lichfield & District	PO Box 21, Lichfield, Staffs WS14 9YA
Lima Uniform X-Ray	PO Box 1142, D-8261 Markt/Inn, Bavaria, Germany
Ocean Nancy Int.	PO Box 6, B-6090 Couillet, Belgium
Sheffield Breakers (Eyeball)	PO Box 275, Sheffield S2 5HY
Tango Papa (Eyeball)	PO Box 13, Southport, Lancs.

When writing to any QSL Club or QSL Service, please remember to include return postage for their reply. Also please mention that you saw their name in the CB Mag, thanks.

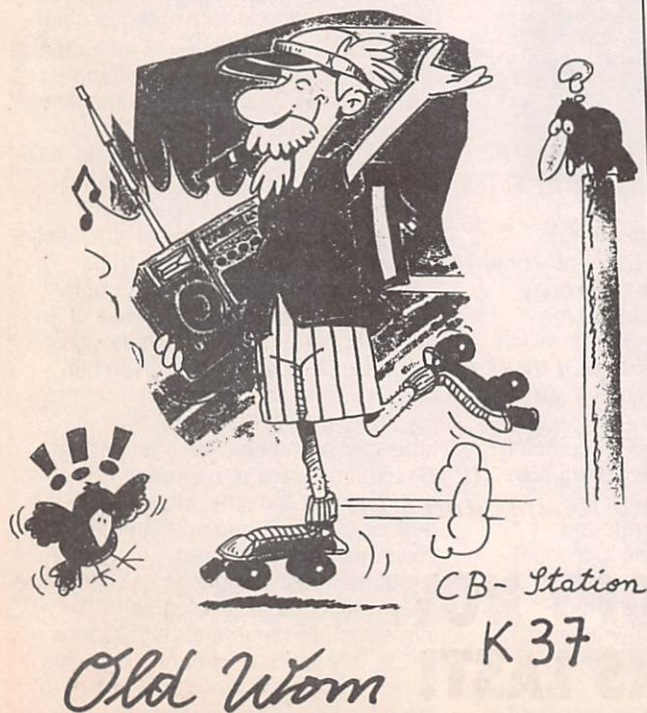
QSL Services Addresses:

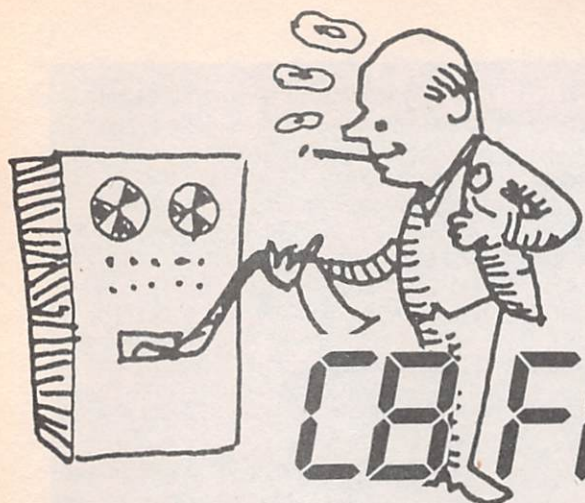
Currie Cards	89 Derwent St, Blackhill, Consett, Co Durham DH8 8LT.
IXL Sheffield	394 Langsett Road, Sheffield S6 2UG (0742-337857)
Sharp Graphics	PO Box 3, Grangemouth FK3 9BD. (0324-473432)
Twrog Print	Penybont, Gellilydan, Blaenau Ffestiniog, Gwynedd LL41 4EP, Wales.
Vine Lodge (Labels)	11 Mill Lane, Butterwick, Boston, Lincs. PE22 0JE.
Scottish CB Newsheet	c/o 'Arnall', Patison, Neilston, Glasgow G78 3AT. One year's subscription £2.70.

QSLer Addresses:

Bernard (Road Runner)	D-5581 Irmenach, Germany
Franz (Lux 1)	PO Box 1142, D-8261 Markt/Inn, Bavaria, Germany
Helmut (Lima Uniform)	PO Box 1101, D-8261 Winhoering, West Germany
Herbert Karl (Fuzzy)	Egerstrasse 2, D-8411 Wenzelbach, Germany
Klaus (Old Wom)	Frankfurter Str. 84 d, D-6054 Rodgau 3, Germany
Richard (Ziggi)	PO Box 244, Sheffield, Yorkshire
Ronald Kron (Magier)	Ulmerstr. 15, D-7920 Heidenheim, Germany
Stefan Poisel (Adler 1)	Karl-Eiters Str. 12, D-4800 Bielefeld, West Germany
Jean Maldarelli	PO Box 14125, I-00149 Rome, Italy

Man ist so jung
wie man sich fühlt...

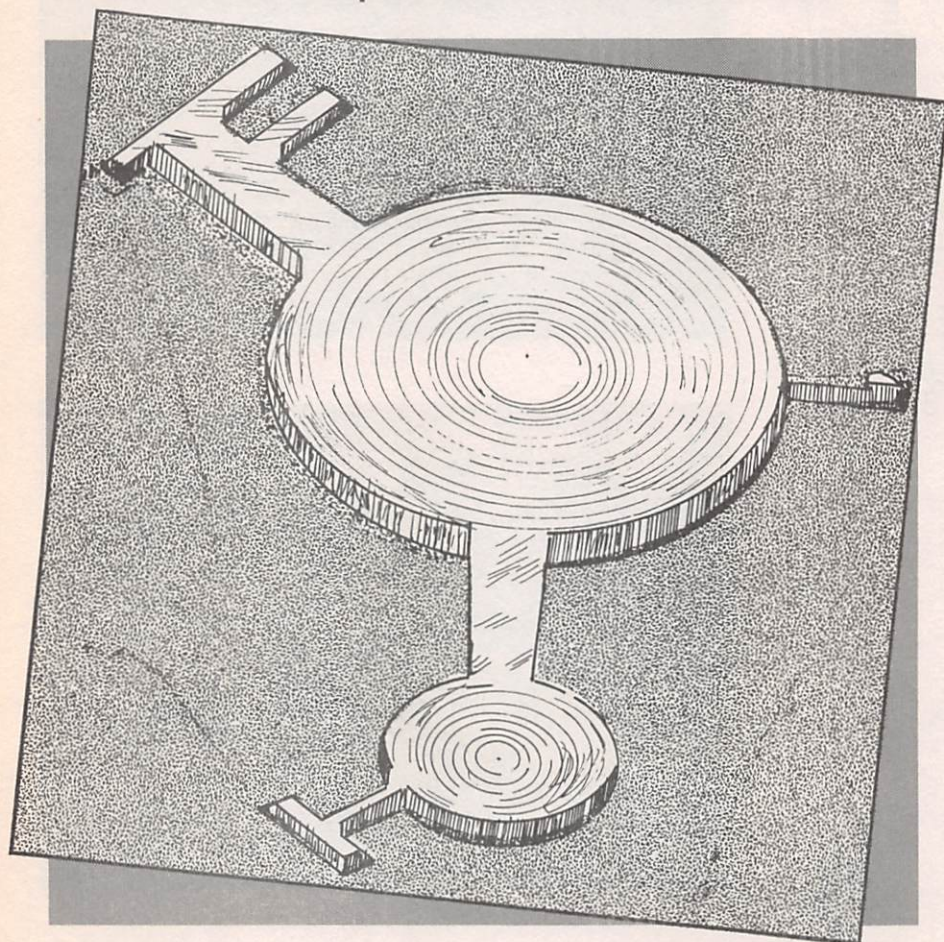




Part One: The Man Behind the Mystery

CB FICTION

CB and Crop Circles – the Truth at Last



The entire country, from north to south, is gripped by an all-consuming mania. The same questions are on every lip. What are these crop circles, and who causes them? The problem has been debated in the land's most illustrious journals, and in none more illustrious than the CB magazine: it, too, has indulged of late in this welter of speculation. Are these circles, asked this foremost example of investigative journalism, caused by CB as some have suggested?

I am now in a position to reveal, through these learned pages, to the world at large that, yes, our favourite form of two-way radio communication

does cause this rural phenomenon.

(Do I hear gasps of amazement – or is it that spotty-faced, under-sized copy boy having a crafty drag behind the editor's filing cabinet yet again?)

Well, so be it! And not only thus, for I shall make a further revelation: I am also able to divulge the name of the culprit responsible for the outrage. In so doing, though, I am in now way breaking the sanctity and confidentiality of the confessional. I offer this profound revelation only because the individual responsible has requested me so to do for he is in no position to do it for himself. (Actually, he can't write and, when excited, he has a debilitating stutter).

The unfortunate character responsible

for perpetrating these agricultural scars, and thereby unintentionally diverting the spotlight of publicity from those to whom it rightly belongs – namely, the UFO voyeurs, the Yeti hunters and the Flat Earth Society – is none other than OSBERT ENTWHISTLE!

Let me hastily apologise for the shock – nay, horror – which my revelation must have caused to the family and friends of this unfortunate breaker but, as Osbert himself clearly realises, the truth must be told for the sake of national unity, the Liberal Democrats' General Election chances, and the credibility of the National Farmers' Union.

Before, however, I go on to tell all, a note of warning must be sounded. There are those, I know, in our modern materialistically orientated society who would condemn this aforementioned breaker out of hand. Let me beg of you, therefore, not to do this. That great 20th century growth industry, Sociology, has not merely given the opportunity of a university education to those who failed to gain enough 'O' and 'A' Levels to study a real subject, but it has also given us an insight into the complex social forces impinging upon the impressionable minds of Youth, forces which, acting upon the milk of human kindness flowing in every breast (if you'll pardon the expression), can, in dire circumstances, cause it to curdle irretrievably. We must be aware, therefore, when making value judgements that few human actions are motivated solely by reason and cold logic.

Before I tell all, then, about the unhappy Osbert Entwhistle – and this is where our story *really* begins – let me ask you to make allowance for the lad, for he is that most unfortunate of unfortunates: he is what Sociology has described as the 'disadvantaged child'.

What do I mean by this? I mean that there were factors in his childhood which few are called upon to shoulder. Let me give you but a few examples. This blue eyed, curly headed child was at least seven before his unthinking father permitted him to spend his birthday money on a case of Newcastle Brown. Moreover, even though he begged upon his knees, his parents would not sanction his purchase of an AM 'naughty-naughty', even though his Great Uncle Eustace had given him permission to keep it hidden from the prying eyes of DTI inspectors in the false roof of the chicken shed. As his classmates were all operating rigs of this nature at the time, just imagine the degree of peer group pressure the poor child must have endured.

But the most staggering of all traumas delivered to his psychological infrastructure came after legalisation – of CB, that is. That wretched man, his father, had expressly forbidden him to erect his twig in broad daylight except in

the company of consenting adults. Imagine if you can what the devastating effect upon him was when he was apprehended by his maternal grandmother rapidly erecting his aforesaid twig, assisted by the girl next door, behind the garden shed: the beating he received inflicted more than physical wounds.

(The twig, of course, to which I am referring was a Cherokee five-eighths dial-a-match mag-mounted antenna which he was attempting to position on the rainwater butt: I should not like my phraseology to be misinterpreted. After all, this is a family magazine!)

With deep-seated psychological scarring like this in his make-up, who can wonder that Osbert's approach to life was, on occasions, not that of those whose psyche is possessed of more emotional equanimity? I mention all this in passing so that, as I requested earlier, you will not judge this scion of the Entwistle clan too harshly.

The only person who had any understanding of, and feeling for, young Osbert – and this is where our story *really* begins – was his Aunt Edith on his mother's side, his Uncle Billy's wife.

When the emotional strain became too much for the young lad, he would surreptitiously slip away from the family abode, rush to his uncle's house and throw himself upon Aunt Edith's ample and understanding bosom.

(Actually, to be strictly accurate, she was not with Osbert's uncle at the time: she was living with the milkman, the tall one who delivered the bottles with the gold caps. Lovely they were, especially in late autumn sunshine. However, in the poor woman's defence, I should point out that she was only domiciled thus because Uncle Billy had gone off with a librarian who, incidentally, was short and fat, had a warm, damp handshake and, furthermore, whose moustache drooped when he was caught out in heavy rain. Disgusting!)

Aunt Edith was able to give Osbert those little human touches missing within his own inner family circle. For example, she always ensured that the cigarette papers they used for their Thursday afternoon 'pot' smoking sessions were guaranteed re-cycled and environment-friendly; and the pencil crayons she provided so that Osbert could enjoy a quiet hour colouring the centre pages of 'Playboy' were always beautifully sharpened. Indeed, it would be no exaggeration to say that Osbert would not have survived late childhood and achieved anything like a normal puberty had it not been for his Aunt Edith's little human touches.

Imagine the youngster's horror, therefore, when he discovered – and this is where our story *REALLY* begins – that his favourite aunt had decided to emigrate to New Zealand. The milkman for whom, you will recall, she had

developed a close attachment, had been traced by his wife's lawyer, and the poor man did not have enough in his piggy bank to settle the bill for four and a half years' backlog of unpaid maintenance. The only solution to his problem, therefore, was a 'moonlight' job as quickly and as far away as possible.

Almost before Osbert had realised the full import of the prospect of loneliness now facing him, Aunt Edith had packed a suitcase, and, with only the three years' subscription she had bought him to 'Which?' magazine to remember her by, our hero was left contemplating the slowly settling cloud of dust left by his beloved aunt as, accompanied by her paramour from the local dairy, she disappeared over the far horizon.

In his misery, not a word did he hear from her until that day three months later when he received a picture postcard of Auckland gas works, bearing on its reverse the cryptic message: "Having lovely weather. Wish you were here." Actually, Osbert was tempted to doubt the sincerity of this message when a later postcard told him that Aunt Edith and her boy friend were living in a one bedroomed flat.

Dreary week followed dreary week with nothing to relieve Osbert's loneliness. If only, he told himself, he could just hear his aunt's voice, then that at least would be some consolation. One night, having nothing better to do, he went along to his C.B. club's monthly booze-up – er – members' meeting; and here, he heard two breakers discussing the remarkable copies they had achieved because of the unusual degree of 'skip'. Their one claim which made his lonely heart sing – and this is where our story *really* begins – was that they had actually had two copies with New Zealand!

With an intensity born of desperation,

Osbert plied these two members with lager-and-lime and questioned them in minute detail about their claims to have had copies with New Zealand. No matter how searching his questions, they were answered satisfactorily and Osbert was eventually convinced that such DXing was indeed possible. Off he went home, therefore, and began to experiment. Hour after hour, he called, "CQDX New Zealand!" On every one of the 40 channels. So obsessive did this become that for a month, he even forgot to collect his unemployment benefit.

Yet the sum total of all his efforts was abject failure: his best copy was with a drunken trucker square-wheeled just off the East Lincs. Road.

However, by now, it was time for the next breakers' club meeting, so he went off to find his two informants and to ask their advice. They put their finger on the problem straight away. Not having the mind to absorb the more technical aspect of CB, Osbert had forgotten that his home '20' was deep in a glacial valley in the East Midlands. So his two friends pointed out to him that, without exceptional 'skip', he would never manage a copy with his Aunt Edith unless he acquired himself a powerful 'burner' and a much higher aerial.

Never being one to do things by halves, Osbert went off the next morning and purchased the most powerful 'burner' the local CB shop had and, after wiring this into his system, he sat down to contemplate the aerial problem. A little thought soon produced the solution: his maternal Grandad had, in his day, been a famous balloonist and Osbert knew that the old man still had his basket and canopy stored away in the attic. Delighted that a family member was showing an interest in the sport he had loved so dearly – and this is where our story *really* begins – Osbert's Grandad readily agreed to the boy's request to borrow the equipment. He quickly showed Osbert how to fix it up and, in no time at all, there it was with its silk bag fully inflated.

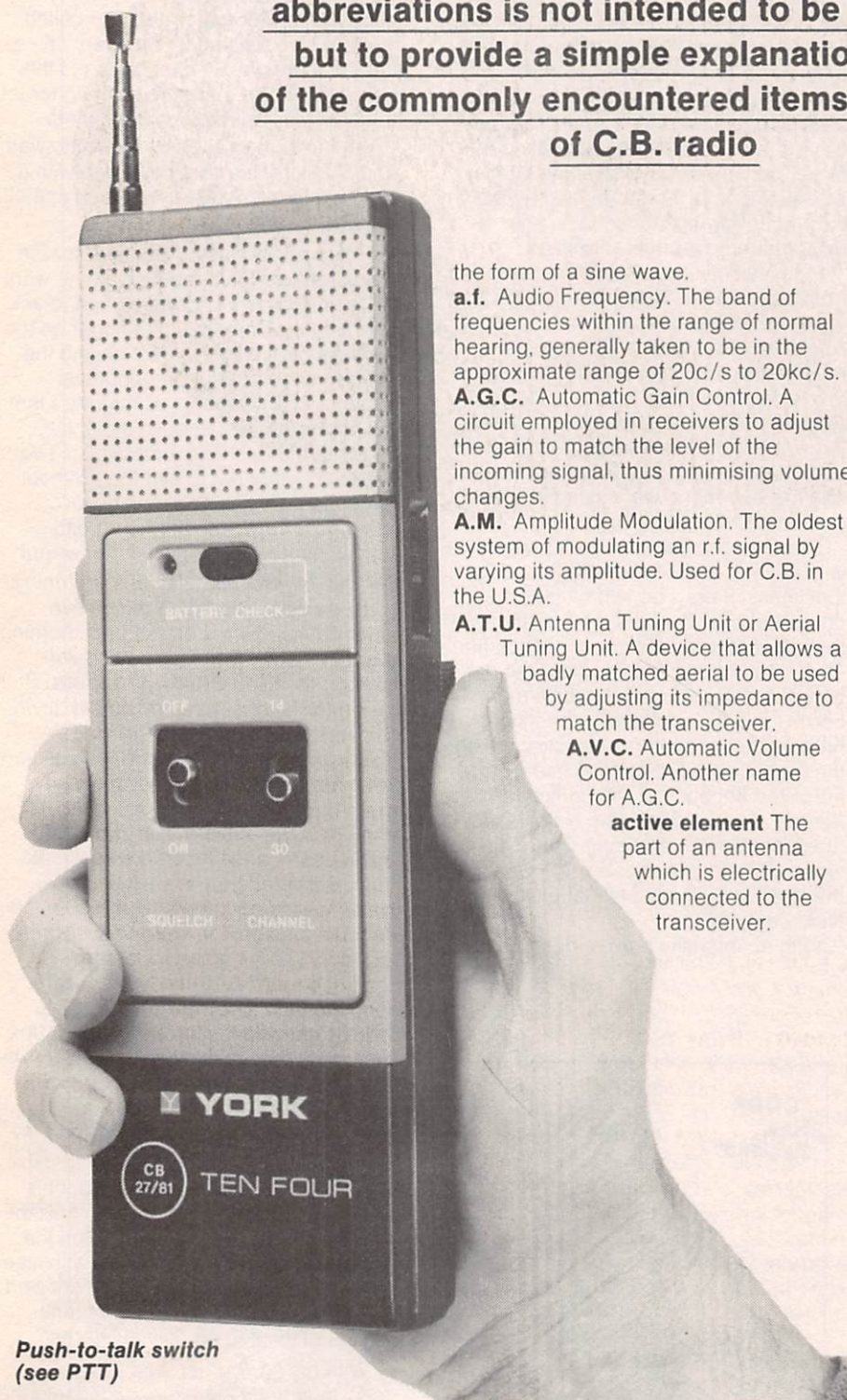
He had realised, of course, that taking to the air could cause him hassle from air traffic controllers who seem to think they own the sky over the UK; but his plan to evade this problem was brilliant in its simplicity: he merely painted the balloon in diagonal black lines with little black bumps on them so that it showed up on radar as a weakening weather front and excited no official interest.

With his rig, 'burner' and mag-mounted Cherokee loaded into the basket, off Osbert went, up into the clear blue sky. And there, for the time being, we must leave him. I have here tried to give you an accurate character assessment of the man behind the crop circle mystery. Next time, we shall go on to consider the complex science behind the phenomenon.



CB GLOSSARY

The following list of technical terms and abbreviations is not intended to be exhaustive, but to provide a simple explanation of some of the commonly encountered items in the world of C.B. radio



Push-to-talk switch
(see PTT)

11 meters The wavelength of the standard band used for C.B. throughout the world. Corresponds to 27Mc/s.

27Mc/s The frequency of the standard band used for C.B. throughout the world. Corresponds to 11 meters.

a.c. Alternating current. Current which varies regularly in amplitude, typically in

the form of a sine wave.

a.f. Audio Frequency. The band of frequencies within the range of normal hearing, generally taken to be in the approximate range of 20c/s to 20kc/s.

A.G.C. Automatic Gain Control. A circuit employed in receivers to adjust the gain to match the level of the incoming signal, thus minimising volume changes.

A.M. Amplitude Modulation. The oldest system of modulating an r.f. signal by varying its amplitude. Used for C.B. in the U.S.A.

A.T.U. Antenna Tuning Unit or Aerial Tuning Unit. A device that allows a badly matched aerial to be used by adjusting its impedance to match the transceiver.

A.V.C. Automatic Volume Control. Another name for A.G.C.

active element The part of an antenna which is electrically connected to the transceiver.

aerial, antenna An assembly of wire and/or metal rods designed to radiate and receive signals.

ampere The unit of measurement of current, or 'quantity of electrical flow'. Often abbreviated to amp.

amplifier A circuit which increases the amplitude, or level, of any given signal.

Compare with oscillator.

balanced line A transmission line which is symmetrical about earth, such as the 300-ohm double feeder on some television equipment.

balanced modulator A circuit employed in S.S.B. radios to generate the required r.f. signal.

balun A transformer designed to match a balanced and an unbalanced transmission line.

characteristic impedance The impedance of a particular antenna or of a (theoretical) infinitely long piece of feeder.

coaxial Usually used with reference to feeder cable. Cable which incorporates one conductor entirely within another, and sharing the same axis.

crystal A quartz crystal enclosed within a metal can, and used in the oscillator circuits of a transceiver. Crystals allow a stable signal that does not drift in frequency to be generated easily.

crystal microphone A microphone that works by having the diaphragm compress a small piece of quartz crystal or Rochelle Salts. These crystals generate a voltage when compressed.

crystal synthesizer A circuit arrangement used prior to phase-locked loops to reduce the number of crystals required to generate 23 or 40 channels. A typical radio using this scheme would require 14 crystals.

d.c. Direct current. Current which remains fixed at a constant value, such as that obtained from a battery.

decibel A unit for the relative measurement of one power level against another, and based on a logarithmic scale.

demodulator, detector The section of circuit used in a receiver to strip the audio from an r.f. signal.

dielectric An insulating material used to separate conductors in a transmission line or capacitor.

directional Usually used with reference to an antenna. An antenna which radiates unequally in all directions, usually designed for strongest radiation in just one or two directions.

director A metal rod or wire placed in



A typical magmount

front of the active element of an antenna to increase its directional properties.

dynamic microphone See moving-coil microphone.

F.M. Frequency Modulation. The method of modulating an r.f. signal by having its frequency vary with the audio signal. Used for C.B. in England.

feedback A way of connecting the output of a circuit back to its own input. See positive feedback and negative feedback.

feeder The cable which interconnects the antenna and transceiver and provides a path for radio signals between them.

ferrite core Used extensively in transformers designed for r.f. signals to adjust the transformer to the desired frequency.

filter A circuit arrangement designed to let some signals through and block, or attenuate, others. A typical example is a filter to remove harmonics from a transmitter (see harmonics).

h.f. High Frequency. The range of frequencies from approximately 1.5Mc/s to 30Mc/s, which includes 27Mc/s C.B.

half-wave antenna An antenna which measures approximately half the wavelength of the band in use. On 27Mc/s C.B. a half-wave antenna is around 17 feet in length.

harmonics Multiples of a fundamental frequency. The second harmonic of 27Mc/s is 54Mc/s; the third is 81Mc/s. Sometimes useful in certain circuits, but should always be suppressed as much as possible at the output of a transmitter to avoid causing interference to other

services.

I.C. Integrated Circuit. A piece of silicon upon which a complete circuit element has been constructed, the entire assembly being encased in a ceramic or plastic package for connection on a printed circuit board.

i.f. Intermediate Frequency. A term applied to the internal workings of a receiver rather than to any specific frequency range. The incoming radio signals are usually converted to a lower frequency before being converted to audio. This is the intermediate frequency.

L.E.D. Light-Emitting Diode. The channel display on most new transceivers is an L.E.D. device.

loaded antenna An antenna which incorporates a coil to reduce its physical length while retaining its electrical length.

magnetic mount Applied to the type of mobile antenna which attaches to a vehicle's body by means of a large magnet, and is therefore easily removable.

modulator The section of circuit used in a transmitter to add the audio from the microphone to the r.f. signal for broadcasting.

moving-coil microphone A microphone that works by having the diaphragm move a fine coil of wire between the poles of a permanent magnet, thus generating an electrical current in the wire.

negative feedback Feedback that causes the output signal to subtract from the input signal, causing a drop in gain. Negative feedback is often

employed to reduce distortion or control the gain of an amplifier. See positive feedback.

negative modulation The condition whereby an A.M. transmitter's output power decreases with modulation instead of increasing. Can be due to a fault or incorrect adjustment.

omni-directional Usually used with reference to an antenna. An antenna which radiates equally in all directions. This includes all standard vertical C.B. whip aeriels.

oscillator A circuit which actually generates a signal of any given frequency, rather than just processing an existing signal in some way. Compare with amplifier.

over-modulation The term applied to a transmitter which allows too much audio to the modulator stage, resulting in an A.M. signal in which the carrier is reduced to zero some of the time, or an F.M. signal which exceeds the specified bandwidth limits.

P.C.B. Printed Circuit Board. The board upon which a modern C.B. set is constructed.

PL-259 The designation commonly given to the standard type of coaxial plug used on C.B. transceivers.

P.T.T. Push-To-Talk. The switch found on the side of most microphones designed for C.B. transceivers.

phase-locked loop, P.L.L. A circuit used in most of the latest multiple-channel transceivers that allows all required frequencies to be accurately generated with just one or two crystals.

positive feedback Feedback that

causes the output signal to add to the input signal, often resulting in oscillation. See negative feedback.

power microphone A non-technical term applied to microphones which have a small transistorised amplifier built in to their casing.

power supply unit A circuit designed to convert one type of power to another needed by the main circuitry. A typical unit for C.B. converts 120V a.c. into 12V d.c.

quadrature detector A circuit employed in some F.M. receivers to demodulate the r.f. signal.

quarter-wave antenna An antenna which measures approximately one quarter the wavelength of the band in use. On 27Mc/s C.B. a quarter-wave antenna is around 9 feet in length.

quieting A term used with reference to F.M. receivers, which exhibit a white noise background when no signal is present. The figure, expressed in decibels, for quieting refers to the amount by which the noise drops for a given strength of input signal.

r.f. Radio Frequency. A general term used to apply to all frequencies within the range capable of being broadcast.

R.F. Gain A control found on some transceivers that adjust the gain, or 'volume' of the first amplification stages of the receiver (i.e. those working at the 27Mc/s r.f.). The normal volume control adjusts gain at audio frequency.

RG-8 The designation of coaxial cable commonly used for 27Mc/s C.B. installations. This cable is the thicker of the two, used for base stations.

RG-58 The designation of coaxial cable commonly used for 27Mc/s C.B.

installations. This cable is the thinner of the two, used primarily in mobile installations or where only a short run of cable is required.

ratio detector A circuit employed in some F.M. receivers to demodulate the r.f. signal.

rectifier A device used to convert alternating current to direct current in power supplies, and to convert r.f. signals into audio signals in a receiver. Also used in many other radio applications.

reflector A metal rod or wire placed behind the active element of an antenna to make it directional.

S-meter The meter found on most of the latest transceivers that indicates the relative strength of incoming signals. It is often used to show outgoing power during transmission.

S/N ratio Signal to Noise ratio, or, more accurately, signal-plus-noise to noise ratio. The measurement of the amount of noise present in a given signal, and expressed in decibels.

S.S.B. Single Side Band. A modified A.M. method of transmitting a signal by suppressing the carrier and half the normal A.M. signal. More efficient and requires less bandwidth than the equivalent A.M. or F.M. signal. Used for C.B. in the U.S.A.

S.W.R. Standing Wave Ratio. A measurement of the standing waves present on a particular feeder. See standing waves.

second-channel image The reception of a signal when the receiver is tuned to a frequency that is double the i.f. away from the actual signal. Caused by the design of a superheterodyne receiver,

and should be reduced as much as possible.

solid-state Transistorised.

spurious signals A general term applied to any signals of an unwanted nature. In the output of a transmitter a signal at a frequency other than that intended is a spurious signal.

standing waves Patterns of electrical waves set up on a feeder cable when the antenna is not correctly matched to the cable and transceiver. Standing waves reduce the efficiency of an installation.

superheterodyne, superhet The principle on which most modern receivers work, by converting the incoming r.f. signal to a lower frequency by mixing it with another signal.

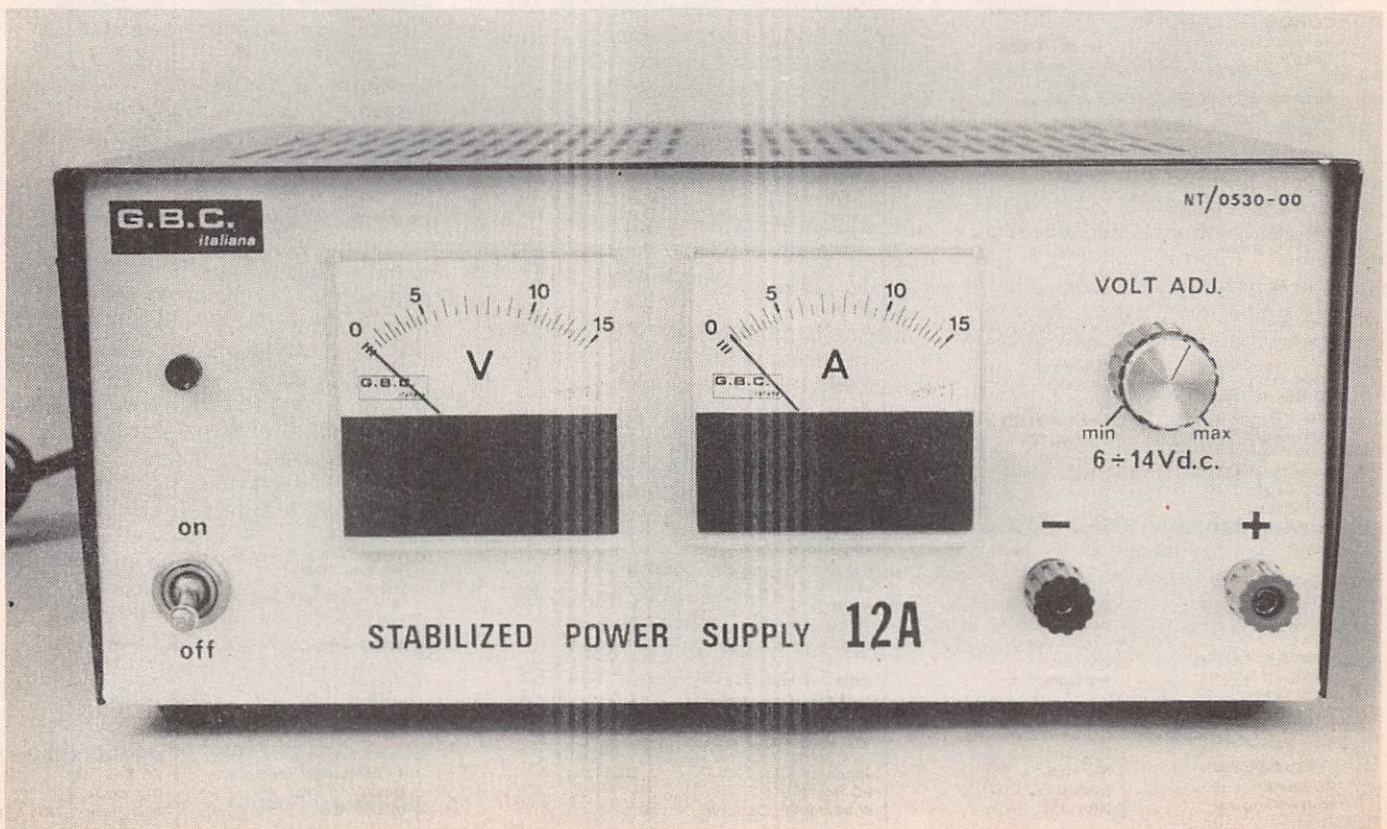
transformer A device used to convert one a.c. voltage to another. Can also be used to match one impedance to another.

unbalanced line A transmission line which is asymmetrical about earth, such as a 75-ohm television or 50-ohm C.B. coaxial feeder.

V.S.W.R. Voltage Standing Wave Ratio. The measurement actually made by most S.W.R. meters designed for C.B. applications. See S.W.R.

volt The unit of measurement of voltage, or 'electrical pressure'. Transceivers designed for mobile operation usually require a supply of 12 volts; those designed specifically for base installation run from 120 or 240 volt mains.

watt The unit used for measurement of power. Most 27Mc/s C.B. transmitters are designed to give an r.f. output of approximately 4 watts.



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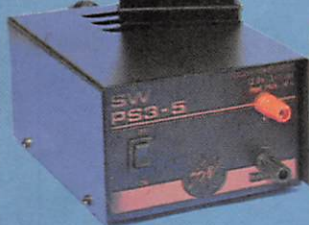
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