

NEWFORCE



- 'CASSY' on-board computer control
- LCD display with back-light
- Full range discrimination on screen
- Tone discrimination
- Target 'learn' accept/reject
- New lightweight control box
- Moisture/dust resistant features
- Custom programs store & recall
- 3 operating frequencies
- Target pin-point control
- Battery condition monitor
- Automatic tuning
- Sensitivity, AC Gain/DC Gain
- Lightweight, thin section 'POLD' Search-head

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## the Newforce R1 has arrived

The NEWFORCE R1 is here. After 5 years of intense R&D work, C.Scope takes the wraps off its new top-end machine and it's a real beauty - lightweight, sleek lines with ultimate computer control, there really is nothing quite like the NEWFORCE R1 and it's all British, perfectly matched to European style targets and ground conditions. You've got to get

up-dated, boost your finds rate. Year 2000 is almost here. Get computerised - with the NEWFORCE R1 from C.Scope International Ltd, World leaders in Metal Detection.

**SPECIAL LAUNCH PRICE:**

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NEWFORCE



### Reader's Field Test

Julian Evan-Hart

Photographs by Dave Stuckey

like that stagnation has been vaulted over by this detector.... it certainly looks good".

That fellow detectorist was Dave Stuckey. His comments made me determined that we would really put this new machine through its paces and see whether its looks were to be equalled by the all important performance factor. Reading the advert we noted that it took C-Scope five years of research and development before achieving production status on the detector. That sounded impressive, and naturally our expectations were high.

Having had experience with large magnetometers and ground radar in the form of several extremely expensive deep-seeking machines used in aircraft recovery, I was pleasantly surprised to note that this machine incorporated ground radar as a graph on the LCD display. I could not wait to see what this was all about on such a compact detection unit.

I did not have long to wait. Exactly two days later I was sitting on the living room floor just having taken delivery of the machine. Opening the packaging carefully I could see the standard C-Scope shape, and then the very sophisticated control box came into view. I had to agree with Dave that it did look impressive. Once the detector was fully assembled, I read through the instruction manual several times to familiarise myself with all the functions and program possibilities. (When using new detectors in the past, we have found it advisable to take the instruction manual out into the field for immediate problem solving and ready reference).

My next move was to insert the batteries and turn the machine on. Its reaction was as per the instruction manual and it did exactly as said, in the time specified. I followed the quick set

*Going slow to maximise the 15cm search head potential*



*The standard kit with 25cm search head and additional 15cm search head*

up instructions in the manual and used the detector over a number of buried targets of known identify buried in my lawn. All were acknowledged as expected. Even a Roman AE4 at a depth of 5in, with a rather sneaky iron nail lying within an inch of it, was clearly picked out. I then studied the Ground Radar graph over each target. Generally the smaller targets at greater depth gave smaller results on the display. The characteristic "double bang" of a hammered lying slightly to one side was represented by two small peaks very close together on the graph. I very quickly picked up on the use of the Ground Radar graphics as a visual pinpoint facility, acting as confirmation to the existing audio pinpoint facility. I spent the first couple of hours wandering around the garden assessing known targets and studying their interpretation by the Newforce. This was the learning curve, to establish the accuracy of interpretation that the Newforce possessed, against what I already knew. I tried various settings (still with manual in hand) to assess the results. On the left hand side of the LCD dis-





play is featured a target identification number. Of the 15 targets buried in the garden, 14 of them fell into the corresponding ID ranges mentioned in the manual. The one that did not was the unfair detector trial piece consisting of a buried ploughshare. This gave various spitting sounds until a huge signal was achieved directly over it. (Find me a machine that on normal settings does ignore these leftovers from the agricultural calendar!)

By now I knew I had mastered the basics. Despite the specifications sounding awesome, with mention of microprocessors etc, have no fear all you detecting "technophobes" out there. This is sophisticated detection technology made simple, as I will explain later. (NB I used to be a computer technophobe, but I can now use a PC quite well. The manual for this machine makes setting up a doddle).

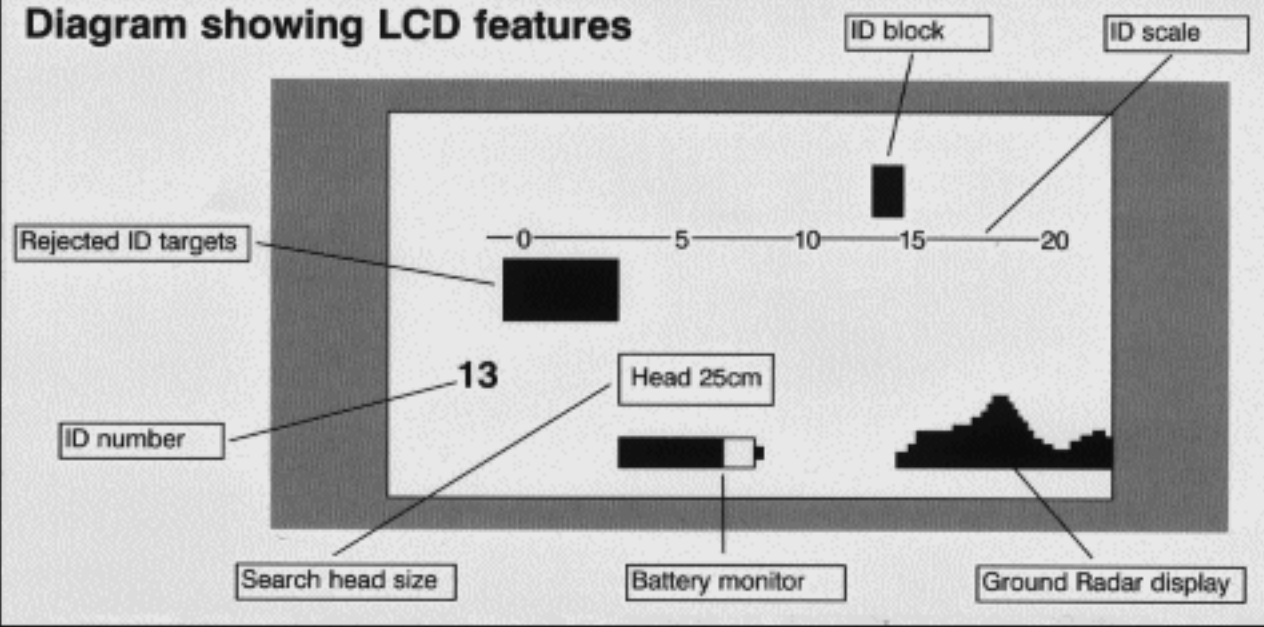
My only concern was where exactly to put this machine through a series of tests. July is not the friendliest month towards our hobby in terms of areas to search, as most fields are still thigh deep in crops. We took quite a long drive around our local area, and it was quite surprising what we found. Rather than the expected standing crops we found that early harvesting had taken place on some farms. To test the detector we therefore had deep ploughed and harrowed sections of fields, meadowland, and some ancient woodland thrown in for good measure. Although we could not test the beach facility of this model, we at least had an adequate cross section of various soil types across the county. Only one of these areas had been seriously detected on before, and that was the meadowland. It had revealed many Roman coins and artefacts over the years. However, it was the potential lack of good available sites that led us to look at some new areas.

Although it would be nice to make some good finds on the field test, they do not really reveal the true performance of a detector, and this is what we were attempting to measure. The primary issues would be whether we thought the machine was good, were we genuinely happy with it, and could we make any recommendations for possible improvements.

### The Standard Kit

The Newforce R1 comes supplied with a 25cm search head fitted, but by way of a bonus an additional 15cm search head is also included in the standard package.

Diagram showing LCD features



### The Control Box

The detector has four easy-to-operate controls.

1. On/Off-Volume. This rotary control is for turning the unit on and off, and also serves to adjust the audio level.

2. Menu/Scroll. This is a rotary control, and is used in conjunction with the Enter push button. It has two functions: to highlight the desired menu option, and to adjust the value of a setting up or down.

3. Enter. This push button confirms highlighted menu selections. Once you decide on the menu selection you require, press Enter and the option is selected. When no menus are displayed on the LCD, by pushing Enter this brings back the menu selections.

4. Pinpoint. This push button, when depressed will switch the Newforce into its pinpoint, non-motion mode. The detector returns to normal function once the Pinpoint button is released.

### Ground Radar Simulation

This appears on the right hand side of the LCD display as a continuous scrolling graph. This graph is visible in both the full screen search mode, and when the first level menus are being displayed. The Pinpoint gain setting controls the sensitivity of this display.

### Search Head Size

This part of the LCD screen displays the size of the search head that you currently have in operation.

### Battery Charge Indicator

This shows both the type of batteries that are installed, and also the their charge condition.

### ID Display

The numbers featured on the lower left-hand side of the LCD display correspond with the position of the ID Block. When no signal is present the symbols "???" will be displayed. Alternatively, the symbols "???" may indicate a weak or confusing signal. At the top of the screen can be seen the ID Line. This shows the IDD Block in a relative positioning to the target signal analysis. The left-hand side of the line is iron progressing right to foil, coinage etc. The large solid block below this line indicates to the operator the selected ID ranges that will be rejected.

### FUNCTIONS AVAILABLE ON THE MENU SYSTEM

#### Discrimination

This also acts as a Notch Accept/Reject facility. Four options are available for flexibility and ease of operation. A black block beneath the ID line numbers indicates that a signal with the number concerned will give no audio sound, although the ID display will still indicate the signal. When setting up this Disc function always ensure that no other metal is in the vicinity of the search head when you are sweeping "items to be discriminated against" over it.

Typical responses to a selection of commonly encountered targets

OBJECT	ID No	OBJECT	ID No
Ground	0	Old 10p	11
Iron	1,2,3	Bottle Cap	13
Foil	8	£1 Coin	15
Ring Pull	10	Cartwheel Penny	19
Hammered 6d	10		



Set

The menu scroll acts as a Disc control, turning it clockwise will increase the Disc setting. Sweep a sample of an unwanted target over the search head, and adjust the control until the item is rejected.

When this has been achieved press the Enter button to store the information.

Learn Reject

This function enables the operator to program the Newforce R1 to reject one or more targets that are swept over the search head. Carrying out this action will cause the R1 to set the Disc block at the corresponding ID point. Thus any objects it encounters with the same ID as your sample will be rejected.

Learn Accept

This facility is the reverse of the above reject control, and allows you to select targets that are wanted. It is particularly useful when token hunting at rallies, or when attempting the recovery of a scattered hoard in iron contaminated ground (just two of the many potential advantages).

Edit

This enables you to both set and reset the Disc at any desired point along the entire range.

Sensitivity

This function allows the Newforce to have its sensitivity set to signals.

Motion Gain

Here the sensitivity of the audio signal and the ID display can be varied in normal Search or Motion mode. It is set by rotating the Menu scroll. The current level is shown by the graph and by the display ID number. When you have achieved the desired Disc level press Enter to store.

Pinpoint Gain

This controls the Pinpoint sensitivity, or the Non-Motion Mode. Selecting Pinpoint Gain allows the R1 to automatically select Pinpoint Mode, thus aiding the setting of the level. When the desired level has been obtained by rotating the menu scroll, simply press Enter.

Tune

This sets the threshold or background tone and is only audible with Silent Search turned off. Selecting Tune will turn off silent search so that a distinct background tone is heard. Rotate

the Menu Scroll to achieve the level you require and press Enter to store.

Audio

This set of functions controls the audio information about your targets, and also how this information is presented.

Discrimination

This function enables or disables the Audio Disc for both Motion and Pinpoint Modes. The operator is given an indication of the target composition. The higher the pitch the further up the ID scale the target will be.

Pinpoint Off

This turns off Audio Disc in the Motion Mode.

Pinpoint On

This turns on the Audio Disc for Pinpoint Mode, giving a continuous pitch change across the entire ID range

Motion Off

Turns off the Audio Disc in the Motion Mode.

Motion On

The reverse of the above function. Iron and other Ferrous targets will give a low tone, while non-ferrous targets will be indicated by a high tone.

Silent Search

This setting suppresses the background tone set by Tune setting. Audio will only be heard if a buried object is present otherwise the audio is silent. "OFF" turns Silent search off and "ON" turns it on.

The LCD layout upon completion of the "SET" Task		
Discrim	Set	
Sensitivity	Learn Rej	
Audio	Learn Acc	
Programs	Edit	
Set-Up	Back	Done

Mode

This allows the Audio tone to be altered; it only effects normal Motion search mode.

Analog

This audio signal comes directly from the R1's receiver circuit, and facilitates signal understanding. It will increase in accuracy for the operator as he or she becomes more experienced in the use of the detector.

Digital

Here the audio signal is directly controlled by the R1's computer, and the audio signal is either on or off. Thus deep or shallow targets will give the same audio volume, making target location easier.

Programs

A function allowing the user to store and recall the R1's set up. Up to a total of five programs can be stored. The R1 comes with the first three programs pre-set to typical sites.

- A: Precious metals
  - B: Deep seeking of all metal types
  - C: Beach searching
- Please see the chart below.

Ground Type

This allows the selection of Inland sites or Beach conditions.

Options

With this function you can select which settings are restored when the unit is switched on.

Default Setting

This informs the R1 to load the factory default settings each time the machine is turned on.

Factory Program settings table			
	Precious Metal	All Metal	Beach
SETTING	PROGRAM A	PROGRAM B	PROGRAM C
Discrim Reject	0,1,2	0	0 - 5, 10
Motion Gain	14	14	12
Pin Point Gain	14	14	12
Audio Disc	Pin Point Off	Pin Point On	Pin Point Off
	Motion Off	Motion On	Motion Off
Silent Search	Off	On	On
Audio Mode	Analog	Digital	Digital
Frequency	Low	Low	Low
Ground Type	Inland	Inland	Beach



## Last Setting

This is very useful, as it informs the R1 to return to exactly the same settings as last programmed. It is especially good for detectorists (such as ourselves) who have favourite sites that are searched intensively over long periods.

## Recall

Recalls settings for the program you select.

## Store

This will store the current settings in the program selected.

## Display

A series of options allowing adjustment to the display settings.

## Backlight Brightness

This facility allows searching to be conducted in poor light, a factor effecting the greatest part of the main detecting season. The illuminated LCD display will certainly be appreciated on winter days when otherwise you would have had to head off home. Many people like us have sites for which permission has been granted to detect well into the night. As a bonus the illuminated display will help track down straggler colleagues when it is time to go home. The user does need to be aware, however, that although all the other functions have been designed to use a miserly amount of battery power, the backlight causes quite a heavy drain. For this reason it should only be used as and when really required.

## Ground Adjust

The default setting of 50 is a good general setting. A fine adjustment to this will enable the user to achieve optimum performance on a wide variety of sites.

## Frequency

This allows the operating frequency to be changed. Three frequencies are available on the R1. The facility allows the R1 to "skip over" interference from other detectors. Some well-known brands - known for causing interference to other users - were pitched against the Newforce R1 during this field test and it successfully dealt with them all.

## Battery

You have the choice of using alkaline batteries or rechargeables; the type fitted will be indicated on the LCD battery display. This is a good innovative development so far as battery testing is concerned. There are no buttons to



*A Georgian coin sees daylight after possibly two centuries.*

press and a continuous visual display lets you know exactly how much battery life remains.

## Testing In The Field

As stated earlier, July can be a very difficult month to find sites. Fortunately we seem to be having a somewhat earlier than normal harvest this year. We therefore spent several days travelling around our locality and several other counties, to determine just what was available.

The first site we went to look at was a section of field that had been deep ploughed.

## Deep Plough

On this site I decided to use the much smaller 15cm search head. This proved to be a good choice as it was small enough to get into the crevices and up the sheer walls of each furrow. With this search head fitted the Newforce is even lighter than normal. In fact, the remarkable lightness of weight is one of the first things I noticed when I used the detector for the first time. With this benefit and the comfortable stem design I was soon in my element and was expecting no fatigue. So far as physical ability to use this detector, I can recommend it for young and old, and for the fit or not so fit.

The setting I chose for this terrain was "Factory Setting" which is for precious metal and/or non-ferrous targets. A short time later the detector gave its first signal, a clear 13 registering on the ID numbers. At the base of the furrow I dug down some four inches to reveal a large musket ball.

After about an hour I had recovered a total of 43 non-ferrous items at depths from field surface down to around 10in for a pre-decimal penny. All targets were clearly identified. A guideline we have adopted is that if a detector can locate air rifle pellets or shotgun cartridge percussion cap cen-

tres (ie remaining from where the cartridge cap itself has rotted away) it is good. Although air rifle pellets were unlikely finds here, two shotgun percussion caps were found. Deep ploughing makes it hard to accurately assess exact depth measurements. But in this difficult terrain we were ably helped by the tiny search head and accurate target identification.

## Rolled Field

A short drive away and we were on perhaps the detectorists' favourite terrain: the rolled field. For this I chose "Factory Setting B" for all metal target location. I wanted to see just how much could be recovered and also whether the identification was still up to scratch in this setting. For this site the small 15cm search head was replaced by the 25cm polo style coil. The field was heavy clay mixed with a thin belt of acidic peat from a long deceased river at the valley base. Our group spread out each taking a 30-minute turn with the detector. Two hours later we all sat down and exchanged comments on the performance of the Newforce R1. The consensus of opinion was that the detector was extremely good.

When the new town was being developed this whole area must have been used as a dump for aluminium off-cuts. These are normally a nuisance, but are a useful indication of performance when you are field-testing a detector. The smallest piece located by the Newforce was approximately 4mm in width by 5mm in length and was picked up at 6.5cm, which is good by any standards.

The two hours we spent on this rolled field produced a total of 128 targets, but remember we were searching in all metal mode and therefore digging up every signal. Eight coins were found, comprising seven George II pennies and one really battered Victorian halfpenny. The coins were found at varying depths from 1in to about 9in. Putting a coin back into a measured hole we were still getting respectable target audio for a Georgian penny at a depth of 9-10in. Our entire group spoke of their confidence in the Newforce R1's ID performance, and the sharpness of the pinpoint facility. The others had also recognised the pinpoint possibilities of the Ground Radar simulation graph.

## Meadowland

This site has been visited by us probably more than any one other site. The reason is that although finds have decreased now, this was our first ever



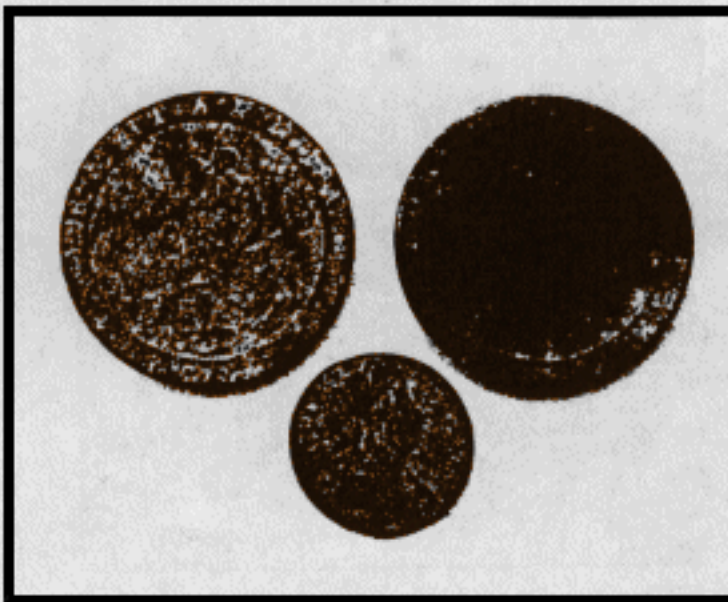
Roman site. It was here that I found my first Roman grot and was literally busting with excitement to get home and show the family. We therefore return to the site year after year (as do about 30 other detectorists, who also have search permission). In the last five years this site has been searched very intensively, consequently anything Roman is quite a prize now. It is also heavily contaminated with Roman iron roof nails, interspersed with the odd coin or brooch. We really put some time in on this site, as we felt it would be a good measure of performance.

Factory Setting A (precious metal/non-ferrous metals) was chosen. The first target was a brass tack, followed by a really corroded AE3. Again we all took turns using the detector, noting that with several additional AE3s located, the ID reading was 5-8. A *antoninianus* of Gallienus, found later, registered 9 on the ID.

We took out a total of 12 Roman coins from this site. AE3s were located in soil at measured depths of 2.5, 3.5 and 5.5 inches with clear sharp target analysis. It could just be pure luck but the week before five of us were on this same site (anything Roman at this time of year gets a visit from us) and we pulled off a total of only four AE3s and a cross section of a brooch. Of course, it is always a matter luck in placing the search head directly over the target, I can't deny that, but the Newforce popped out coins on several occasions very near to old excavations and where foot marks clearly showed the area had been searched before. It would appear that Lady Luck and a good detector constitute a good marriage.

## Woodland

Woodland was the final type of land I decided to test the Newforce on. This was because conditions can be very variable, and in our area woods are normally absolutely contaminated with shotgun cartridge ends. The patch of woodland chosen was no different from this. Although some reasonable finds have been made here it is very contaminated with the leftovers of many a great Edwardian and later shoot. I decided this would be good ground to test the Learn Reject facility. After a few minutes I had found about three cartridge ends, all from the same manufacturer. In fact, most of the brass and copper cartridges found here are of that make. Sweeping them over the search head I was delighted to find that the culprits were now not recognised by the audio, although the ID graph still

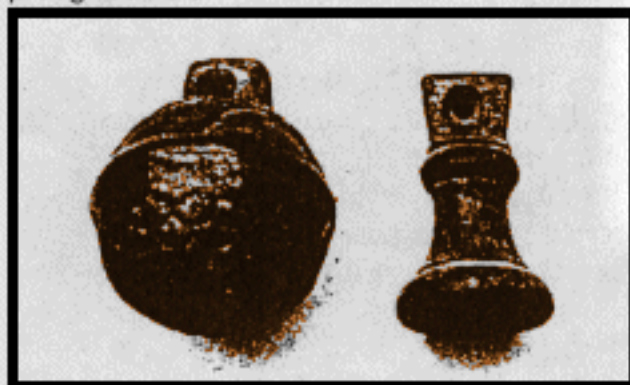


Some of the "Georgians" found during the Field Test. On cleaning one turned into a "William".

informs you that a target of sorts has been detected. I searched along some paths and around fallen tree roots and all was clear. That was until one of the tree root pans gave off a clear sharp signal registering 13 on the ID display. Digging down about 5in into the pan I located a silver coin. I dared to hope that it would be a hammered, but soon confirmed that it was not. It was a reasonable condition 25 centimes coin of Napoleon III, dated 1872. Strangely enough, this is about the fourth such coin to be found in this area. Perhaps the Newforce has added more evidence to support that the woodlands may have played host to a French guest invited to a shoot held last century. I can visualise him swinging his gun round to claim a jinking hen pheasant, causing a tightly tailored pocket to split and release some coins into the mud. Hammered coins have been recovered from this site, approximately three so I have been told, but the contamination is so bad that few detectorists return after their first visit. We look upon this as a curse to be broken.

We took turns to check out sections of the wood relatively near a deserted medieval village. Walking up the path Tony found a 1971 halfpenny and a tiny fragment of a gold plated ring. Both came from about 4in down in the compacted soil. Dave took his turn and keenly searched some ditch edges and under an old intersecting boundary hedge. Disappearing out of sight, he reappeared with a grin. He had in fact

A crotal bell and a small weight from the deep ploughed field



shattered the elusiveness of the hammered coins (typical of Dave). But he was assisted by the Newforce in Learn Reject mode. The coin was only a very spend-worn example of Lizzy, but by now local legend amongst detectorists will have it at four good coins. As he walked over he was bombarded with questions "What depth matey?" etc, etc. He only smiled the more, so I had to ask him "What ID number did it give Dave?" "It was 10" he replied. Opening up the instruction manual, I turned to the ID chart. "Well Dave, you are absolutely correct" came my cheeky reply.

## Summary

Although we did not have the opportunity to test the Newforce on any Coastal sites, given the time of year we did at least try it on a variety of test areas. We were more than happy with the performance the Newforce gave on all of them. During our searches with the detector we made many minor adjustments and tests, far too numerous to mention here. However, the unanimous verdict of all the Pastfinders, is that the results achieved and the clarity of display information means that the Newforce is in a league all of its own.

Try as we might, we had a real problem finding any fault with this machine, in any area we tested it on. The manual is comprehensive, and yet easy to understand. It is also packed with handy hints, so that even the new novice owner has immediate access to "experienced" tips. The rapid, get you going instructions are also very useful.

It is unusual these days to find any particular product made for our hobby that totally evades criticism. I am pleased to announce in our opinion the Newforce R1 is such a product.

It is clear from our experiences in the couple of weeks that we had this machine, that the five years invested by C-Scope in its development deserves the dividend of metal detecting fraternity recognition in the UK. Several of us have decided that the Newforce will be our next purchase. We put a lot of effort into this hobby, and feel we deserve the best support possible from detector manufacturers.

All of the Pastfinders had great pleasure in field testing the Newforce R1, and take further pleasure in producing a positive report on a really superb machine. It was a delight to handle a detector produced with an ear to detectorists' comments and past criticism.

TH