Detector Field Test

C-Scope CS990XD

David Stuckey

Those of us who have been in the hobby from the early days can probably remember when the range and diversity of metal detectors that were available on the market was relatively small. In the 26 years that I've been detecting, I have seen the market expand enormously with the range of detectors now available reaching quite staggering proportions.

In the 1970s you had a simple choice of one of the few Beat Frequency Oscillation (BFO) units or maybe an Induction Balance (IB) unit. The early BFO units were hideous machines that seemed to generate more noise than an air raid siren. The IB units, on the other hand, were definitely more user-friendly with just a gentle threshold tone.

If your detector had more than two knobs on the control panel then it was regarded as a top-of-the-range model, as it probably had a discrimination facility. If it had four knobs then you were definitely a poser!

Quite naturally, along with those "low-tech" machines you also had a very limited choice of accessories to go with them. In fact, generally the only accessories you could get were the headphones and, of course, something to dig with. This is quite unlike today where you can now select from an arsenal of different search coils, coin probes, detector harnesses - you name it!

Ergonomics didn't play a part in detector design either, as Repetitive Strain Injury hadn't been invented then! Machines simply had a handle jutting out of the control box or maybe the giant "swan neck" handles, which were the hallmark of the early range of C-Scope detectors. In fact, when somebody first told me that a machine was "ergonomically" designed I thought it was meant for someone with a higher IQ!

Nowadays, however, microprocessor technology has changed almost everything. We now see machines that incorporate degrees of sophistication and technology that were undreamt of in the 1970s.

Hardly a month goes by where we don't see new innovations appearing on the market that promise far greater performance than the previous models. Fortunately, most of them perform exactly as their manufacturers claim and we're often left wondering what kind of machines are "just around the corner"?

It does surprise me, however, when a leading manufacturer seems to take a step backwards and produces a new machine that is relatively "low-tech" in comparison to the super machines it already markets.

Of course, while we all look forward to the day when a machine has the telepathic capability to say to its operator "Keep moving, it's junk!" we tend to forget that the market still has to cater for the newcomers to the hobby.

Undeniably, numerous models currently exist on the market, which are already aimed at this sector with varying degrees of simplicity to operate. C-Scope, however, have come up with a new machine that is aimed specifically at the newcomer, and which is neither too basic nor too sophisticated. It comes in the form of the C-Scope CS990XD.

Fig.1. Tony Javor with the CS990XD.

The CS990XD is designed to slot in somewhere between C-Scope's current basic starter model, the CS660, and their best-selling CS1220XDP. C-Scope have also "stayed with the grain" by maintaining the familiar, and highly popular, design of many of their current range of detectors. Like many C-Scope models, the 990XD is powered by eight AA type batteries of either the standard alkaline type or rechargeable nicads. If the latter are used then these can be re-charged within the battery compartment by use of a charger unit, available as an optional accessory.

On either side of the battery compartment are two sockets: the larger one is for the headphones while the smaller is for the charger unit.

The CS990XD is a non-motion detector and comes fitted with a standard 8in search coil, which is non-interchangeable.

So, what has the 990XD got to offer? Well, for a start, you're getting two detectors in one at a price you would expect to pay for a much more basic model. This machine has both an "inland" detecting mode and a "beach" mode. By using the switches on the control panel the operator can combine the signals of both modes in order to combat the problems of ground effect and heavy mineralisation.

The Control Panel

The CS990XD has five basic controls on its facia panel (Fig.2.). These are: On/Off switch and Tune control; Level control and Battery check; the Ground Exclusion switch; a Disc mode switch; and a Retune push button.

Also on the control Panel is a signal meter - of the same type that is featured on the CS1220XDP.

On/Off & Tune Switch

This rotary switch is situated on the lower right of the control panel and, after switching on, is then adjusted to give the preferred level of audio, or threshold, tone. It is important to try and maintain this level of threshold while detecting in order to achieve maximum depth.

The meter will give a visual indica-

tion by reading mid-scale when tuned to threshold. The Tune control is used in conjunction with the Retune button, which must be depressed while making any adjustments to the Tune control.

Retune Push Button

Should you experience any drift, or change in audio tone, during detecting then this button should be pressed in order to reset the machine to its threshold level. If any adjustments are made to any of the machine's controls then the retune button must be pressed while this is carried out.

Ground Exclusion Switch & Disc Mode Switch

As this is basically a machine for beginners it may be a good idea to try and explain what ground effect actually is and how to eliminate it by using these controls.

Some areas of land contain deposits of iron or iron oxides, which can make it very difficult to operate a metal detector with any degree of success. The signal from the detector will often fluctuate if the search coil isn't kept at a constant height from the ground when in use. This is termed as "ground effect".

This problem can be reduced, or eliminated, by using the Ground Exclusion Switch, which is situated on the top left of the control panel.

The switch, which is used in conjunction with the Disc mode switch, has two settings: Inland and Beach. When set to the Inland setting the machine will give a positive response to every type of metal. This is also known as the "all metal mode".

Like mineralised soil, metals and wet sand also have their own characteristic exclude point. When used in the Beach mode, at the correct exclusion point, ferrous targets (usually iron) will give a negative signal while non-ferrous targets will continue to give a positive response. When used at a higher exclusion setting small pieces of aluminium foil (which are often found in abundance on beaches or recreation areas) will also give a negative signal.

Level Control

The CS990XD's discrimination level is centred at about that of wet salt sand but can be varied from iron reject through to aluminium reject by adjusting the Level control, which is situated on the lower left of the control panel. This control also adjusts the "exclude" point of Meter Disc, and Meter & Audio Disc.

Fig.2. The CS990XD's control panel.

Inland & Disc Mode Switch

If used in the Inland mode the CS990XD operates at a fixed level of ground exclusion that is factory set. All metal targets will produce an increase in audio volume regardless of the Level control setting. The Beach/Disc facility will continue to operate and, if required, can be selected to drive the meter or control the audio pitch by selecting the appropriate setting on the Disc Mode Switch. The level of discrimination in the Beach/Disc mode can be adjusted by operating the level control.

If the 990XD is used in the Inland mode on any mineralised inland site it can be used in conjunction with any of the Disc modes described below.

In the Meter Disc setting any non-ferrous targets will cause the meter needle to move to the right (green sector). Ferrous targets will cause it to swing to the left (red sector).

In the Meter and Audio Disc setting the meter needle reacts as in the previous setting but also the audio tone increases with non-ferrous targets but decreases for ferrous objects.

In the "None" setting the meter needle swings to the right for all targets and the audio pitch remains constant.

Beach & Disc Mode Switch & Level Control

The CS990XD is equipped with an adjustable level of ground exclude in Beach mode in order to cope with varying types of beach or soil conditions. This is the mode that is best suited for operating on beach sites where fine adjustments of level control are needed to cope with wet salt sand.

When used in the Meter Disc mode the needle swings to the right for non-ferrous targets and to the left for rejected targets.

In the Meter & Audio Disc mode the needle reacts as in the previous mode and the signal increases for non-ferrous targets. Ferrous or reject targets are ignored.

If operating in the "None" Disc mode the needle swings to the right for non-ferrous targets and to the left for reject targets.

The Level control acts primarily as a ground exclude control in Beach mode and also varies the discrimination point when operating in the Meter Disc or Meter & Audio Disc mode.

Battery Check

The CS990XD is fitted with a battery check indicator. To operate this turn on the Power On/Off Tune Control, and then turn the Level control switch fully anti-clockwise to the battery check position. If the batteries are good the needle will indicate this by moving to the green area of the meter. Remember to switch out of Battery Check when the procedure is complete.

(Note: Rechargeable batteries will not read as high as alkaline batteries even when fully charged).

Field Appraisal

The timing of this particular field test certainly gave me a bit of a problem. The weather of late December/early January wasn't exactly kind to any detectorist, as you all probably remember. If it wasn't persistent rain then we had the freezing temperatures to contend with. I had quite a few problems finding any slots in between in order to

Fig.3. George III cartwheel penny.

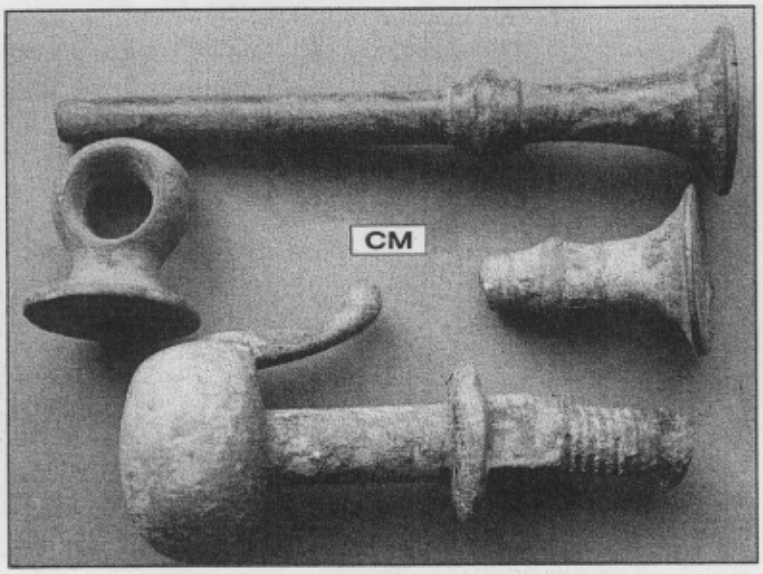

Fig.4. Brass fittings from the cottage site.

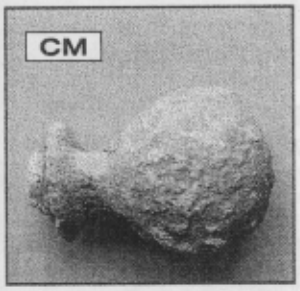

Fig.5. Lead drawer handle (?).

take the machine out and put it through its paces.

At the first opportunity, I took the CS990XD to a site beside a busy main road on the outskirts of a village. The roadside edge of this field was once occupied by a row of cottages, until sometime in the early 20th century. Although the site has been restored to arable land traces of building material still litter the site. It also offers a profusion of metal finds, which mainly consist of house and furniture fittings. This seemed an ideal site on which to test the discrimination capabilities of the detector.

For those who have never handled any of the C-Scope range of detectors, the first thing that impresses you is their lightness and superb balance. They are extremely comfortable machines to use. As a current C-Scope user I am already well adapted to them.

Ground effect wasn't a particular problem on this site although there were large amounts of iron objects from the earlier buildings. I tried first in the Inland mode and set the Disc switch to Meter Disc.

Most of the targets I first encountered were of a ferrous nature, which was indicated when the meter needle swung to the left (red) sector. All of these signals I ignored. My first positive signal wasn't very loud but after digging out a few inches of soil and then sweeping the search coil over the hole it certainly got louder. The target was only about 5in down and turned out to be a George III cartwheel penny (Fig.3.).

I then tried the detector in the Meter & Audio Disc mode and soon found that it was much better. The machine's response to ferrous targets was to give a lower pitched tone and it wasn't long before I became so accustomed to this that I found myself paying more attention to the sounds rather than the meter.

The sound pitch of the Audio Disc signal varied according to what type of object, or material, was being detected. Bronze, or copper alloy, targets gave a very high-pitched signal while lead targets gave a slightly lower one. Recognising iron from these very low-pitched signals certainly makes for easy detecting.

After about an hour's detecting the final tally left me with a pocketful of brass fittings from the cottages (Fig.4.) and a couple of musket balls.

As the CS990XD is mainly aimed at newcomers to detecting I gave my friend Tony an opportunity to try it out. We took the machine to a Roman site, which we had already been detecting on for a couple of weeks. Tony, who started detecting last year with a top-of-the-range detector, took the machine and started off in the Inland mode.

Iron wasn't a major problem on this site, other than the odd horseshoe, so most of the signals he received were positive. Being close to the hedge though meant that many of these were shotgun caps. I told Tony to switch from Meter Disc and try the Meter & Audio mode. Tony was already used to this mode from his current machine and found searching much easier. The fact that the CS990XD is a non-motion detector also made a difference, as the machine could be held still over the target until the signal became strongest. This helped with pinpointing, although Tony found it difficult to break the habit of swinging the search coil as he was already accustomed to using a motion type detector!

Out in the middle of the field, Tony was stopped in his tracks by a very loud signal. Digging out a few inches of soil, we soon found what I thought at first to be a Roman lead plumb bob (Fig.5.). After closer inspection it turned out to be a lead drawer handle (?).

Continuing across the field, despite the impending rain shower, Tony had another loud signal. This target turned out to be a Roman silver *denarius* of one of the Faustinas (Fig.6a&b.). Despite the coin being very worn, the finding of it certainly pleased Tony.

With all the Christmas festivities to contend with, it was a couple of weeks before I could take the CS990XD out again. I wanted to try it out on a site near where I live that has a notorious mineralisation problem. The soil consists of a very sandy loam, which often gives plenty of false signals, making it necessary to reduce sensitivity or increase discrimination levels.

With the temperature hovering just below freezing I ventured out onto the "crunchy" soil. I only intended to use the machine in Beach mode for this exercise to see how it coped with the mineralisation.

As this was predominately a medieval site, which also had a coaching road passing through it, I have found many silver hammered coins here in the past as well as an abundance of horseshoes and nails.

Using Beach mode with Meter & Audio Disc I set the level until iron targets were completely rejected. The CS990XD coped brilliantly with the soil conditions, which were frozen down to two or three inches. My first decent signal turned out to be a large lead spindle whorl, or loom weight (Fig.7.).

I persevered, despite the freezing temperatures, and soon had my only

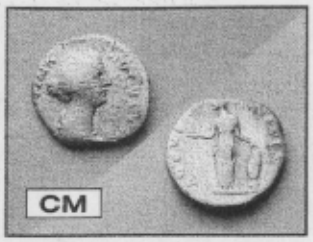

Fig.6a&b. Obverse and reverse of Roman silver denarius of Faustina Jnr.

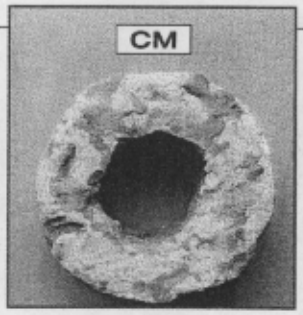

Fig.7. Lead spindle whorl or loom weight.

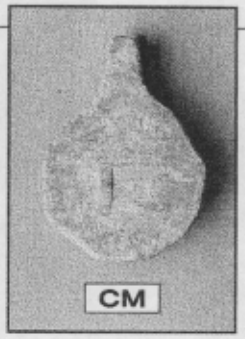

Fig.8. Lead cloth seal.

other target: a lead cloth seal (Fig.8.). After that my fingers were too numb to continue so it was back to the car.

Conclusion

I think that, for a beginner's detector, the CS990XD could be slightly confusing to operate if the user has had little or no previous experience with a detector. With more experience using this machine, however, I doubt if most users would find it too difficult to operate. As for the CS990XD itself though, I don't think anyone could grumble about the price tag for a machine that gives you what you'd normally expect to pay a great deal more for! This machine is certainly value for money.

The feature I liked best about the CS990XD was the Audio Disc. I could certainly do with this particular mode on my own detector! As for depth-seeking capabilities, I found the 990XD to be about average. If I were starting out in the hobby with this machine, I think that I would regard it as a superb stepping-stone before upgrading to a more expensive model.

Tony's comments

"Although I've only recently taken up detecting, I started off with an expensive top grade machine. This put me in a situation where I was already pretty familiar with many aspects of detecting technology and so the operation of the 990XD wasn't too difficult to grasp as most of this machine's features are incorporated in my own machine." TH

Specification

VLF Non-Motion circuitry

Signal strength/battery condition meter

Meter discrimination

Infinitely variable audio discrimination

Beach mode

8 in Concentric Search head

Operating frequency 17kHz (approx)

8 x AA battery pack

Battery Charger Socket

Headphone Socket

Armsaver stem assembly

Light weight, 1.6kg

5 Year parts warranty

Manufactured by C-Scope Ltd
Wotton Road, Ashford,
Kent TN23 6LN
Tele 01233 629181

List Price (UK) £199.90 inclusive of VAT @ 17.5 %