CZ-3D "high tone" Coin Finds
- mid tone/trash tone on other detectors
- Thomas J. Dankowski

CREATING THE CZ-3D FOR THE REAL WORLD

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FIELD EXPERIENCES

The creation of the CZ-3D has been a long and fascinating road. As I accrued years of detecting experience with a standard CZ, I knew that I had one of the best detectors that current times and technology could offer. The CZ had been an awesome deep coins detector; very possibly the best detector on the market. The FRL staff had performed a wonderful job.

As more and more detecting experiences lined my cash/trash apron with a standard CZ-5, I would always continue a heavy analysis of each and every hunt, seeking for more data, and also seeking for answers to questions that seemed irrelevant. Nearly every time that I would go on a hunt, it was, in actuality, more in line with experimentation and theory testing rather than just simply "cherry-picking". I would look at the ratios of the items that I recovered. It was commonplace to find say; 23 wheats, one Buffalo nickel, 4 Mercury dimes and a silver quarter. Sounds like a very good days hunt, however; I was not satisfied with the ratios. Where were the nickels? There should have been a few more nickels. And the one Buffalo nickel that I did find bounced between 'foil' and 'nickel'. Clue number one!!! There were just too many hunts and areas that I searched and would find plenty of pennies, dimes and quarters, yet empty-handed with older nickels. I also looked at my collection of coins that I had recovered with all of my (different brand) detectors. I had more Barber dimes than 'V' nickels, more Seated Liberty's than Shield nickels, more Mercury dimes than Buffalo nickels. Something was definitely wrong with every single one of these ratios.

Another day, and a different and much older site, I found 3 Barber dimes and one Indian Head penny. This was an old school. Where were the hoards of pennies and the kids lunch money; usually in the form of nickels? And that Indian Head penny that I found, it bounced between 'Zinc' penny and 'square-tab' and if the coil was quite a bit off center, it would then read a constant square-tab. Clue number two! Other brand detectors would read the 'difficult' Indian Head pennies as pull-tabs and the nickels as a foil target. Clue number three! Yes, the CZ series detectors has the narrowest/tightest 'nickel' window in the industry, allowing for the least amount of trash to be recovered while searching for nickels, yet, something was still deficient

So, now my intent was to take the CZ-5 to this same old school and go "relic" hunting -- seeking to find some neat old trinkets. Feeling this particular old school had now been "cherry-picked", all of the coins and high-tones had been recovered, and now only the medium tones remained; I felt that if I 'selectively' chose the correct sounding mid-tones, I may score a nice token, or possibly even a ring. - Let the hunt begin.

To my surprise, the very first four targets out of the ground were 3 'V' nickels and a 1913'D' Variety II Buffalo nickel. Every single nickel read a constant mid-tone (foil) while in the ground. Out of the ground, three of the four nickels STILL read as a mid-tone! The fourth now read high-tone 'nickel'. After a few more mid-tone trash targets, I then found 2 Indian

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Head pennies about 4 feet apart from each other. They too read a constant mid-tone in the ground. Out of the ground, one IH penny read high-tone and the other remained a constant mid-tone (square-tab) reading. Feeling somewhat proud of my accomplishments for knowing just exactly which mid-tones to recover, I skeptically continued hunting; - ONLY to learn at a later date that I only THOUGHT I knew which deeper mid-tones to recover! I continued to recover hundreds of mid-tone trash items and only a few more coins including a Mercury dime that ALSO read a constant mid-tone in the ground. Out of the ground; constant high-tone. Building a case, I saved these mid-tone coins for future analyzation and re-engineering. I also found several copper washers, brass tokens and bronze items that reported as a mid-tone, unto which I was perplexed and not happy with this mid-tone ID performance, these items could have been Indian Head pennies that would have been missed. I even recovered a couple of smaller silver items that registered as a mid-tone ID. An electronic area needing some attention!

One of my thoughts: Bet today's modern detectors are calibrated to today's modern coins. (I would rather NOT recover modern coins). This turned out to be true, yet was only part of the equation as to why coins were being missed. Add some corrosion, dirt matrix & mineralization, tilting of some coins, partial masking and you have a plethora of older coins that will ID as trash on any brand detector.

Enter the CZ-3D concept and inception. Keeping the intermediate engineering stage write-up short, I developed several 3D platforms that failed in my books. Too much trash was recovered and the low ratio of coins was unacceptable. Finally, after (seemingly) endless attempts, I perfected the design intent.

Knowing that I had a finalized unit, I went detecting with confidence. After six consecutive hunts (different days & different sites), I was beginning to lose confidence, as I had found absolutely nothing with the unit (in reference to old coins), behind a standard CZ. Then, on the seventh hunt, (and nearly every hunt thereafter), it happened all at once. This was the old school that I acquired my record-breaker of finding 4 old nickels in a row that all had read as a mid-tone on a standard CZ. The CZ-3D now was finding more Indian Head pennies, 'V' nickels (one shield nickel), additional early wheat pennies, a few silver dimes, and even a Standing Liberty quarter (and two nice tokens). All were now reporting as a 'high-tone'. (Noteworthy; The 1917 Standing Liberty quarter reported as a 'Zinc' penny at 2" deep on the CZ-3D. The quarter was actually 3" deep and somewhat tilted. I nearly refused to dig a zinc penny at 2". Glad I dug! This was at a site that I had the ability to hunt behind myself, nearly in my exact footprints from the previous (standard CZ) hunt, trying to ascertain absolute validity by removing all other variables. After recovering several additional older coins with the 3D, I decided to continue to use the 'enhance' mode to find the high-tone (suspected) old coins,,,, but then disable the 3D enhanced mode by flipping the toggle switch to the 'salt' mode and re-checking these pin-pointed targets. Sure enough, MOST of the suspected older detected coins would now read as a mid-tone. The 3D enhancement worked! Only a couple of the coins would read as a high-tone in the salt mode, simply due to the fact that the exact pin-point location had now been established giving the electronics a better 'edge' for a correct ID.

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On this same hunt, there were times when suddenly, I would completely stop finding older coins. I FORGOT to turn the salt/enhance switch back to the "enhance" mode! Excessively easy mistake to make. You will most probably make the same mistake a few times. Now, with full confidence in the machine, I no longer have the need to 'check' the targets by flipping the salt/enhance switch. Besides wearing out the switch, and/or possibly making the mistake of accidentally leaving the switch in the 'salt' mode on a hunt many hours from home, I strongly recommend against excessive utilization of this switch.

Another test that I wanted to perform so as to validate the CZ-3D even further, as I had performed this test on a standard CZ, the 3D needed to live up to design intent. I hunted behind a standard CZ looking to find coins that did not read 'high-tone'. I found several coins. Now, with the 3D, I wanted to hunt behind itself deliberately, looking to see if I could find any coins that also did not report as a 'high-tone' (by digging hundreds of mid-tones). After several hunts, I have yet to find a coin that the CZ-3D mis-ID'd. Certainly not saying that it is a impossibility, yet definitely alluding that the CZ-3D is much more accurate. All too often I would hear a statement from fellow detectorists like: "All of the Indian Head pennies, Buffalo nickels and U.S. silver half-dimes that I have found, read high-tone on a standard CZ". My response: Yes, this is true, however; did you dig all of the trash mid-tones and discover the coins that registered as a mid-tone? The answer: "No, absolutely not. That would be absurd and not practical with as much mid-tone trash as there is in the ground". My response: It is commonplace to NOT know what you are missing if you do not know that it even exists? This is exactly why the CZ-3D has come into existence. Most of the coins in the ground that previously registered as a mid-tone, will now register as a high-tone in the "enhance" mode. Not to worry though, the round and square pull-tabs will still register as a trash/mid-tone pull-tab in the "enhance" mode on the CZ-3D. You may still recover a few crushed aluminum screw-caps and a few of the old large square-tabs as you did before, with other detectors. The bottom line intent is to have you walk away from the field at the end of the day with more older generation coins in your pockets. For certain reasons, Indian Head pennies and half-dimes in the Earth commonly read pull-tab trash tone. You may never discover this occurance unless you dig a lot of pull-tabs or you are a relic hunter of whom commonly digs many mid-tones. On this same subject; Lately, I have been hunting with the CZ-3D in the "enhance" mode at ALL times. This allows for the continued utilization of the "enhance" mode benefits. If I am in a modern day trashy area, it then becomes my option to recover the deeper high-tones, circumventing certain, shallow (most probably modern) targets if time is limited. Yet, I still strongly recommend recovering all high-tones.

Testing the CZ-3D in several states; Indiana, Florida, Wisconsin and Alabama (Birmingham, Alabama = proper ground balance was critical), I could conclude that a standard CZ was a stellar performer on ID'ing coins down to about the 8" mark. Any coins deeper, the ID was questionable. On the CZ-3D, especially in lower mineralization areas, ID accuracy was much more accurate to several inches beyond what a standard CZ could ascertain. I did notice a unique quirk about the CZ-3D; on a few of the newer Jefferson nickels, some would

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ID as a pull-tab. That's ok, as the intent of the 3D was for OLDER coins, not the new pocket change.

During the course of CZ-3D design, I had yet another noteworthy incident. I had removed the meter on the 3D so I could analyze possible changes to the faceplate. I still continued to hunt with the CZ-3D without a meter/faceplate. I must say; I had the best luck with the 3D. Lacking a meter, it had forced me to dig all high-tones, and most importantly, forced me to NOT have the ability to visually discriminate. It is all too common & often that I would choose to NOT recover shallow zinc readings. Big mistake! One of my nicest Indian Head pennies, a nearly uncirculated 1874, was about an inch deep, and certainly would have read 'zinc' had I utilized the meter. Under normal circumstances, I would have left this target in the ground. Another occurrence in a different area; I recovered a new corroded zinc penny about 2" deep, but masked almost directly underneath it, at a depth of 11" was a 1883 'V' nickel in fine condition.

And one of my most memorable days ever: A coin spill; At 14" deep, I recovered 3 Barber quarters, 6 early wheat pennies (two were VDB's), and a pair of 4" nails, all within a 8" circle - a elongated zinc penny high-tone reading on the CZ-3D. I almost didn't dig that one either! Hence; Justification of my statement to the owners of a new CZ-3D = Dig ALL high-tones. I could share many more 3D experiences, but now it is YOUR turn.

CONCLUSIVE ANALYSIS

In all honesty, the CZ-3D is an absolute "must" for the serious 'old coins' hunter, especially if you take into consideration that most places we detect, have been "hunted out". Yes, you are still going to recover some trash items along the way (as always), but if you stick to the older sites, especially nineteenth century (1800's) areas, you will soon realize the benefits of the CZ-3D. It differs from ALL other CZ's. Period!

And once again, in total honesty, on the other side of the coin (dry pun intended), if you hunt a new park or any newly habitated areas, the CZ-3D in the 'enhance' mode could potentially be a detectorists nightmare. Use the "Salt/Enhance" switch wisely. I am curious as to whom will have good success with the 3D on the first few hunts and whom will get "skunked" the first few attempts -- only to catch up shortly thereafter! Statistically speaking, it's going to happen. ---Post your finds on any of the popular Fisher forums.

A "REAL WORLD" CZ-3D CHART

It is difficult to create a chart that gives cut-n-dry answers to the exacting differences between a CZ-3D and all other CZ's including the CZ-70 (and other brands). Up until now, all detector tests were based upon waiving different objects in front of the coil, then documenting (in chart form) the ID readings and results. A good test, because all variables are removed, yet on the other hand, a bad test because this air-test is not representative of real world (real soil) conditions. The CZ-3D is a poor performer in an air-test. In fact, it may fail a few specific air-test scenarios. The CZ-3D is designed with the real-world dirt matrix variables in mind. So, how do you design a ID chart with infinite variables in the equation? On the following page, let's try this:

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"REAL WORLD - OTHER" = Probable reading of what all other detectors will ID the specified target as, and in real dirt with a average package of infinite variables. (My apologies for this vagueness).

"REAL WORLD - CZ-3D" = Most probable reading on the 3D in 'enhance' mode.

• TARGET/REAL WORLD	"REAL WORLD OTHER"	"REAL WORLD - CZ-3D"
• Dirt exposed Indian Head Cent	Trash /mid-tone	High-Tone
• 1857-1864 White (nickel) Cent	Square-Tab/mid-tone	Square-Tab
• U.S. 3-Cent Silver	Trash/mid-tone	High-Tone
• U.S. Half-Dime; real dirt scenario	Trash/mid-tone	High-Tone
• Silver Dime or Quarter; partial masking	Trash/mid-tone	High-Tone
• Shield Nickel & 'V' Nickel; no/slight corrosion	Trash/mid-tone	High-Tone
• Buffalo Nickel; mild corrosion	Trash/mid-tone	High-Tone
• $2.50 Gold Quarter-Eagle	Round-Tab/mid-tone	Square-Tab
• $5.00 Gold Half-Eagle	Trash/mid-tone	High-Tone
• $10.00 Gold Eagle	High-Tone	High-Tone
• $20.00 Gold Double-Eagle	High-Tone	High-Tone
• Many Non-U.S. Coins	Trash/mid-tone	High-Tone

(Many more benefits could be added to this list, yet, it is the "infinite" variables that make additional entries a bit unique to quantify).

Noteworthy: The older nickels that would previously read as a 'mid-tone/foil ID' should now read as a 'high-tone/nickel ID'. All other items in this list will now read 'high-tone' audio with either a 'zinc cent' or 'high coins' meter ID.This is due in part to infinite variables such as ground mineralization, multiple targets in close proximity, tilted coins, coins on edge or a combination thereof.

- Happy "Enhanced" Hunting! Ⓕ