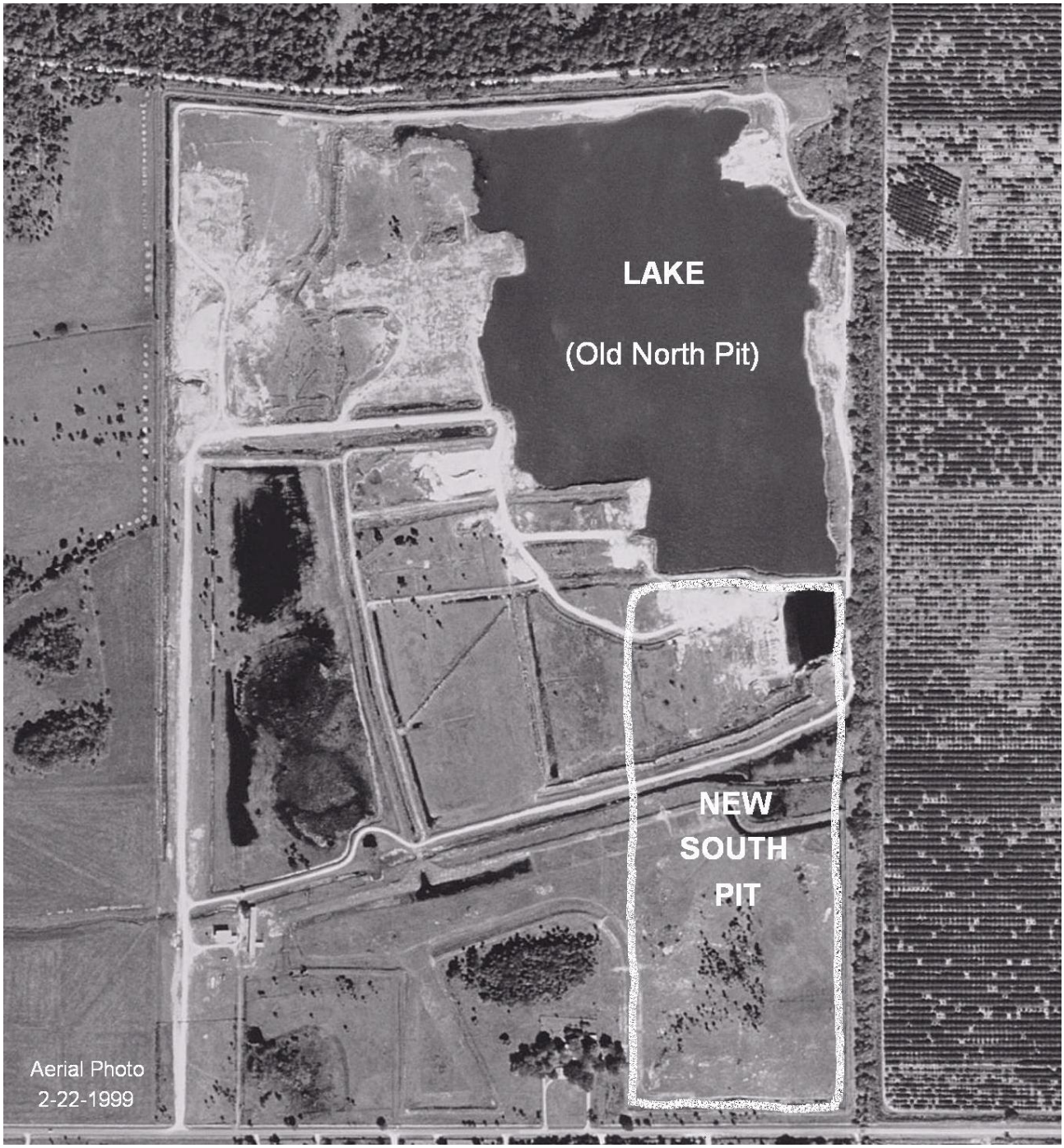
RUCKS' PIT

Okeechobee County, Florida, USA



Southeastern Geological Society
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RUCKS' PIT
Okeechobee County, Florida, USA

Compiled by:
Gary L. Maddox, Dr. Thomas M. Scott, and Guy H. Means

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GEOLOGICAL DISCUSSION OF THE RUCKS' PIT NORTHEASTERN OKEECHOBEE COUNTY, FLORIDA

by Thomas M. Scott and Guy H. Means
Florida Geological Survey

INTRODUCTION

In early 1990, a USGS geologist investigating the Plio-Pleistocene of Florida approached the senior author to discuss the distribution and lithostratigraphy of these shell-bearing sediments. The USGS geologist mentioned, in passing, a pit encountered in the northeastern portion of Okeechobee County. Tom was surprised to learn that the pit operators were mining a "coquina" at this location since he had not seen a coquina or a lithified shelly sand deposit west of the St. Johns River Swamp. Prior to this time, he had only found pits west of the river and swamp to be mining sand and shell. When he finally got to visit the site, he found a small, family-run mining operation. The pit was pumped exposing a limited thickness of a sandy coquina and lithified sand reminiscent of the facies of the Anastasia Formation exposed along the coast of Palm Beach County. Inspecting the spoil piles and the pit walls, Tom found that there was shelly sand below the coquina that was only occasionally encountered, often in areas where the coquina was thinner. Overlying the coquina was younger shelly sand which, in turn, was overlain by sand with varying amounts of organic material.

The areal distribution of the coquina facies is not well known since little exploration off-site has been done. Mr. Edwin Rucks, the property owner, discussed the rock distribution on his property and pointed out how the rock ended suddenly at the eastern end of the now water filled northern pit. His description of how the rock just ended sounded like wave cut erosion as we see today along the east coast exposures of the Anastasia Formation. The coquina thins from east to west across the property and appears to be absent west of the oldest mined area. The current mining activity on the Rucks' property is quickly running out of reserves. Exploration may reveal more data on the extent of the rock in this portion of northeastern Okeechobee County.

GEOMORPHOLOGY

The Rucks' Pit lies along the eastern edge of the Osceola Plain and is part of the broader Barrier Island Sequence District (Scott, in preparation). The Osceola Plain is a beach ridge plain that built east of the Lake Wales-Lakeland Ridge Complex and extends south from the Orlando Ridge (Figure 1; Scott, in preparation). The eastern edge of the Osceola Plain is marked by a sea-level scarp with a toe elevation of 25 feet (7.6 meters). Surface drainage on the Osceola Plain is often controlled by the paleo-beach ridges forming a trellis drainage pattern. Elevations on the plain range from 25 feet (7.6 meters) to nearly 100 feet (30.5 meters) at the western edge where it abuts the Lake Wales Ridge. This includes the Talbot, Penholoway and Wicomico terraces of Healy (1975). Elevations at the Rucks' Pit are around 35 feet (10.7 meters).

The sediments that form the lithified coquina mined from the Rucks' Pit were deposited in a near shore and beach environment. This area marks the location of the Atlantic shoreline during the early Pleistocene. Petuch (2004) suggested that this area was an embayment in the early Pleistocene with a finger of land or islands on its east side. There is no geomorphic or subsurface sedimentologic data that supports this interpretation.

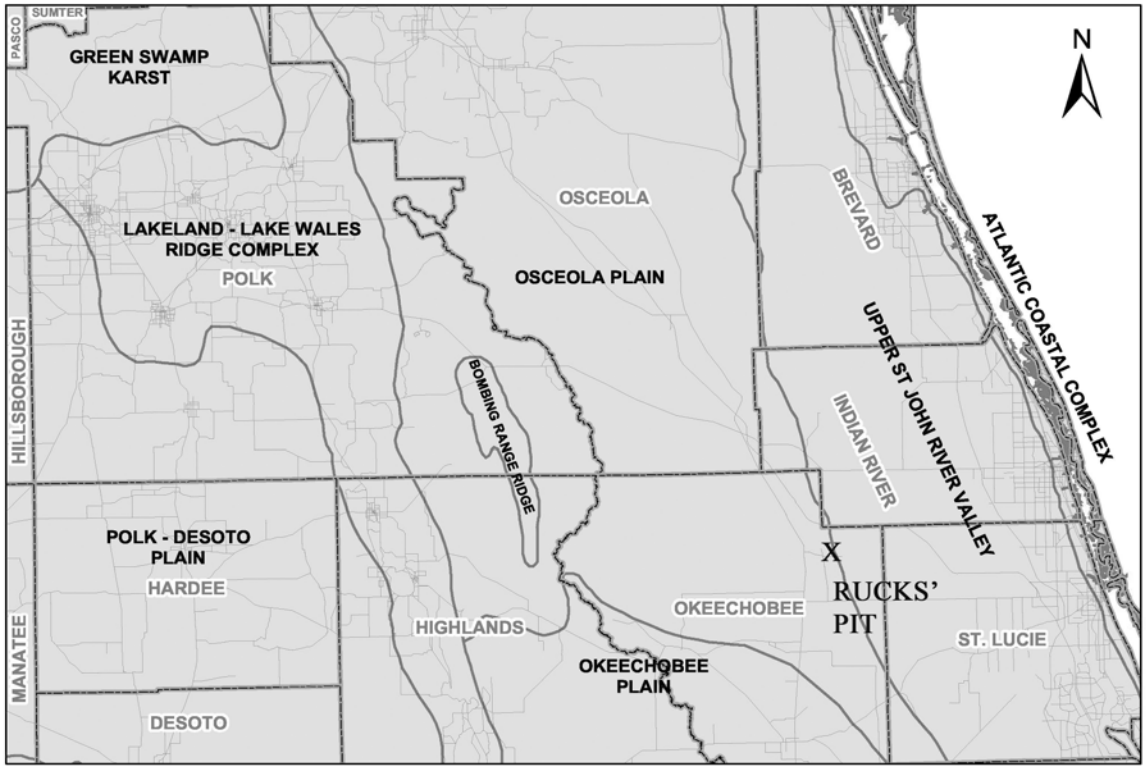

Figure 1 - Geomorphology (from Scott, in preparation, 2005)

STRATIGRAPHY

The sediments exposed in the Rucks' Pit were deposited in the late Pliocene and Pleistocene under shallow water near shore conditions. Subsequent sea level fluctuations allowed for the dissolution of some shell material and the cementation of the beach and near shore shelly sands creating the rock mined from the Rucks' Pit.

Petuch, in an undated volume published by pit owner Edwin Rucks, Jr., applied a stratigraphic sequence to the exposure in the Rucks' Pit which included a new group and new members which need to be defined following the North American Stratigraphic Code (2005). This includes complete descriptions of the new units, requiring mapping the areal distribution and thickness variability of the group, formation or member. Until that time, the names should not be used in any way other than an informal manner.

Figure 2 depicts the generalized lithologies exposed in the Rucks' Pit. Thicknesses of the units are quite variable over the area encompassed by the old pit and the active operation. Quite a bit of lithologic variation occurs within these units, particularly in the lithified beds.

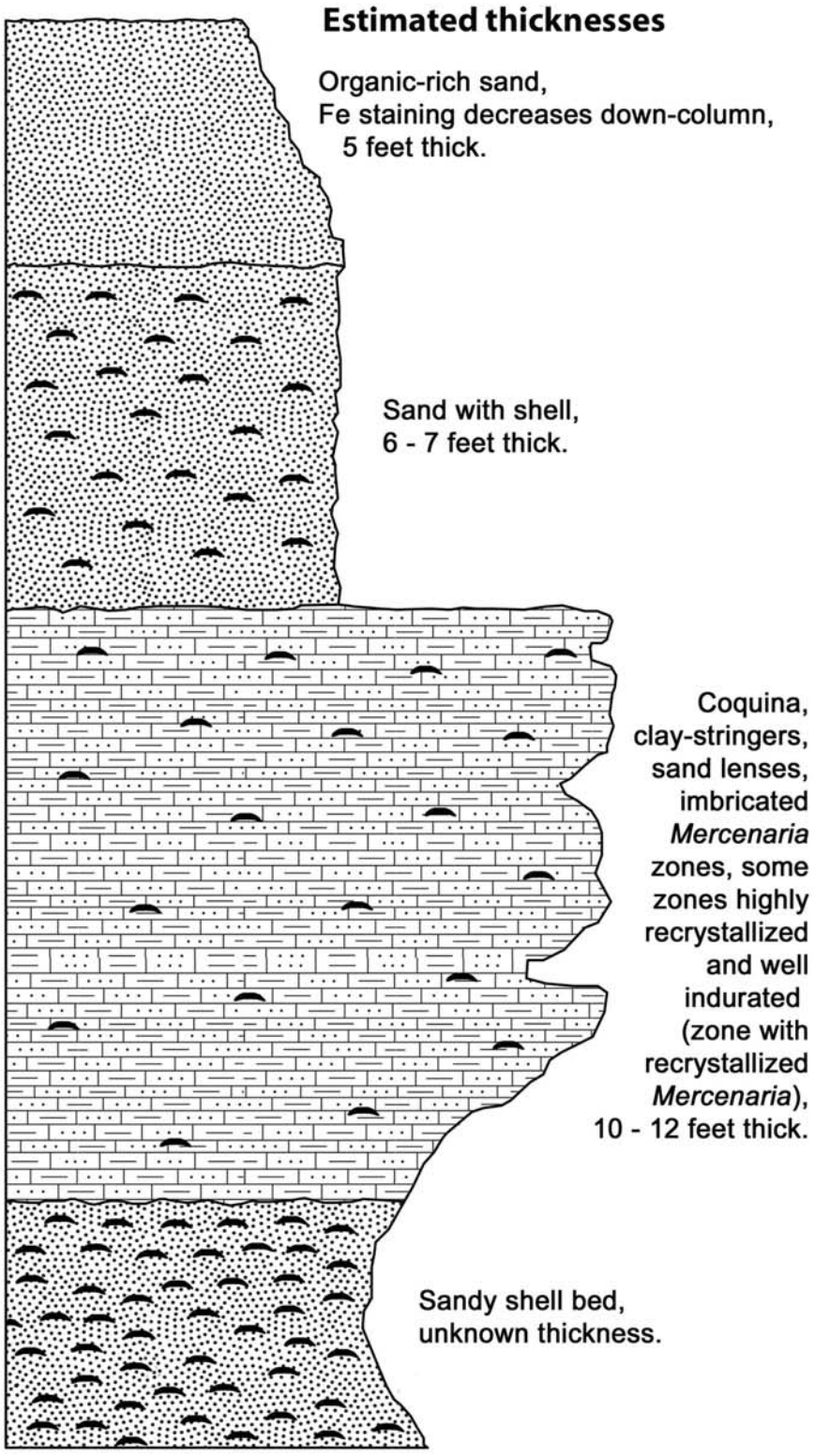

Figure 2 - Stratigraphic Column - Rucks Pit, Okeechobee County, Florida.

The basal unit exposed in the pit at lowest water and often seen in spoil piles is part of the Tamiami Formation, a highly variable, complex unit widespread in southern Florida. A number of fossil mollusks attributed to the Tamiami Formation have been identified by Petuch from the basal sand unit. Lithologically, the unit consists of fossiliferous, fine quartz sand with variable percentages of silt, clay and carbonate. This unit is generally not well exposed.

Overlying the basal unit are the variably lithified beds that appear to be transitional between the Caloosahatchee "beds" to the south and the Nashua Formation to the north. This unit varies from a densely packed, imbricated *Mercenaria* valve bed to an occasional thin clay stringer. Much of the unit is composed of variably calcium carbonate cemented, shell bearing sand. Some beds can be classified as a very sandy limestone. Petuch has recognized fossil mollusks attributed to both the Nashua and Caloosahatchee units. The *Mercenaria* within this unit occur as paired valves in life position, paired valves not in life position, separate valves with an imbricated orientation indicating significant current energy, and separate valves exhibiting no particular orientation.

The sediments above the variably lithified Nashua-Caloosahatchee unit are composed of quartz sand with varying percentages of organic matter and an abundance of fossil mollusks. This unit has been referred to as the Fort Thompson unit. Undifferentiated surficial sands overlie the Fort Thompson shelly sediments.

CALCITE

When Tom Scott first visited the Rucks' Pit, he noted the occurrence of numerous *Mercenaria* valves with some of them displaying some calcite crystal development. This grabbed the interest of the calcite mineral collector side of my geologist persona. Although no collectable mineral-in-fossil specimens of the *Mercenaria* were found at that time, numbers of interesting crystal-filled *Busycon* specimens were collected. A few of the *Busycon* specimens exceeded six inches in diameter and contained calcite crystals more than one inch long. At this time, paired, crystal filled *Mercenaria* were not commonly found. The senior author would visit the Rucks' Pit on an irregular basis as field work and mapping brought him to the area. Eventually, the mining operation encountered the zone containing the calcite lined *Mercenaria*. This zone has been nearly continuously exposed for the last five years. Mickey Cecil and Gary Maddox's efforts in collecting and selling these fossils have made the Rucks' Pit internationally known.

FOSSILS

Fossil invertebrates are common and well preserved within the sediments at Rucks' Pit. The molluscan fauna's have been partially described by Petuch and indicate that these units are Plio/Pleistocene. A partial description of corals was also provided by Petuch. Vertebrate remains are abundant in the upper sand unit and an occasional whale vertebra as well as bony fish remains have been recovered within the shelly units (possibly the Ft. Thompson or the coquina – the authors did not personally verify from which unit the whale remains were recovered from).

A terrestrial vertebrate fauna exists within the upper sand unit at Rucks' Pit. The Rucks family and mine workers have amassed a collection of fossils (from spoil piles and not

necessarily from *in situ*) which used to reside on the premises of the pit. It included mastodon, mammoth, sloth, giant tortoise and horse (being most common of the vertebrate species). Aquatic vertebrate remains of pond turtles, soft-shelled turtle and the American Alligator have also been collected from spoil in the pit suggesting that the area was once covered by fresh water or was very near a pond or lake. Other unidentified vertebrate remains have been collected from this upper unit and warrant further study. The vertebrate fauna is indicative of a Late Pleistocene (Rancholabrean vertebrate land mammal age) faunal assemblage.

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Recreational collectors “working the walls” at Rucks’ Pit in 2004

HISTORY OF COMMERCIAL SPECIMEN COLLECTING AT RUCKS' PIT OKEECHOBEE COUNTY, FLORIDA

by Gary L. Maddox
Florida Department of Environmental Protection
and
Apalachee Minerals

INTRODUCTION

Beginning in early 2003, Rucks' Pit, an active aggregate and sand mining operation, began producing exceptionally large and beautiful calcite crystal-filled *Mercenaria permagna* clams (Figure 3), along with other calcified mollusks. Rucks' Pit, previously known as the Sham Rock and Shell Pit and more recently the Fort Drum Crystal Mine, is located in northeastern Okeechobee County, approximately 5 km east of the small hamlet of Fort Drum. This is about midway between Orlando and West Palm Beach. Figure 4 depicts the location of the pit in relation to Fort Drum.

Commercial specimen mining of the site by Mickey Cecil (The Fossil Geode) and Gary Maddox (Apalachee Minerals) in partnership with Edwin "Eddie" Rucks, Jr., has preserved a large number of specimens which otherwise would have been consigned to the rock crusher. Recreational access is also permitted, providing a rare Florida opportunity for casual mineral collecting, or for anyone willing to invest the time and effort necessary to recover undamaged specimens. In fact, some of the best specimens recovered from this site have been found by hard-working hobby collectors.

Figure 3: Calcite crystals in *Mercenaria permagna*

MINING HISTORY

Mining in the vicinity of Rucks' Pit began in the early 1900's when the old Florida East Coast Railroad opened the first shell pit in what is now the northeastern area of the now-flooded north pit. A north-south branch of the railroad passed just west of the current site, and shell material was dug from a shallow pit. The Fort Drum area was very sparsely populated at that time – true Florida wilderness. In those days, a wood-burning "steam genie" was used to mine shell. At some point thereafter mining ceased, and the old shell pit remained inactive until 1959, when the property was purchased by the Rucks family. The pit was re-opened in 1961, and Okeechobee County mined shell intermittently at the site for the next 16 years. In 1987, the Rucks family expanded the operation and began mining the gray sparrite base rock (Eddie Rucks, Jr., personal communication, 2003).

In 1988, Dr. Thomas M. Scott, Assistant State Geologist for Florida, visited the pit and noted for the first time the occurrence of calcite crystals associated with *Mercenaria* clam fossils; however, due to the extant mining practice of using explosives to blast the working face, virtually no complete specimens were recoverable. Blasting at that time was done using dynamite. Charges were placed on twelve-foot centers, and the resulting blasts would shatter the rock into marble to fist sized pieces for up to 50 feet back behind the working face. Since new blasting was always done before mining proceeded far enough back to encounter unfractured rock, no significant specimens were produced during this time.

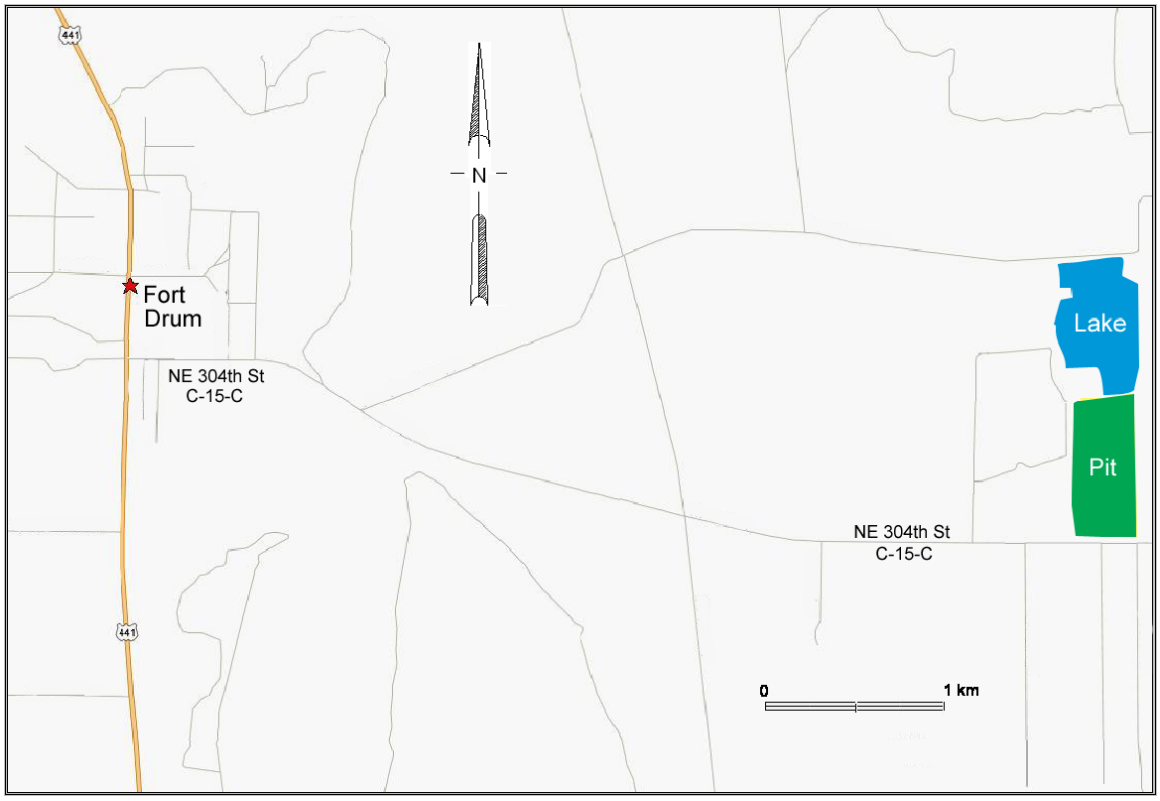

Figure 4: Location of Rucks' Pit

In 2001, the Rucks family ceased using dynamite in the mining process, instead switching to the use of track hoes to physically remove the rock. In 2002, Eddie Rucks, Jr. and Tom Scott noticed the quality of the calcite as mining proceeded beyond the original blast zones. They collected the first complete *Mercenaria permagna* specimens at that time.

In late 2002, Dickerson Florida, Inc. entered into an agreement with the Rucks family to take over daily mining operations at the pit. Dickerson was able to bring their considerable mining experience to the site, rapidly expanding the operation. Sparrite from the vicinity of the *Mercenaria permagna* stratigraphic zone was some of the best rock for aggregate use (the main product of the pit) due to the well-indurated nature of the rock at that stratigraphic horizon and the increased prevalence of calcite cement.

OCCURRENCE OF *Mercenaria permagna*

Collectible specimens of *Mercenaria permagna* containing calcite crystals occur within specific stratigraphic zones within the Nashua-Caloosahatchee faunal unit (informal), which lies above the upper Tamiami Formation and below the Fort Thompson unit (Scott and Means, 2005 – this volume). A persistent zone of *Mercenaria permagna* mollusks in hinge-up life position crops out approximately one meter above the top of the Tamiami Formation, within the lower Nashua-Caloosahatchee unit. This stratigraphic zone is everywhere exposed within the walls of Rucks' Pit, slightly dipping to the east. In specific locations within this zone, the shells of these mollusks have been dissolved and sometimes recrystallized by the action of acidic ground water. It is in these areas that striking amber calcite crystals often occur partially or totally filling the void spaces within articulated *Mercenaria* clams. Two additional life-position *Mercenaria* zones sporadically occur 1 meter and 1.5 meters, respectively above the lowest, most productive zone. Figure 5 shows a typical view of the Nashua-Caloosahatchee unit as exposed in the southeastern portion of the current workings. The lowermost productive zone lies just below the rock hammer, and broken *Mercenaria* with calcite crystal infill can be plainly seen. The middle production zone is plainly visible about 1 meter above the lowest zone. The life-position orientation of these *Mercenaria* is clearly visible, but only a few have associated calcite crystals. The uppermost zone lies just below the visible thin zone of separate imbricated valves, seen in a concave-down position. One broken life-position *Mercenaria* can be seen in the middle of the photo.

Crystalline calcite is best developed within articulated *Mercenaria permagna* fossils. The void space left within these valves allowed for controlled and unfettered crystal growth. The largest and best calcite crystal clusters have grown downward and outward from the hinge zones. Undamaged clusters of calcite from the hinge zone of broken *Mercenaria* are among the finest calcite crystal clusters ever found in Florida (although not the largest). Many are clear amber, resembling in color and transparency the much larger calcites produced from the Elmwood and Cumberland mines of central Tennessee. Although too soft for jewelry purposes, faceted stones showing brilliant refractive colors have occasionally been cut from these crystals.

Figure 5: Nashua-Caloosahatchee unit (informal), showing *Mercenaria permagna* zones

Many *Mercenaria* specimens contain partial calcite crystal fill in the uppermost portion of the articulated valves, with dark gray fine-grained limestone infilling the lower portions. This dark gray infill likely resulted from intrusion of plastic clays and marls from the underlying substrate as the valves opened slightly upon the death of the clams.

Much speculation exists regarding the paleo-ecological disaster which caused the life-position deaths of these mollusks. Possible explanations include deep burial due to storm or tsunami events, fresh water poisoning due to very heavy stormwater runoff, or other possible catastrophic causes.

In addition to *Mercenaria,* other calcite crystal-bearing mollusks occur at Rucks' Pit. Whelks *(Busycon rucksorum)*, arc shells *(Anadara),* and rarely, olive shells, cones, mussels and other mollusks turn up as either complete crystalline calcite replacements, or as fossils lined with drusy yellow calcite crystals. These are generally found within the same zones as *Mercenaria*; however, there are locally abundant *Busycon* zones located in the upper highly-indurated Nashua-Caloosahatchee unit, well above the *Mercenaria* zones. *Busycon* specimens sawn lengthwise make particularly attractive pieces.

CALCITE MINERALOGY

Large light yellow to dark amber, transparent to translucent calcite crystals ($CaCO_3$) found growing within articulated *Mercenaria permagna* are curved rhombohedrons of the ditrigonal scalenohedral class, hexagonal (trigonal) system, severely elongated along the c-axis $\{10\bar{1}1\}$ (Dana, 1958). Most crystals show only one termination, but rare doubly-terminated crystals are occasionally seen, usually epitaxially oriented atop matrix-anchored rhombohedral crystals. Stepped growth is common, especially on faces of larger crystals. As previously mentioned, the largest crystals grow downward and outward from the hinge zone of recrystallized *Mercenaria* valves, perhaps taking advantage of lower energy calcite nucleation sites within this portion of the mollusk.

Many *Mercenaria* valves are virtually completely recrystallized calcite; however, some are also chalky and brittle, with no visual evidence of recrystallization. These too, can contain calcite crystals. Whether or not the latter valves are calcite or retain the original polymorphic composition – aragonite – is unknown. It is quite likely that many of the molluscan fossils found within certain stratigraphic horizons in the pit still retain their original aragonitic mineral structure.

All calcite from Rucks' Pit is brightly fluorescent, light yellow-green, under both long wave and shortwave UV light. These calcites are also brightly phosphorescent for a second or two after the UV light is extinguished. The fluorescent activator is unknown, but may be lattice imperfections or trace amounts of ferrous iron, which is believed to also be the chromophore for the yellow-amber color of the crystals in white light. Usually, trace amounts of iron are fluorescent inhibitors. Additional work, including trace element analysis, is planned to help answer these questions.

OTHER MINERALS

Crystalline calcite is essentially the only collector mineral produced at this location, but other mineral species are present. Quartz in the form of sand is very abundant, not only in the Pleistocene – Recent cover, but is also a significant component of the calcite-cemented neomorphic sparry limestone (sparite) comprising most of the Nashua-Caloosahatchee unit. Unidentified clay minerals are also very abundant, as thin lithostratigraphic zones and as void space fill within the sparite.

Various detrital heavy minerals are also locally abundant within the Pleistocene – Recent sand cover; however, the commercial potential for extracting these minerals is unknown.

One of the most interesting mineral occurrences is that of micro pyrite crystals (FeS_2) on and between yellow calcite crystals. First noted by Tom Scott, most of these crystals are brown tarnished cubes, barely visible above 20x magnification. Some of these possess a greenish tarnish, perhaps indicating trace amounts of copper (chalcopyrite?). Dark brown to black stains on the exterior of some *Mercenaria* valves is also microcrystalline pyrite.

Surficial aquifer system ground water at Rucks' Pit contains large amounts of dissolved iron which can, within hours, leave a rust-colored stain on freshly-exposed wall rock. The precise mineral composition of these hydrated iron oxides is unknown.

COMMERCIAL SPECIMEN COLLECTING

The mine currently consists of two large open pits: a now-flooded older northern pit approximately 20 hectares (49 acres) in area, and the currently-active mine just to the south of the flooded pit, and separated from it by a narrow dam of native rock (see cover illustration). The southern (currently active) pit was approximately 14 hectares (35 acres) in area at the time of this writing (11/05).

In January, 2003, the first collecting trip into Rucks' Pit was organized by Mickey Cecil, Field Trip Chair for the Jacksonville Gem & Mineral Society. This opportunity was open to other amateur southeastern rock and mineral clubs who were members of the Dixie Mineral Council. Around 50 collectors attended this initial trip. This was the first opportunity the author had to enter the active workings. A number of very nice calcite specimens were unearthed, and Eddie Rucks, Jr., pit owner, saw some economic potential in commercially collecting and marketing these pieces. After the trip, Eddie approached the author and Mickey Cecil, and proposed a commercial specimen-mining venture. Up until then, neither of us had done any commercial mining – we were simply hobbyists who happened to be at the right place at the right time. We agreed to enter into the partnership more for the experience than the money.

Commercial mining began in February, 2003. The best finds from the previous month had been made along the western wall near the present-day crusher piles. By February, this site was covered under tons of mine debris, and a systematic survey of specimen potential in various other parts of the pit commenced. The north wall (dam) was the first area to be commercially worked, and the basal *Mercenaria* zone along this side of the pit kept us busy for months. Much of this work was done while immersed in waist to armpit-deep water. A pair of curious alligators kept us alert while collecting this wall. The *Mercenaria* were best preserved

along the north wall because explosives, previously used throughout the rest of the pit, were not used there, for fear of rupturing the dam.

In Spring/Summer, 2003, attention was re-focused on newly-exposed parts of the northern west wall and in a rich zone discovered within the pit near the present-day middle-west wall. The first significant large multi-matrix *Mercenaria* specimens were collected from a key ditch at the latter location. We quickly learned that water immersion was not such a bad thing after all in the oppressively hot and humid South Florida summer heat.

By September, 2003, enough material had been collected to offer up for sale. That month, the author and his family traveled to the Colorado Mineral and Fossil Show in Denver for the premier offering of wholesale and retail lots of these specimens to worldwide mineral and fossil buyers in attendance. Not many buyers found us, and sales were slow; however, a few wise investors snapped up a quantity of these pieces and got the jump on other dealers by being among the first to offer these up for retail sale.

Returning from Denver, mining resumed. In December, 2003 and January, 2004 the first major “bonanza” find of calcite was made in a north-south key ditch adjacent to the east wall. *Mercenaria* of all sizes from 2.5 to 15 cm in length were unearthed in soft rock. The calcite quality was superb, and approximately 150 – 200 flats were collected in short order. This was the first time that we had used a track hoe to remove overburden from the *Mercenaria* producing zone. With this find, the decision was made to attend the Arizona Mineral and Fossil Show at the Executive Inn in Tucson in late January and early February. We worked feverishly to clean, price and box specimens prior to departure. I was still pricing flats during the drive out. At Tucson, the material sold well. Major museums, including the Smithsonian, purchased pieces. The mineral and fossil world had finally discovered us!

Throughout the remainder of 2004, collecting proceeded in a steady manner; however, we returned from Tucson to find our “bonanza” site almost completely mined away. Then, in the fall of 2004, three hurricanes passed near or over the pit, destroying infrastructure and taking out the electric pumps, causing the pit to completely flood. In December, 2004, when water levels were finally subsiding, visiting collectors located the continuation of the bonanza find of the previous year, and we wasted no time bringing in a track hoe to remove the overburden (Figure 6). The site again produced loose, spectacularly crystallized *Mercenaria* along with substantial multi-matrix specimens. The resulting finds saved us again, and the same hurry-up routine of pre-Tucson specimen prep ensued for the second year in a row.

During this time, a great article on collecting was published in Lapis, a German-language European mineral journal. Georges Claeys, of the Belgian firm Geonic Mineralien and one of our top buyers, penned the article; his accompanying photographs were nothing short of spectacular. Wholesale inquiries increased.

Figure 6: Track hoe removing overburden from above the basal *Mercenaria permagna* zone

In late January, 2005, all three partners were back in the Executive Inn, and business was great. We sold out of most of our middle and high quality pieces. After Tucson, pit management developments threatened to curtail our ability to collect. In spring, Dickerson Florida, Inc., which had taken over mining from the Rucks family in 2004, began to allow water levels in the pit to rise above the basal *Mercenaria* producing zone. Because the size of the pit had grown so rapidly, the installed pumps could not keep up with the volume of ground water infiltration into the pit. The months following were lean times for collectors, and it seemed that the specimen recovery operation might finally be over. Meanwhile, our material was featured in the 2005 Tucson report in the Mineralogical Record. The write-up was accompanied by a beautiful *Mercenaria* specimen photographed by Jeff Scovil (from the Georges Claeys collection).

In late November of 2005, another bonanza zone of calcite *Mercenaria* was uncovered in a key ditch in the southeastern portion of the pit, coinciding with the final lowering of pit water levels. We were off again, spending the last weekends of November collecting mostly large multi-clam matrix slabs. This area has been mined by track hoe, and the slabs gently lifted out and spread across the ground adjacent to the key ditch. The third track hoe dig at this location will take place on the Friday preceding this field trip. Although recreational collecting of this material will not be allowed, pieces of identical quality will be available to diligent collectors who wish to mine them from the nearby pit walls. Field trip attendees are welcome to have a look at

this mined material, but no collecting will be allowed inside the orange flagged area. Everywhere else in the pit is fair game for collectors.

COLLECTING METHODS

By far the best quality specimens are obtained by mining them from the pit walls. This assures that undamaged specimens are procured. Calcite is very soft, and is easily scratched and dinged. Much of the loose track hoe-mined calcite is damaged, and though attractive when wet, is practically worthless.

Hard rock hand-mining has produced the vast amount of top quality material, and it is a skilled labor of love. The thrill of first exposing a great specimen is the draw that keeps us coming back for more. The most useful hand tools are small hand sledges and gad-pry bars. Wall mining involves undercutting, overcutting and side cutting around single or multiple clam matrix blocks. Bladed-end rock hammers are useful for clearing loose rock debris from over- and undercuts. A medium to large crowbar is then used to pry up the cut-out slabs. Often, *Mercenaria* will fall away loose from the sparite matrix due to the vibrations imparted through chiseling. Because of this, impact tools such as portable jackhammers are not used. The matrix is very porous and generally soft, but a wide range of induration is encountered throughout the mining process. Track hoe mining of matrix slabs is only used with suitably hard matrix rock.

Occasional soft clay and sand-filled *Mercenaria* zones provide easy wall collecting. In these rare instances, loose *Mercenaria* and other calcified mollusks can simply be pulled out of the wall. Only two locations in Rucks' Pit have produced finds of this type (Figure 7).

One of our "secret weapons" is a small-to-medium capacity gasoline water pump (Figure 8). This is used to spray down exposed walls and matrix slabs laid out for inspection, exposing the *Mercenaria* specimens well enough to determine if they are collectible.

Once specimens are collected and field-trimmed, they are wrapped with paper towels, wet and dry newspaper, and packed into 5-gallon paint buckets for transport. Small calcite clusters, broken from whole *Mercenaria* specimens, are sometimes carefully wrapped with tissue and transported in egg cartons. The best of these clusters result from the fragile upper "bridge" and hinge zones breaking away from the bottom of specimens. These produce exquisite gemmy thumbnail to miniature crystal clusters.

Large matrix slabs are usually loaded into the truck bed, cushioned by sheets, towels, newspaper – anything which will protect the exposed clams.

SPECIMEN PREPARATION

Once home, specimens are carefully unwrapped and sprayed down by a garden hose-mounted spray nozzle. The porous nature of the sparite hides large amounts of pore-filling clay and sand, and the spray-down can be laborious for matrix specimens.

Once sprayed down, a number of loose specimens are ready for grading, boxing and pricing. Specimens with attached matrix may be trimmed using a variety of hand tools, especially pliers and bladed screwdrivers. With a large proportion of matrix pieces, a small air scribe is used to safely remove delicate matrix from around exposed *Mercenaria* bridge areas.

Figure 7: Loose and slightly cemented *Mercenaria permagna* specimens from the first bonanza finds of 2004

Specimens which have suffered from deposition of rust-colored hydrated iron oxides are gently soaked in “Super Iron Out”, available in the paint section of home and garden stores. The formulation of this material rapidly removes the iron stain without damaging the underlying calcite. “Regular” Iron Out contains oxalic acid, which will frost the calcite.

Figure 8: Mickey Cecil washing down *Mercenaria* – containing matrix slabs

The resulting specimens can be breath-taking. Figure 9 shows an aesthetic miniature calcite crystal cluster. Figure 10 depicts the finest single matrix *Mercenaria* specimen that I have found to date.

COLLECTING ACCESS

Fee-based pit access can be arranged by contacting Eddie Rucks, Jr. at 863-634-4579. Collectors are generally limited to the removal of one 5-gallon bucket of specimens plus one piece, per day.

ACKNOWLEDGEMENTS

The partnership is indebted to Eddie Rucks, Jr. and his family, and the personnel of Dickerson Florida, Inc. for their foresight in allowing continued access in our quest to preserve these wonderful specimens. A special acknowledgement goes out to our families, who have supported us and actively participated in this mining effort.

Figure 9: Miniature calcite cluster approximately 4 cm across

Figure 10: Large, well exposed *Mercenaria permagna* in matrix

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