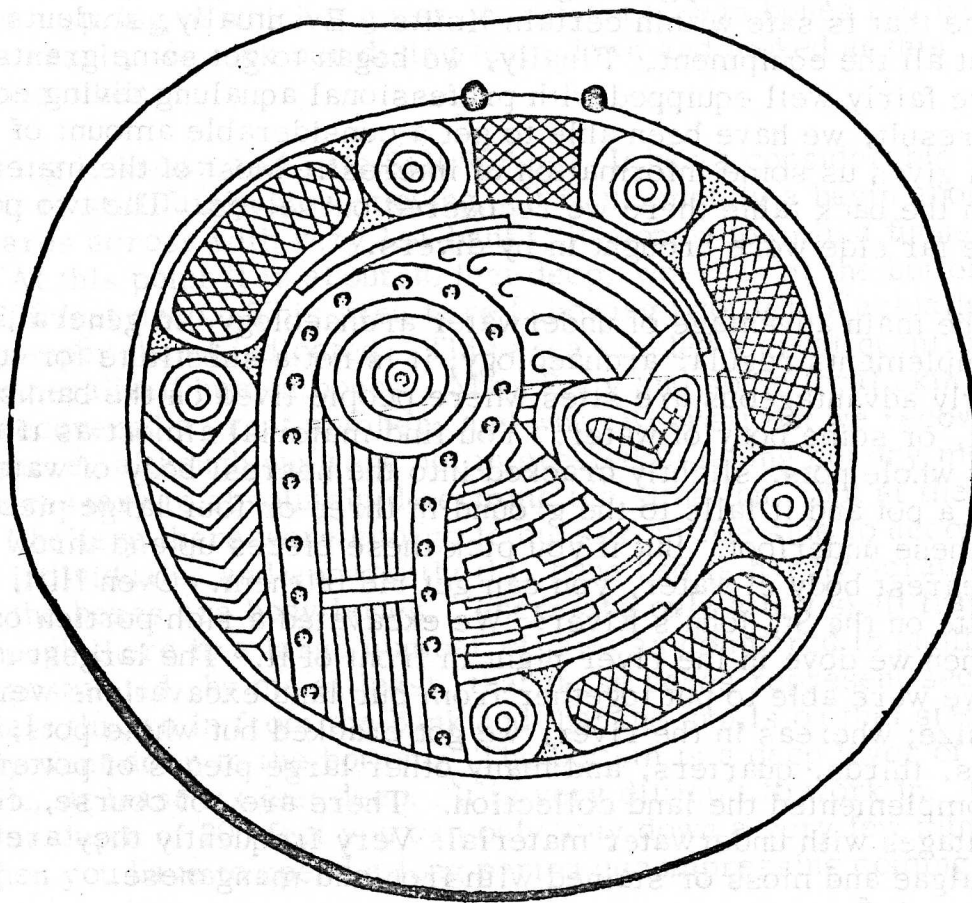


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RECENT DEVELOPMENTS IN UNDERWATER ARCHAEOLOGY

by

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GOGGIN: Our program actually started in 1947, when we began to look in shallow waters in Florida with nothing more than glass bottomed buckets and face masks. With these we were able to recover a great amount of material from a particular Spanish Indian site, presumably a mission, dating around 1630 to 1650. Later we used homemade aqualungs with airplane oxygen regulators. It is a very dangerous operation but one that is safe within certain limits. Eventually, students and I bought all the equipment. Finally, we began to get some grants and now we are fairly well equipped with professional aqualung diving equipment. As a result, we have been able to get a considerable amount of material, which gives us some information of interest. Most of the material laid out on the back table there we recovered ourselves. The two pots over on the far side were brought in by divers.

The main advantage of underwater archaeology, in general, is that it complements regular archaeology; it is not a substitute for it. Particularly advantageous are sites where people lived on the banks of a creek, or some body of water. You find material almost as if the people threw whole pots, slightly cracked into the nearest body of water. If you break a pot and it falls to the ground in three or four large pieces, you lose these underfoot. But if you pick these pieces up and throw them in the nearest body of water, you can get rid of them. Oven Hill, a Seminole site on the St. John's River: We excavated a rich portion on the land, and then we dove in the river right in front of it. The largest sherds that we were able to put together from our land excavations were about this size; whereas in the river, we got cracked but whole pots, as well as halves, thirds, quarters, and many other large pieces of pottery. These all complemented the land collection. There are, of course, certain disadvantages with underwater material. Very frequently they are covered with algae and moss or stained with iron and manganese.

We find that in theory any body of water can yield a site for study. But in practice, sites are best limited to bodies of water which tend to have fairly solid bottoms, and bodies of water which do not carry large amounts of sediments to scour their bottom. The Suwanee River, for example, rises in flood, and apparently has in the past carried sediment, because it has natural levees; but certainly in recent times there is no evidence of levee building. In all the floods of recent years -- which have been very severe in some cases -- there has been no mineral sediment at all, merely organic materials.

Of course, there are other types of underwater archaeology. The study of shipwrecks may be very useful. Also we overlap with geology in many

places, working together in springs, which have turned out to be repositories of terrific quantities of Pleistocene material, as well as archaeological material over a long range of time.

Some recent developments in Florida are very unusual, and worthy of brief mention. Last spring I got word from the geologist at the University of Florida that a spring with many human bones in it had been found in the southern part of the state. Shortly thereafter, I was contacted by Dr. Louanna Petty, a young physical anthropology graduate from Indiana who is now teaching at Ohio; she had been wintering in Venice, Florida, on the southwest coast. She called me up and told me that they had a spring in which a great quantity of human bones had been found. As a result, we took our diving team down and looked at this spring and one other.

This spring is known as Little Salt Spring. It has a considerable output, but it is still fairly slow-moving. It is ultimately a basin about a hundred yards across with very low banks; it slopes down in a funnel-like form. At this point it is about 40 feet deep, whereas at the bottom it is about 200 feet deep. This area here [showing profile] is actually quite a bit steeper than I indicated. This area yielded a great quantity of heavily mineralized human bones. Miss Petty and some local skin divers had recovered a great number, and when we went out we recovered a few more, although we were not interested in taking out any more than were necessary to absolutely determine the situation. But at the last count, I believe there were enough femurs from one side to account for over 50 individuals, and apparently this bone bed is hardly scratched. The bulk of the bones are body bones. There are only a few skull fragments, although there is a large number of jaws as compared to skulls. It has been postulated, by me at least, that these bones represent secondary burials thrown in from the bank and that the skulls on this steep slope simply went down to the bottom. The bottom is a deep layer of very soft silt, at least six feet deep. It is very difficult to work in. Of course at this depth of 200 feet you can only stay down a very few minutes, and then you have to spend a long period decompressing coming up.

The artifact situation is very peculiar. There is no pottery. There are a number of bone awl-like tools, a large number of deer antlers (which have the tines broken off in some cases in other cases they have been ringed and then broken); and there is one shell chisel, but as I said before, no pottery.

The question of explaining this is very difficult. The water is highly mineralized, and the bones are very mineralized. A few that were broken show crystals growing in the interior of the bone almost like crystals in a geode which are also very heavy and hard.

VOICE: Is there a site around there?

GOGGIN: We did not have time to look. The hammock area is very low, and the water table at the land was very high; it was a period of heavy rains so everything was very swampy and difficult. We are hoping to plan a detailed excavation, but we have run into several snags.

Dr. Petty saw it in abnormal high water season. Pine trees grow out here which do not grow in the swamps, and the first people she worked with had very loose terminology. This is a low hammock in terms of physiography, and round this is what we in Florida call prairie, which is something more than a marsh. A prairie is dry a good part of the year, and a marsh is wet most of the year. But there is still this ring of low hammock around the site, and it grades up into a little stand of pines. Pines will not grow in Florida if they have water on their roots for more than a couple of months during the year.

GRIFFIN: John, what is the nature of the collection?

GOGGIN: We took nothing; we left everything there. Although I know the bones are pretty well scattered, there are some in the Florida State Museum and some in the American Museum of Natural History. But in any case -- so far as I can see -- there are probably as many more bones.

The sedimentation in the bottom of this is very interesting. The materials on this slope are just barely in equilibrium. You can drift down gently -- I do not know if this makes sense to you, but when you are in water with an aqualung you can sort of drift down -- and all you have to do is sort of flick the bottom of the hand and things will start shaking down. The top layer of this is a very loose material anywhere from three or four to eight inches thick. It is primarily organic, very loose gray-black peat, with a mixture of tiny shell fragments. Underneath is a more consolidated material, sandy and shelly, which is pretty firm. As far as I can see, at least some of the bones are definitely imbedded in this consolidated material. I have termed it consolidated; this is relative to the loose material. But it will stand on its own without much trouble, I think, whereas the top stuff will move at the slightest brush. This suggests to me that the bones were down here. We did not systematically analyze what there is up here but the organic material seems to get thicker, I think, up closer to the surface; that would be reasonable. And if these bones were thrown in there should be a greater concentration up here than in the area where most of them were found.

The problem we are facing right now is that this site is owned by a

large corporation which is engaged in the business of selling lots: ten dollars down, two dollars a month. George Quimby owns one in Port Charlotte. They are apparently trying to figure out ways to get publicity so they have held up giving us permission to work in this site. Although we have no money as yet, we feel we can probably get it.

A few miles from Little Salt Springs there is another one called Warm Mineral, in which I also made one brief dive down to about a hundred feet with Lieutenant Colonel Royal, the man who had found the first bones in here.

Warm Mineral has an interesting history. It is also being developed by people who are selling lots around it. They sell bottled water from it, and they let you bathe in it for a fee, all presumed to increase your laxativity. At the present time they are trying to convince the city that this is Ponce de Leon's fountain of youth. The operators of Warm Mineral Springs hired a very aggressive promoter who kept encouraging this Colonel Royal to dive here. So Colonel Royal, together with an ex-geologist named Dr. Eugenie Clark -- a very famous shark expert who wrote the book titled "Lady With A Spear" which you may have read -- have been operating in Warm Mineral. And as you probably know, if you have been looking at television, they have made some very sensational discoveries all by themselves without any consultation with any archaeologists, and with only a slight consultation with Dr. Petty.

Warm Mineral is somewhat similar to Little Salt, except that the basin is much shallower. It comes down to about 180 feet, and about 30-odd feet down there are a couple of little ledges. It is really a circular ledge which runs around the whole thing, that apparently was formed when the sea level was lower. We know this was dry because there are stalactite stumps hanging from the roof. At the time I went down with Colonel Royal -- at the same time we were at Little Salt -- they had found one human bone from this ledge. Subsequently, they went back diving -- I do not know who did most of it; certainly Royal did most of it, and apparently Dr. Clark got involved. They got a log and some other human bones, including a skull with the brain intact. I heard about this from many sources. Shapiro wrote me, and the day I left Gainesville I received from the editor of Science a short manuscript of Dr. Clark's for review. According to the newspaper publicity -- and that manuscript confirmed it -- the log from here dates at 10,000 B. C. It was dated by the Scripps Oceanographic Radiocarbon laboratory. They believe that the bones down here date from 10,000 years ago, or 8,000 BC. Furthermore they believe that man was living here 10,000 years ago, for the situation indicates that the sea level was low enough that the spring was down here.

VOICE: What is the depth?

GOGGIN: About 35 feet or something, 180 down to here. How they got down here unless they were great Alpinists I do not know, because this is a pretty rugged cliff. As you swim up and down the face, it is like a wall. But the bones and these logs are in here, and one of the most fascinating things is this material found within the skull, which had been claimed to be a brain. You probably saw it on TV, I didn't.

KNEBERG: Has anybody else see it?

GOGGIN: This was on the Chet Huntley show a while back.

KNEBERG: All the time that this was going on, I kept waiting to see Goggin. This thing went on and on; they got this skull out and they said there was a brain in there, so they were going to take it to the experts. And I said all right, here comes Goggin. Instead of that, they ended up in a Doctor's office with a saw; they sawed off the top of the skull.

GOGGIN: Doctor Clark's husband (she's a Ph. D. in Ichthyology) is an M. D., a surgeon, and I think he is the one who did it.

KNEBERG: Well, he is the one who sawed it, I think. He got a mass which looked about this big. It looked like it was rolling around in there -- and about that time I got so upset because John had not appeared that I do not know what happened.

GOGGIN: They came out with this publicity and a newspaper man's excuse for a scientist called me up. Apparently he called Shapiro and Ford as well. Anyhow he quotes all of us. Ford and Shapiro were quoted rather gently, and I was quoted rather firmly. I think they said something like, "Tragic that this work was done by such irresponsible people." So two days later I got a telegram from the publicity manager of this spring. "In view of your ignorant remarks in the St. Petersburg Times we feel a public apology is due to Dr. Clark and Coionel Royal who have devoted their lifetimes to science unselfishly, etc. etc. Furthermore, the University of Florida has always been cooperative." This is what everyone in Florida is mad about: we have no documents in our Spanish archives to prove that this spring was visited by De Soto. He does not believe us, and he will not come up and look for himself. He can't read Spanish. These are the trials and tribulations which one faces in underwater archaeology. They are worse on the land than they are in the sea.

I do not know what is going to happen about this site. The matter of sea level is quite debatable. We have a spring expert who has made a detailed study of the spring. (By the way, the publicity people are mad at him, because he will not say anything until he writes up his paper, final draft, and then he will give them a copy but he will

not give them any advance publicity.) He does not believe that this was dry 10,000 years ago -- assuming, of course, that the log did date 10,000 years ago by radiocarbon, as I suppose it did. But this place is so highly mineralized that if you take your equipment down it almost falls to pieces before you can get out; your electrical gear corrodes fantastically. The ions must have been dancing back and forth between everything here like a mad race.

VOICE: That is limestone, isn't it?

GOGGIN: Yes. It is heavily mineralized water, and very hot for Florida; it is over 80 degrees.

KNEBERG: John, I thought that was supposed to have been charred wood from a campfire.

GOGGIN: Well, it is a log in which the end is charred; I do not know what the stage is, maybe if it was just the carbon part it would be all right, but they took the wood part.

The observations, as far as I know, were made in the water by Colonel Royal. I dove with him and before I went down he explained to me what I would find in these springs. What I found was certainly different than he described. I have no faith in his power of observation.

VOICE: John, I just have one addition to make to that: the log was found when Louanna was down there. She said she could not figure out what it was or how any bones got back in this place. Theoretically, Eugenie Clark took complete charge of it. They cut off part of the log, and left the other part in place. That much Louanna did insist upon; they did not take out the whole log, so in theory part of that log is out there. The skull was not found until a least a month after that. Now whether it was found in the same spot or not I do not know; but I know it was found long after the removal of the log.

GOGGIN: Supposedly it was found in the same layer. There are several different layers of weeds and stuff.

VOICE: Parts of the log were just sticking out; there wasn't any layer at all.

GOGGIN: Well, it would not be impossible for materials thrown in here to get back in there, because you have a warm mineral spring. If we have a two or three day change, a cold wave which would bring 40 degree weather down here, the temperature of the surface water would start dropping and you would have a complete change in current. Furthermore, these springs are highly sensitive to droughts and

floods, and they are intensely fluctuating. Third, we have found beer cans very deep -- many, many feet back -- in the face of very, very strong current. And it is quite clear that from our experience with springs, that we have a major current, so we watch what happens. In the very bottom there is often a counter current. Many of our bone projectile points and flint points and things which are far back in these spring caves can be explained this way. You can explain that maybe you stuck them in a fish and they went back there and died but there are too many for this. These things have worked back in a counter current, underneath the major current.

VOICE: Well, John, if anything went down there, now, it would be collected there, would it not?

GOGGIN: Their argument, of course, is that these things were deposited when the stalactites were being formed. If stalactites were being formed, it was a pretty wet period, and the idea of people being back in there in a little niche, presents a problem. According to Colonel Royal and Dr. Petty these niches are six feet, maybe, but not much more. From what I saw, six feet would be a pretty good measurement. It is a very fascinating problem, but this business of ichthyologists and retired Air Force officers setting themselves up as archaeologists is a little discouraging.

KNEBERG: The thing that disturbed me about it was the fact that this was a nation-wide broadcast, evidently very elaborately set up by NBC, and I felt at the time that the American Anthropological Association should protest the publicity on a thing like this, without contacting any professional people.

GOGGIN: Well, this was the Chet Huntley show, and it was scheduled for earlier in the summer. Our geologist went up to New York just two weeks before it was set up, and he protested to NBC at that time that the geological picture had been distorted. Apparently they put it off then and then picked it up later. I do not know too much detail. There are so many ramifications that I hear things from different people but I never get anything directly straight.

KNEBERG: Well, they were represented as archaeologists.

GOGGIN: This is the discouraging thing; that this is called archaeology.

KNEBERG: They said that over and over again during the film.

GOGGIN: The thing which is discouraging to me is that someone who is a responsible scholar in one discipline seems to carry no responsibility over into another.