

MEN'S PROFESSIONAL CLUB

We would like to welcome the ladies to our annual ladies night of the Men's Professional Club. We have a couple of joyous occasions tonight. First of all, we would like to welcome Eleanor Boter to our meeting tonight. Happy birthday Sharon Van Putten. Also, we would like to say a special word of thank you to Ed Helbing who has been our president this past year. Also, a Bon Voyage for the upcoming trip for Lou and Ed, a week from tomorrow. Thank you very much Ed.

I think our committee has done its usual outstanding job again. Thanks to Andy Mulder, Bernard Donnelly and Jerry Counihan for their excellent arrangements for this evening's meal, place and for the speaker.

We have a number of guests with us this evening. Carla and I would like to have you meet Kathy and Steve Zonnebelt. Kathy enjoys swimming - Steve enjoys flying and when he grows up, in July he will become a surgeon in Holland.

(More guests announced, but I couldn't understand)

Our speaker tonight is Jerry Counihan.

COUGHENOUR

Many of you know Dr. ~~Cochenhower~~ more intimately than I do, but I will give you some of his background for your edification. Dr. ~~Cochenhower~~ took his undergraduate work at the Indiana University of Pennsylvania. He has two M.A.'s. One from the Pittsburgh Theological Seminary, one from Western Reserve in Cleveland, and he took his P.H.D. at Case Western Reserve. Dr. ~~Cochenhower~~ is currently the professor at Western Theological Seminary in the Old Testament. He was formerly with Hope College. He was an assistant and a professor in biblical studies, during which time he has what I think a very admirable award which is the HOPE Award, which was granted by the graduating seniors for the outstanding educator at Hope College. Now if you can get five graduating seniors to agree on anything, that's very remarkable. Dr. ~~Cochenhower~~ is an expert on biblical studies in the world. He has more awards and background than I care to give because if I did, you would not hear from Dr. ~~Cochenhower~~ tonight. It is with great pleasure that I introduce Dr. ~~Cochenhower~~.
COUGHENOUR

_____. What I want to talk to you about, and what I think prompted the invitation from Jerry and Bernard Donnelly is that in 1978 I had the rare privilege of looking for a city - I say "looking" because I'm not sure that it is found yet, but I think I've found it - I think I know where it is and it will be an exciting moment when I find out for certain. I wrote a paper called, "In Search of a City", and why a little backwater city in a place like

Jord^aon that nobody ever cares about would be of interest to anybody but it's of interest to me particularly for a number of reasons. I don't want to tell you the whole story, all the way back to 1957, but that's when I became interested in biblical archeology. I became interested in it at Pittsburgh Theological Seminary through a man who was my teacher, Mr. James Kelsa^o. Having grown up in the Pittsburgh area was to grow up in an iron and steel and coal industry, so I've always been interested in the mining business. It was natural that when I got my spurs for doing archeological work over the years, that I became interested in the iron industry. I started looking around for evidences that would lead us to the iron industry in antiquity, and what that finally led to was in 1976, after a couple of years of bookwork on the question, I was able to locate the largest mine in Jordan. It turned to be a magnificent place, with a great cave that you enter and go down underneath 18 feet until it opens up into a 300 meter cavern, the largest cavern in Jordan - as large as 40 and 50 feet high in some places where the miners of antiquity had reached into that mine for its ore - different veins, there were three or four small sections that led back into the mountain. It was said once in earlier research that there was no evidence of smelting to tell where the ore had been taken and made into metal. It was said it was far distant from the mine, but in 1976 I located a smelting operation about 30 meters from the cave mouth and so we put a small square in and we turned up ash, slag and residue of the smelting process, so we knew we were on to something.

We mounted that excavation in 1977 with about 20 persons involved, about 6 or 7 core staff professionals. Included in that were the director of the archeological institute of Baylor University and a metalurgist helping us from the University of Pittsburg^h. We put together this exp^edition and we opened three squares and recovered from antiquity the materials from the mining industry as far back as the Roman Period, about 63 BC. We found three different processes in use and it became a fascinating study to see just exactly what was there. What we wanted to was not only see how the mining was done, but to build historically the story of _____ in antiquity as far back as we could. We wanted to take it back to biblical times. After all, I teach Old Testament in the seminary and I am interested in the relation of this industry to the scriptures.

When you go back into biblical history what you find is that the Iron Age began almost at the same time as the Israelite period. It began probably 50 years before the Israelites were established. And for 200 years the Philistines had an iron monopoly over Israel, so if she wanted to sharpen a plow point, she had to go down to the Philistines to get it done. Zero technology.

What caused Israel to rise to power? From a most pious standpoint we could say that God ordained it, it came to pass and maybe it was a religious and spiritual man, but if we really believe that God works in history at all, then we also believe that he works in all kinds of things and therefore, how did Israel break the iron bond.

I'm interested in biblical history and the history of the industry of iron manufacture and marketing and just exactly what techniques were used. But I am also interested in illuminating that period of Davidic history that has a great gap in it from the standpoint of the human side or industrial side of David's reign.

That's one part of the story. The second part of the story is - what about this city? I started to tell you about that and told you about the mining. The other part is that in David's period, this name keeps cropping up - Mekan Iaim(?). It's a backwater city that nobody ever heard of, yet all the way through that Iron Age, it keeps cropping up, clear down to the time of the Philistines, about 300 BC when it flourished for a time and then was gone. I have found out that historians and geographers have named it and put it in at least five different places. And if you pick up an atlas, you might see Mekan Iaim with a question mark, or you might see it in two places with a question mark because nobody really knows.

So what I did was gather together all the information about this city and with all the background that I had from the search for the mining materials, what I learned was that the city I think it is, is only three kilometers from the largest mine of iron in antiquity. There are some curious facts about this city. It was the city that Solomon named as the administrative city in seventh history. Solomon was you know always dividing things up in histories. It was an administrative headquarters city. It was the

place where David fled to when Absalom was rebelling against him. It was the place where, when Saul had been killed, Abnar, his general, took his son Ashbehal and made him King there. It was the place where the words that David spoke of the great poignancy of a lost son, "Absalom, Absalom, Absalom". From Mekan Iaim came all these events, all these _____ . It happens that all of this is in the mining area, and the curious fact is there is no other area in all of the ancient _____ , that has iron except this one. Now I think that Mekan Iaim, my hypothesis, was the chief administrative city of the iron industry from the early part of that period Iron one, down to the Hellenistic period, when the mining went out and so did Mekan Iaim.

What I did in 1978, after the 1976 small excavation and the 1977 major excavation for the iron industry, the government of Jordan invited me back to put up a display in the museum, and so I did and that was the first time my wife had ever gone with me. In the twenty years that I have been at this, it was the first time she had ever had the chance to come with me. The interesting thing was that all this time she never knew.....she saw a different man than she had known for all those years. We got off the plane and into the airport and I started speaking Arabic - she was astonished and couldn't believe this was happening.

We put the display in the museum and at that same time, I took the four wheel drive and, armed with maps in 1978, visited all the supposed sites. I developed this set of criteria by which,

if indeed it is Mekan Iaim, why is it.....what must it be to be Mekan Iaim, what is the criteria to reestablish the city. I narrowed it down to two sites, one of which I am almost certain that it is. It is a place called Tulul Ach Dahab El Garbe. Dahab means gold. "Hills of Gold". There is another one - Zharcea. One of the criteria is this.....Mekan Iaim ...AIM ending is a dual in Hebrew. In English we have singulars and plurals. In semetic language we also have duals. So if _____

so that when you have a name like Mekan Iaim, it must be two places. Tulul means two hills. In Dahab there are two of them, one is Zharcea the other is Garbe. One is to the east, the other to the west. The curious thing is that the river circles one to the north and the other to the south. They sit side by side in exactly the same family and there is this river going around them, and there is a beautiful little Helenistic temple on the top of Garbe. So what I did was to pick up all the evidence that I could and examined that to find out periods of mining industry(?). My hypothesis has yet to be proved because we have to dig the site. Lord willing all things being equal and the creek don't rise, we are going to do _____.

This year we are going to do something else, but in 1982 we are going to dig Garbe and we are going to establish for a fact whether or not we have Mekan Iaim. Because if we do, we confirm a hypothesis that has been a long time _____. One piece of evidence that I have to tell you...it's kind of funny, in 1974, Jim Solis who is the director of the American school in Jordan and two men, one from the University of Jordan and the other from the Department of

Antiquity, made a survey of the east side of the Jordan River. What my hypothesis really depends on is whether or not the Philistines, who held this iron monopoly, were ever across the river. There is no evidence that they were ever in the hill country where this mine is. So in 1974, these three men and a team made an archeological survey of the entire Jordan valley, from the south end of the Sea of Galilee to the north end of the Dead Sea. They found 224 archeological sites, half of which were previously unknown, and a third of which was built with this Philistine pottery. So there is Philistine pottery east of the Jordan River within two hours walking distance of the mine. Now what I would like to do is show you a few slides that will show you the location of the things we are talking about and very quickly leave it at that.

If you look at this picture long enough, you can get your bearings easily. It's a block of the African continent, and at the upper right center is the Arabian peninsula, and you can see the Mediterranean and follow all the way over to Spain. Italy and eastern Europe was having a storm that day. That's really quite a remarkable picture. The Middle East is the little fertile crescent of land at the eastern end of the Mediterranean and we are centering in now on the Sinai peninsula, with the Red Sea to the south.....the Gulf of Aqaba. There you see the Dead Sea at the upper left and finally the Sea of Galilee.

This is an interesting picture because it shows the basalt area of Gebal Cruz, a volcanic mountain that in antiquity erupted and left this large area of basalt from the lava flow. I'm going to be digging this summer at a place called Unel Gemal, a Roman encampment, city, that has two story buildings that are all carved out of this material.

This is an infrared you can see Jericho on the left, just at the north edge of the Dead Sea, the little dark spot. If you look across the river to the right, straight up the mountain, the very first area of red that you see is the green area of the Gilead Mountains. That's the iron material. Out to the right edge of the river, near the top, if you follow that around you'll see that it goes north and then back toward the Jordan. That deep cut in the mountain is what is called the Zerka River. My site is just to the north of it. It's a place called Mughada _____. It means "_____ to the rose", because of the ferrous soil - it has a rose colored appearance. This is near the village of Ajhlume where we stayed, and every morning when we got up, we looked out on this castle of Ajhlume, built in 1185. It was the only Arab castle never conquered by the Crusaders. It still stands there and it is majestic, a wonderful place. Just to south of this, about 15 kilometers, was the site of the mine. The reason that I mention this is that in medieval times during the times of the Crusades, this mine was again used, probably by the same people that built this castle - that would have been Sal^aidⁱn. Materials from that mine were likely to have been used at the last battle when Saladin^{Saladin} con-

quered the Christians at the Hords of Hatene across the river, so that our Wardeh mine contributed a good deal to Christian history unbeknownst to itself.

Now we are looking down into the Zerka Valley, and it is down in this valley and just a little bit to the right where the twin mounds are that one of them is the city of Mekan Iaim. This shows you something about the countryside, by the way. It's the area we work in it's lovely in the mountains. This is the site we saw every day at work. We are looking over into the Jordan Valley, and the cut just down in front of this to the left is the Zerka River. It is just up that river a few miles where the twin mounds where near Mekan Iaim.

We are looking across at a place called Alexandriam which was a place built by Herrod the Great in the first century. The place is just loaded with antiquity. This is what the place looked like in August, and this is what it looks like in the Spring - an amazing difference. That is the impression in the earth, a scar left by the mine. When we get down a little bit closer to it (this is a long range shot), you see the excavation in the center, and just across that cow path on the left is the mine itself. Here again is that impression, and here is the cave opening that leads to the largest cavern. 18' underneath, you hang a right and it opens into this large cavern.

Here we see four men looking at the vein of iron. There is still a 560,000 ton ore reserve there of rather good quality ore . That is

not enough to be commercial, but it was left from antiquity. We know that materials go back as early Roman, but we can't check back any further than that. A great hypothesis but no evidence.

That's yours truly on the left and Bruce Kresen from Baylor who is on the staff. Paul Van Faasen is a Hope College biologist who served as a _____ for us. We have discovered that the field has discovered a way to recover from antiquity, pollen and grain from any period that we dig, recover that pollen and compare it to the plant life that is presently growing at the site and make some determination about the climate in antiquity and the vegetation of antiquity and so on as compares to today. Paul was helping us to do that.

You always have a survey team and a photographer, and that's a look over. You see in the center portion all of the dark area is really slag and materials left from antiquity, lying right out on the surface. Ceramic vessels, approximately 20" by 6" or 8" in diameter with slightly tapered bottoms and they were charged with charcoal and small pelletized iron ore, placed in a fire, smelted essentially through that, and out of it came small iron bars. (Like pig iron) We have been calling it the Iron Age all these years, but some scientists, Eulley and Maden at the University of Pennsylvania, have just now discovered that every piece of iron material that they have tested from antiquity, turns out to be low grade steel. We've misnamed the Age. And when you think of it, why would anybody want to go from the Bronze Age - bronze can hold a reasonably sharp cutting edge - to

iron which is soft and malleable, unless during the working process something happened to that to give it a good sturdy edge.

Do they just use wood for their charcoal?

Gilead?

The hillside in the ~~Gilliad~~ mountains is the most heavily forested now as it was in antiquity, and a lot of it is scrub oak so it made good hot charcoal.

What restrictions have the Jordanian government put on you?

The Jordan government is marvelous with archeologists, very cooperative. In fact, they have been so helpful that they even pay labor costs. They care very much about the antiquities of their land. At the same time, they have not been greedy about what we can take out or what we can leave. What we do is always make a "division of the finds" agreement. It essentially means that what they don't have in their museums they take. But that sounds harsher than it is in reality or what works out in practice. I registered something like 760 objects from the excavations in 1977. They kept 15. Of something like 1,500 pieces of pottery, they kept maybe 3 dozen. They invited me to come and put this display in. It's a permanent display, so when you are next in ~~Amman~~ ^{Amman}, Jordan (and some of you do travel, I know) - when you go to Israel or the Middle East, you always want to go through Jordan because it's cheaper to travel there and much more beautiful, but when you go there, make sure you go to the ~~Citadel~~ ^{Citadel} Museum, which is the national museum of Jordan, and there you will find the display.

Was the processing of iron considered a commercial or military secret?

Certainly it was not a private enterprise. It was a state operation, and what we have been able to discover so far is that although we don't know anything yet about David's time, that's my goal to be able to link that, the best we know is some historical material from the time of 1100 AD medieval period. I put forward the evidence that links the building _____ the big castle with ^{Saladin} Saladin and the use of iron ore. The conquering of ^{Beirut} ~~Berut~~ goes into that and the availability of technology and craftsman was the big question. But the historical data is difficult to come by for the medieval period. We have some, but a lot of it is still in Arabic sources, untranslated. The wonderful part is that there is so much more to know that it always gives you something to look forward to. But to answer your question - I think this was a state operation.

Is there any information relating Israel's military wanting to take over or control this area?

The interesting part is that the very first area that David conquered is Gilliad. That's another notch in the handle for my hypothesis.

The coin that was found was silver and not iron, is that correct?

That's right, it was silver. It was found in context with pottery and other material of the same period, so when we get a hard date I may be able to date that coin to the 1450's AD. Comparing the other materials that are found with it, materials from six other excavations, _____.

The coin resides in Jordan, but I do have a picture. I had a man from the University of Baylor with some very sophisticated testing equipment in their Institute of Archeology to whom I sent one set of samples to be tested down there, and unknown to him I also sent a set of duplicate sets to the University of Pennsylvania. I also had the coin checked by two other experts.

Was there a source of bronze near by, any closer than Egypt?

Yes, the copper in the south end of the country is quite extensive. The copper mines in the Negev of southern Israel and of southern Jordan today is quite extensive. And there is actually some iron down there, but it's in one small river valley called _____, and it would have been used for ornamentation and probably could not be well separated from the copper.

There was copper smelting according to some and Nelson ^{Glueck}~~Gliek~~, who was an important Israeli American archeologist, a Jew, who discovered what he thought was Solomon's mine, (it is now being disputed to some extent) but those were found over on the coast of Israel, quite a long distance from the copper source, so there was always a problem with that. But as far as why they would turn to iron is a good

question. I think it is because the Philistines brought back technology with them and then had to find a source to supply the technology. In other words, they knew how to do this about 1200 BC. There were only two places they could get it. They could ship it in, and they were sea peoples and that's entirely possible, or they could find a local source which is what I think they did.

It's like doctors going from the tonsils to the appendix!