

Excerpts from "Egypt Unchanged"  
*PROLOGUE*

by John Fulenwider April 20, 2008

*During the period 1958 to 1970 when Gamal Abdel Nasser was starting the modernizing of Egypt the following scenario took place regularly in Cairo, and Alexandria:*

At 3 am, Cairo time, on Shari Sheikh Rihan, a street not too far from the Bab-el-Louk train station, two men wearing ski masks and hooded sweatshirts got out of their Opel. "Farouk, did you bring the lever tool?" one of them asked in Arabic. "Yes, don't worry about that, help me get the ladder off the roof, and keep your voice down." Ahmed and Farouk, in the dark night silently slide the short ladder off the roof of the car. They set it in the street. "Hey Ahmed, where's that manhole cover, I thought it was just south of the curbstone," he whispered, playing his flashlight from curb to curb. "It's over here, a little east." They knelt down over the square iron lid. Farouk hooked the articulated-hook of the lever into one of the small holes near the center. Ahmed got onto the end of the rod, and lifted with all his might, then Farouk took a hold of it and slowly the 200 pound lid lifted free. They slid it to one side. Putting the ladder into the hole, Ahmed let it slide down until it touched bottom, about 8 feet down. Descending the ladder they entered one of Cairo's hundreds of telephone company manholes. They were standing in about 3 inches of muck. While Ahmed held the light, Farouk took his box cutter and slit the lead sheath lengthwise along the cable about ten feet from one wall to the other. He did it again on a second cable, then another, then another cable, and continued until he had opened up eight telephone trunk cables. He then cut around the circumference of each cable as close to the manhole walls as possible, and carefully so as not cut the wires within. Ahmed peeled the lead from a cable. The sheet he peeled off weighed about 75 pounds, and he folded it into an accordion shape, and passed it up to Farouk who was now waiting at the surface. Ahmed peeled another sheet of lead from the cable. Again he made an accordion of it and passed it to Farouk who struggled to put it in the trunk of the car. When they were done taking the eight cable sheaths they had accumulated over 600 pounds of lead. Farouk hoisted the ladder up out of the hole, then Ahmed helped set it on the roof of the car. Now their Opel's wheels were spread out dangerously. They exchanged glances, shrugged their shoulders, and grinned both thinking about the black market value of the lead they had stashed in the trunk. Probably about \$700 U.S. Not bad for a night's work. Then, with grunts and groans, Ahmed and Farouk managed to get the square iron cover over the hole but it tipped across the diagonal and fell down the hole, all 200 pounds of it. They said "zballi!" and left the scene as fast as they could with their cache of lead sheet.

X

X

X

From Cambridge to Cairo:

Our flight from Paris touched down about noon at Cairo International. It was Wednesday, April 18, 1979, three days after Easter. My team - - Jim, Bob, and Hal - - and I arrived to commence work on expanding and modernizing Cairo's telephone system.

My impression of Cairo from this first of many trips here was not so much the first sights, and sounds, but the smell. Acrid would best describe it, from burning garbage perhaps, but there was another overriding aroma that is only Cairo's. It greeted us as we stepped off the plane. We learned later that there are several leather tanning factories thereabouts. Vapors from the open tanning vats mixed with the other smells produce a unique concoction distinctly Cairo's.

(Incidentally the tanners use animal brains, which contain the enzymes necessary to cure the hides, hence the old saying, "it takes brains to tan leather".)

Two weeks previous to our arrival, I had sent Mr. Earl Johnson, the USAID Mission officer in Cairo, a copy of our modernization plans for Egypt's telephone system. Earl obviously had a chance to become acquainted with the tasks we had planned.

*Basically we were going to help our Egyptian client bring their telephone system up to date. ARENTO wanted the systems in Cairo, and Alexandria to be expanded and modernized. Phase one, the part we said would take nine months, was to write a technical description, a detailed set of plans, otherwise known as specifications. In Phase two of the work we would select a construction contractor to put the plans into effect. In this effort bids for the work would be reviewed and one contractor would be selected to engineer, furnish, and install the system. In the third and final Phase engineers from Continental Telephone Company would assume the lead in supervising the construction contractor during installation, testing, and hand-off of the systems to the Egyptians. Arthur D. Little would be available throughout all phases for consulting.*

Our driver met us at the airport and drove us to the Indiana Hotel, our place of residence for the next two weeks.

Next morning when we entered Earl Johnson's office at the U.S. Embassy in Cairo the first thing I noticed were the soles of his shoes facing towards us. Earl was wearing a Hawaiian shirt, leaning back in his chair, hands behind his head, feet on the desk, soles of his shoes facing us as we came in. Without sitting up he welcomed us to Cairo, then said

*I found out later that in the middle east it was insulting to show the soles of your feet to someone unknown to you.*

"I looked over your work plan and pert chart, but I want to tell you that time schedules don't mean a thang here in Egypt." Earl had a distinct good ole boy accent, and thang stood out loud and clear.

"It's probably gonna take you boys two years to get them specs out."

We stood there awkwardly, not knowing how to respond, but I blurted out something about experiences we'd had with clients in the States. Earl ignored that, and went on to tell us that his office was in the process of arranging meetings for our team to meet with the head of ARENTO, and his people.

"They're anxious to meet you folks. You may want to rethank your project scheduling, by the way," he said.

"After you boys get settled here in Cairo we'll have to arrange for some visits to the exchange buildings, and meet some of the people you'll be working with. By the way where are you staying?"

"Oh, it's the Indiana Hotel, across the Nile," I said.

"Hmm. You could've picked a better place, like the Sheraton"

Just then Earl's secretary leaned through the doorway and said she had finally 'gotten dial tone', and had Mr. Seradin, the head of ARENTO, on the line. Earl picked up his phone and spoke with Seradin, and agreed on our meeting date, set for the following Tuesday.

"Well this was a bit of luck," he said. "You're getting your first meeting arranged now. So we'll see you at 9:00 o'clock Tuesday, at the Ramses Exchange building. Your driver knows where it is. Mr. Seradin's office is on the third floor. Have a nice week-end." Earl said with a smile.

Then he added: "You know about tomorrow, Friday, being the Muslim Sabbath? Businesses are closed in Cairo, and next day is the Hebrew Shabat, and they honor that here too somewhat, so you have a few days off."

With that we said our good-byes and left for the day. Our first meeting with ARENTO would be to discuss our work plans for the next nine months

X

X

X

Weekend Diversions:

Following our meeting with Earl Johnson, I asked Mahmoud our driver to take us to Khan-el-Kahlili, that famous souk near the eastern edge of Cairo. We had heard about it from Frank Fotis, our company agent here in Cairo.

On the way we encountered the usual heavy traffic. Vehicles in middle eastern countries during this period had no exhaust controls. Fuel economy was unheard of. Few, if any, cars had air conditioning. Then there was the heat. Car windows were hardly ever closed. Drivers sat on beaded seat liners, and steering wheels were thickly padded. Trucks and busses almost universally it seemed, exhausted their fumes at car window height. As we passed them, or if our car was sitting idly in a traffic jam, their sooty effluents would shoot right into the open window. It helped if you gulped a lung-full of "clean" air during gaps in the traffic, and exhaled it after the bus or truck went by. Here and there we noticed vehicles sporting caricatures of foot-soles bobbing in car rear windows, the Arab version of the middle finger sign.

Mahmoud amazed us with his skills at dodge-em, and auto-poker with stare downs while negotiating the squeezes at intersections and roundabouts. We arrived at a parking spot near the Qalawun Mosque on Shari El Muizz, near the souk.

"We'll meet you in two hours here, O.K.?"

"Mahmoud nodded and said: "Entsch-Allah".

The four of us ventured into the famous souk of Cairo: Khan-el-Kahlili.

Khan-el-Khalili reminded me of a movie set in some middle eastern film starring Sidney Greenstreet, and Peter Lorre. Dusty, cobbled, the streets, and alley-ways were crowded with Arab folk, some men wearing traditional galabayas that hung to the pavement hiding the feet, and hands, and who knows what else, a dagger perhaps. Some wore turbans, others were bare headed. Many Egyptian men wore western style shirts and trousers. Three paces could cover the width from wall to wall on each side of the street. In the distance we saw an archway spanning the street. From the high point hung a bell.

As we walked on Shari El Gamaliya a merchant stepped toward us and said "Meester, meester come see our wallets; you need suitcase? come in here." We go in, there are two gentlemen with half open eyes, one sitting with his hands folded across an ample belly, the other taking draughts on a hookah. Smoke drifted about the room. His eyes look glazed. I'd never smelled hash-hish before; the aroma hung in the air. The one on the hookah looked at Jim Hebb and asked: "you want have a few drags?" Jim wiped off the wet mouthpiece took it in his mouth and took a couple of puffs. He smiled at us and said: "you guys go on ahead, I'll catch up with you." We waved and went out of the shop.

"Oh, you eenglish? come here, see rugs, good rugs, made here," a merchant beckoned from the next shop. There inside a child, couldn't have been more than twelve, in a soiled galabaya, straddling a stool was at work. We watched as he tamped in some coarse tan colored threads in a partly finished rug. It was strung on a crude looking loom; lots of

strings stretched towards the back fanning out from dozens of spools. We watched for a while then Bob Grissetti spied some finished rugs in stack, then began flipping through a few of them. "Hey, these are pretty good, you know? Here look at the pattern on this one." It showed camels, and palm trees. The boy continued tamping in another wad of threads, this time orange. We looked at the rugs, some four or five feet square. Grissetti held up one, "How much?" "Oh, meester very good price for you, forty dollars!" "Way too much, no not today." "Meester, I do special for you, thirty five dollars." "No, too much. Shoochron" Bob had said thank you in Arabic. "Come on let's go." We walked to the door past the boy working the loom. "Meester, Meester I make special bargain for you O.K.? thirty dollars, O.K.?" We were in the street again.

Another shop caught our eye. In the window there were small boxes with intricate patterns of what looked like inlaid 'ivory' squares some white, gray, black, and tan. "that looks like fine work indeed. I'm going in, might find something for her dresser." More stuff to look at, in-laid box after box, all with distinctive patterns. On a counter some trays, and several brass Turkish coffee brewers, each with a finely turned handle. The stuff in this shop was overwhelming; it would take a whole afternoon to see it all. I settled on a nice box, the proprietor wrapped it, I paid the twenty Egyptian Pounds, and walked out.

We reassembled under the bell-archway, Jim Hebb with a new handsome leather briefcase, Bob Grissetti holding a rolled up rug, Hal with a gold chain, and I with my in-laid box. We walked back to the Qalawun Mosque, and found Mahmoud beside his Peugeot. He nodded a greeting, feeling proud that he had introduced four touristy business men to his Arab brethren at the souk. It's all business after all.

X

X

X

On the next day off, Mahmoud met us outside the Indiana Hotel, ready to take us on a tour outside of Cairo. We were on our way to visit El Alemein.

El Alemien was the site of a decisive battle in 1942 between Allied Forces, under Field Marshall Bernard Law Montgomery, and Nazi Germany's Field Marshall Erwin Rommel, who had moved swiftly east across north Africa with his famed Afrika Korps, and eight Italian divisions. Rommel was defeated here by superior Allied firepower, and his own lack of supplies. He was prevented from continuing east to Alexandria.

Jim, Bob, Hal, and I, armed with water bottles and cameras, were intent on seeing what we could see, and not get dehydrated in the bargain. Heading north out of Cairo we followed the Nile river toward Alexandria. Perfect weather, clear, but hot and dry. As the station wagon sped along the windows were open wide. Very rural countryside, once in a while we'd see an ox yoked to a spiral shaped water lift, trudging around and around wearing blinders.

At about ten kilometers south of Alexandria Mahmoud drove into a service area. Happy to get out of the station wagon we followed Mahmoud's to the shaded benches in the serving area. By now it was noon, and very hot. There was no wind. We ordered Coca Colas, the server brought them, swiped the grimy oil cloth that served as a table cloth, and set them down. We asked Mahmoud if he had family. He said "Yes, I have four wives. They live in different parts of Cairo. I have twelve children, five boys, seven girls."

After our cokes we headed for the latrine which was easy to find because of the flies, and the smell. Shoulder height panels separated the urinal area, from the seating area. No doors existed. Breezes would have been welcome to clear the air through the open structure, but not today.

Standing there at the trough I was surprised by a tap on the shoulder. Turning to see who it was, there next to me was an old woman, eyeing me with her hand out begging.

"Give money to her, she poor" Mahmoud said.

"Here, M'am here's some money." I said, a little bit embarrassed, dropping two Egyptian coins into her hand. She turned, made swipe along the top of the urinal with a rag, and walked off.

Back on the road again, Mahmoud turned west at the next intersection. Going straight ahead would have led us to the port at Alexandria and ultimately the Mediterranean Sea. Our goal was El Alemein, about fifty kilometers west of Alex. We passed mile after mile of storage areas where all sorts of goods were parked in the open: cars, trucks, tires, reels of cable, lumber, and shipping containers. To the north in the distance, lay the sea, blue green and sparkling in the noonday sun. To our south lay the Sahara desert, tan, with a dusty haze over it. Scrubby tufts of pale vegetation lay scattered on the surface. Even with sunglasses on we had to squint, the reflection from the desert was so bright.

Gradually the storage areas thinned out. Then we had empty desert on both sides of the Peugeot. We were now in a vehicle speeding west on a straight road surrounded by empty desert. A moving dot on a line drawn on a blank sheet of paper. We met no traffic in either direction.

"Hey, look," said Hal, waking us, "see the sign, it said 'El Alemein 20 km'." A welcome break in the monotony I thought, taking a swallow of water. We were soon talking again, remarking on the starkness of the desert. Jim Hebb, wise to the environment of the middle east said it wasn't as bright as the desert in Saudi Arabia. One of his sons had been born in Riyadh when Jim and his family were stationed there in the early-seventies, so he was full of stories relating to his work there.

Avoiding the village of El Alemein, Mahmoud drove to the open-air war museum and parked beside the highway. We got out and filed over to the hap-hazard array of military equipment. There we saw 'organ-pipe' rocket launchers, a command car, armored personnel carriers, a battered Sherman tank, a German Tiger tank, a much-feared Nazi-German 88-millimeter anti-tank gun. Although some of the tires on smaller vehicles were flat, all the equipment was in remarkably good shape, as if they had just been wheeled up yesterday, preserved since 1942 by desert dryness. All of them had evidence of battle damage; a blown off tread here, big bullet holes there, a huge dent on the Sherman tank. As we walked from item to item Mahmoud stood off by himself, with eyes on us, looking for a sign that we were ready to return to Cairo. After about a half hour we'd had enough and headed back.

X

X

X

#### Meetings and Inspections:

On Tuesday after breakfast we filed past the front desk and headed to the street. There was Mahmoud waiting patiently his butt against the Peugeot, arms folded across his chest. "Saba, el kehr, Mahmoud" said Jim, grinning, who had just said "good morning" in Arabic. This reminded me to say: "Start learning some Arabic fellows. It's respectful, and goes along with not being 'the ugly American' like so many tourists from the States. Remember yesterday you could hear some arrogant American tourists misbehaving in the Souk."

It was nearly 8:00am Cairo time, traffic was building, and it was getting hot. From the Indiana Mahmoud took us to 6<sup>th</sup> October Bridge Street, turned and joined more traffic driving east across the bridge to Zamalek Island. From the car we could see the Cairo Tower, a large race track, bleachers, several soccer pitches, and putting greens. Further north one could catch glimpses of high rise apartment buildings as traffic slowed to a crawl. Leaving the island on the short span to Cairo's main downtown district, we headed north a short few blocks, then up a ramp to an elevated highway going east again. "Hey, fellows, look there, it's a sandbagged gun emplacement." Sure enough there on the right of the elevated highway was a ring of sandbags, with the snout of a machine gun pointing towards the approaching traffic. Two helmeted soldiers were scanning the cars from behind the sandbags. "Probably for traffic control?" someone quipped.

Once again we were off the elevated highway, crawling along at street level and in its shadows, between the canyon-like walls of dusty and worn looking office buildings. One block more and Mahmoud made a U-turn and parked in front of the ARENTO headquarters building.

Once inside the lobby, there stood Frank Fotis, our company's Egypt agent. After an exchange of greetings he led us up three flights to the meeting room.

Our meeting began with a few introductions. Mr. Seradin seated at his desk, dressed in a western style business suit, a cigarette curling smoke was in his ashtray. An attendant

stood beside his desk. "Bring seven coffees, Abdul" Seradin said in a low voice. Abdul left immediately to get the coffees. Seradin is the Director of ARENTO, for Arab Republic of Egypt National Telephone Organization. His gravitas manner fitted the position. He had a shock of jet-black hair, and a distinguished look about him, yet his voice sounded weak, and his face seemed sunken, and deeply lined; maybe he's sick, I thought.

*Later we were told that he was ill, with stomach cancer.*

Seradin's desk had many papers in various piles. Glancing at them, it was evident they were all written in Arabic script, and upside down as well, so my quick and curious scan left me in the dark.

Frank Fotis made the introductions: "This is Dr. John Fulenwider, who is in charge of the project, and his team - - Robert Grissetti, James Hebb, and Harold Pappas. You know Eric Johnson of course." Mr. Seradin came from behind his desk and shook our hands, weakly, in turn.

Eric began with a few words about who we were, then I took over, spreading our pert chart and milestone charts before the Director of ARENTO. He seemed to be impressed, but then Seradin slowly explained the different pace in Egypt, about holidays, and the holy days. Most diplomatically he had pushed aside our hoped for completion schedule of nine months. Without any hesitation, Eric said that we, pointing to us, would produce a topnotch design of the telephone networks.

At this point Abdul returned, carrying a broad brass tray containing seven porcelain cups, napkins, spoons, and seven carafs, each filled with steaming hot water, one for each of us. The copper colored carafs have sculpted wooden handles, very middle-eastern. In each of the cups are mounded portions of fresh finely ground coffee. Abdul poured the steaming water from Seradin's caraf into a cup. The coffee foamed up almost over the brim, then subsided. Mr. Seradin sipped his coffee. Alert, we follow suit, by pouring our own water, and watched it foam. Sipping coffee, I thought this is the way they do it. We were at ease in the head man's office, being shown middle-eastern hospitality, before we get down to business. But my hopes of getting this ARENTO job done quickly were fading fast.

After small talk about our air flight, our visits to Khan-El-Khalili, and El Alemein, Seradin brought the business conversation into focus.

His main concern he said is to bring Egypt's telephone system up to World Standards, mainly set by what the United States has. "Egypt is a poor country, it is mostly agricultural, but we want to be able to trade with other nations on a world scale", he said. Continuing, he said " Our currency is the Egyptian Pound, and we like to peg it to the U S dollar, on a one for one basis. But now Egyptian currency is not exchanged on the world



market. So you see we must borrow from you to get our telephone system world-class, then businesses will flourish here.”

Eric Johnson said that U.S.A.I.D. has been providing funds through grants, and very long-range 2% loans to Egypt. Then looking at me, and the other Arthur D. Little team members he said for everyone to hear “Let me caution you to write clear-cut descriptive specifications for the telephone network that you will design. We want Egypt to have a world-class system, after it’s built. We don’t want the system to turn out like the ‘Ward Bus’ procurement.”

“What do you mean by ‘Ward Bus’?” I asked.

“John I’m glad you asked. You haven’t been here long enough to see what I’m talking about, but you will. See, about three years ago a group of consultants from the States came here and wrote some very loose specifications for public buses for Cairo, and Alexandria. We here at USAID were thinking something along the lines of big GM diesel buses, like you see in Chicago, or New York, “body by Fisher”, you know. But the specs were so loose that a company that makes *school buses* - - the Ward Company - - came in with the lowest responsive bid! According to procurement rules, we had to accept them. It cost millions, and we got junk. Ward is known for making school buses, not big city buses. Those busses you see on the streets of Cairo are cheap looking, tinny, of poor quality, they break down a lot. Those are the ‘Ward Buses’. So you see we don’t want a ‘Ward Bus’ type of telephone system here.”

*After that lecture we understood. We had our marching orders. Writing technical descriptions of a myriad of equipment, without mentioning a specific manufacturer’s name any place in the paperwork, yet defining the components tersely and aimed at getting the product that is desired required a skill level that we would have to demonstrate.*

Mr. Seradin spoke up and said that on Thursday we would inspect the “Opera” exchange. “Opera exchange has heavy telephone traffic, and is getting overloaded often. You will meet Abdul Farouk, chief engineer, and his assistant Sami Nahkla. They will see you at 9 o’clock.” With that we were free to go.

Walking down stairs we noticed several broken windows, with accompanying scrimps of Sahara dust on sills and the floor. Yet many Arab men were milling around, some carrying trays of coffee, and others leaning on brooms.

X

X

X

On Thursday, as we had the traditional Middle-Eastern coffee in Abdul Farouk’s office, Sami Nahkla remarked about the lead sheaths being stripped from the cables. “Thieves stripped the lead off, and sold it on the black market,” he said. Continuing he said “these are old cables made years ago, and the conductors are paper insulated, which

was a standard in the industry. That's okay, as long as the paper doesn't get wet. But you know we do get rain here in Egypt, and the streets in Cairo don't drain well so the water collects and runs into the manholes, they fill with water, the paper gets wet, and the telephone calls go dead. Not all the conductors are ruined, only about sixty percent. We call that a disaster." Aha! I thought, THAT was why their system went down!!

Abdul Farouk continued by adding: "Raytheon was hired by USAID to come here and install microwave radio towers on each building to link our telephone exchange network together in Cairo, and Alexandria. The microwave is getting overloaded too, so when there's lots of calling the system fails again." So these were the reasons for the failure of the telephone network, and the reason for calling in Arthur D. Little.

"Mr. Farouk", I asked, "we noticed many reels of telephone cable in the storage yard outside this exchange building. It looked as if ARENTO was about to do some cable replacement." Abdul replied somewhat apologetically "Oh no, we can't, you see. So many cable ducts are silted up, or crushed there's no way we can pull the old cables out or pull new cables in. You raised a good question, but those reels are useless to us, and besides they're all the old technology, that is lead covered, with paper insulated conductors. At this point we hope that your designs will be a complete over-build of Cairo's outside plant cable network. That is new ducts, new manholes, and with new plastic insulated cables, no more lead sheathes, and new and expanded inter-office carrier systems to augment the Raytheon microwave equipment."

This was a stunner. We looked at each other, now realizing the full extent of our involvement with ARENTO. Designing a complete over-build would take many months.

After a sip of coffee, I said, "As you know we're visiting different exchanges over the next two weeks to get an idea of what the system is like. Also part of our job is to specify new electronic switching equipment to replace the old step-by-step machines. Bob Grisetti will be guiding that work." Abdul acknowledged and said, "My job in ARENTO is really directed at the outside plant – you know, the cables that go out of the building from the Main Frame out all the way to the subscribers. It includes the duct runs, and manholes too. That's my job. Sami Nahkla's too. On the other hand the switching equipment is Mister Farouk Ahmed's responsibility. You'll meet him back at the Ramses Exchange, next week I understand. But now we should show you our Opera exchange. Sami Nahkla will take you around starting at the below ground cable vault. And, oh yes, you should see the Raytheon equipment in the microwave carrier room on the top floor."

X

X

X

Maps:

In mid-May, 1980, Tim Grimes, a recent addition to the team reported a peculiar discovery. "There's something wrong with the street map I got from the draftsman yesterday. I took a wheel tape this morning, and wheeled the distance from the Bab-el-Louk vault manhole along Shari Sheikh Rihan east to the corner then south to this manhole here", he said pointing to the marks on the Egyptian street map. "The wheel tape showed 2500 feet. But when I scaled it off the map here, using the same route, it comes to only 1500 feet." We looked at each other dumbfounded. "Okay, I said let's get another one of

their maps, and I'll go with you and we'll check it out." Armed with the wheel tape, and another map, this time for a cable run on Zamalek Island, we drove to the island and parked. After wheel-taping a 2000 foot route that included the intersection at Shari Hasan, and 26<sup>th</sup> July Street, we scaled the same route off the map. It showed 1700 feet. This will never do we agreed.

Back at the office we assembled the team to think our way out of this dilemma. Sami Nahkla was asked about this. He made some inquiries and came back and said " We ran short of drafting vellum, so the head draftsman had told his people to use different scales going North-South than going East-West. This would conserve vellum." I was dumbfounded, now wondering how many plan drawing were involved. "Sami, we must have accurate plan drawings of the city streets. Construction contractors need to estimate cable lengths to order from the States. These maps are useless. Lengths of the cables would be way off, not just a few hundred feet but many thousands of feet. Mistakes like this would make their cost estimates too low, which by the way, the contractors like to do. Then the contractor would want premium prices for the extra cable needed to offset the errors."

Sami said that they don't have the manpower to make accurate maps of Cairo, no surveyor teams, nor enough money to get it done. So we are depending on you to help us here.

We had a major dilemma in our hands. At our next team meeting the following day we discussed this situation. Hal Pappas came up with a brilliant suggestion: "the only way we're gonna get good maps of Cairo, and Alex, is to fly over them and photograph the whole mess."

"You mean take aerial photos of the city?"

"How'll we do that, hire the U.S. Air Force?"

"They could do it. But then we'd have to read the aerial strips somehow."

"There's a company I know of in Ames, Iowa, that has this humongous digital X-Y Plotter. They could lay the photos on the bed, scan the aerials, and create blue-lines for us. It'll cost a lot though."

"Yes, that sounds like the way to do it," I said. "Hal, you and I will go see Ed Bieganski at USAID in the morning. They'll go along with this approach I'm sure. We have got to have good plan drawings for this work to succeed."

Hal and I left the Dokki office at about 9:30am for the Embassy in Garden City, the next day. *After a series of meetings with USAID, and the U.S. Air Force, aerial photography flights were carried out, and eventually very accurate street maps were made of Cairo, and Alexandria.*

X

X

X

Egyptian Justice:

A couple pushing their baby carriage appeared out of the darkness, as Todd DeBinder left our fifth floor office, late one evening in October 1980. The man in Arab garb, a galabayah

hanging to his ankles, approached Todd. Walking next to the man, was a woman pushing the baby carriage. "Oh, meester, meester, my child is ill, pliz give us some money so we can take her to Hospital!" the man pleaded. They got closer, Kurt peered into the carriage to have a look at the child, and indeed she was crying. "See, she be sick, pliz help me." Kurt studied them, the woman assumed to be his wife, he noticed had a dark shawl pulled over her head so that all that was showing was her face. She wore a long flowing dark robe hanging to the street.

In this light Kurt couldn't see too well. Kurt set his case down, and reached into his suit jacket pocket, drawing out his brown and shiny wallet. He opened it and was about to take out some Egyptian bills to hand over to the man. But quick as a flash the man grabbed the wallet out of Kurt's hand stuffed it under his galabayah and ran north like a shot to the end of the street, while the woman pushed the carriage in the opposite direction and disappeared into an alley. "Hey, stop, you thief!! Stop. Stop. Thief, I've been robbed!!" Todd shouted, running as best he could in pursuit, and carrying his brief case, which he almost forgot in his haste. It was bulky, and hardly deserved the title.

He kept shouting, and soon, before the man could make it to the street corner, a few people peered around the corner peering into the dark, seeing the arab man running toward them, and a westerner loping after him shouting. They stopped the fellow. More men arrived, some dressed in arab garb too. By then Todd arrived, puffing, yelling, and pointing "That man, he stole my wallet. He said his child was sick, and wanted some money to take her to the hospital" Some of the men holding the thief looked at him sternly and asked "Have you got that man's wallet? Have you got that man's money?" "No, No, Not have money, not have wallet!" he pleaded. They looked at Todd. But Todd insisted "He came out of the dark, by the building there, he and his wife with a sick child in a carriage, and when I reached for my wallet to give him money he grabbed the wallet, and put it under his robe! He stole my wallet!" Then another Egyptian man asked him "Have you stolen that man's money?"

"Have you stolen his wallet?" He answered "No, No, Not have money from him, not steal!" "Here, let's just see!" the big arab said, and with that he and two others grabbed the man and lifted him up off the ground, tipped him upside down and shook him up and down, his arms flailing, but to no avail. They shook, and shook the man up and down violently, and suddenly the wallet dropped out from under his clothes to the ground. Plop. "Meester, is this your wallet?" they asked, still holding the thief up by his ankles. Kurt took it looked it over, showed them his ID, his driver's license. All eyes were on it as he said "Yes this is

it. Shoo-krahn, Shoo-krahn” Todd said in his best Arabic. “Af-wahn” they said meaning you’re welcome. He offered them money, which they declined.

The thief was still being held upside down. Todd saw him being tipped back upright, they closed in on him. He pleaded for mercy. But suddenly Todd heard a scream, and a KRACK!! sound as they broke the man’s arm, and sent him limping on his way. One of the rescuers said “Meester, you must be very careful in Cairo. Many thieves, and pick-pockets around. Pleading for help, pretending to be sick, just begging. We want to have good reputation for visitors to come here. You are welcome.” Todd thanked him, offered him a reward, but he too, refused. So Todd hailed a cab and went to his hotel.

Our objective for all this work was to help bring our Egyptian client’s telephone system up to world class standards. And we did. Our team, with the help of several full time consultants from our home office in Cambridge, plus two part-time outside consultants prepared exceptionally tight technical descriptions of the way their telephone system should be built. Cables were to be plastic insulated “foam skin”. We specified ductways, cabinets, manholes, construction methods, civil works, construction on bridges, and cable crossings of the Nile River. With no detailed street maps, so we had our U.S. Air force make complete aerial survey films of the Cairo, and Alexandria. We had these digitized by a company in Ames, Iowa, then re-scaled onto 37 E-sized plan drawings so the outside plant construction could be completed properly. We designed a fiber optic transmission line connecting Cairo with Helwan, a town 17-miles south. This was the first fiber optic route in the middle-east, I might add.

By 1983 the system installation was completed as designed: all ESS switches were installed, and all outside plant cables were in place and connected, four years from the time we first arrived in Cairo. **Epilog:**

Taking a last look around Cairo before departing for the States, we noticed a long line of people outside the Bab-el-Louk exchange building. We asked around and found out that these people, who had waited patiently for telephone service, some for five years, were now facing a shake down by the man at the entrance for 100 Egyptian pounds each. This was not part of the USAID program. We heard the beefy man at the entrance say “You want your telephone service connected or not?” As each customer handed over the money he would carefully add the bills to the fat roll in his fist, then stuff his hand back under his galabaya. Oh well, we thought. *Entsch-Allah*

We were led down to the basement of this building, which was surprisingly tidy. With keys, Sami unlocked and opened the steel doors to the cable vault. We entered the shipping container-sized room. A bare light bulb gave off just sufficient light to see about two dozen python sized dull-gray cables emerging from an array of holes on opposite walls. Cables lay neatly on trays. Sami pointed to some cables projecting from the far wall of the vault; they curved upwards, and disappeared through the ceiling. "All these are local distribution cables and connect to the main distribution frame upstairs," he explained, and continuing, "This one here, is a junction cable. It goes to Bab-El-Louk, south of here."

We noticed tags on each cable with writings on them, in Arabic. I asked "Sami, are all your cables lead covered?" He said "Yes, and all pairs are paper insulated. We have no more experienced cable splicers who know how to wipe the lead sheathes after they complete a joint, so when our manholes get flooded after one of our rare rains water gets in and soaks the paper, and shorts out the connection. That's why we don't get dial tone!" With no questions from the team we left the vault and went to the next floor up, where Sami led us to the main distribution frame room.

We entered the frame room, just off the lobby entrance. There, towering over us, measuring eleven feet from floor to ceiling, the imposing metal skeleton seemed to sag under the weight of those cables coming up from the vault below, and those leaving at the top to go yet higher to the switch room one floor above. "Those cable trays look a little crowded, don't they?" Bob said in an understatement. Jim said "Must have been a ton of moves and changes over the years." Hal was surveying the outgoing side, and said "They've got bits of paper and here's some toothpicks holding the arresters open." We shouldn't have been so critical in front of Sami. But he said "We've lived with this situation for years, and we do what we can to keep the system operating. You're seeing it for the first time. And the other exchanges are about the same. Your help in getting us a modern telephone system, will be welcomed."

We inspected the MDF front and back and saw where individual wire pairs connected to terminals, and thought of each wire pair as representing a subscriber. Cables, up from the cable vault, were open allowing each wire to connect to an individual metal terminal. Likewise we saw cables coming down from the switch room fanning out and connecting to another set of wire terminals. "This is old art, they're using screw terminals! Thousands of them all alike, think of the labor involved. We should specify push-ons" Bob said making notes.

Sami told us that their telephone 'frame men' make connections between the two sets of terminals using jumper wires. But over the years, as subscribers moved, and services modified, the physical connections had to be changed right there on the MDF. From our experiences at home in the States, the practice is to cut the old jumper wires free, and leave them in the shelves, then connect in a new set of jumper wires between the newly assigned terminals. After a few years, the wire trays get filled up with those jumper wires that have been cut free and abandoned. Seeing the mess of jumper wires on these trays we surmised that it's a universal practice.

On the next floor we were treated to a visual and audible inspection to the 'Opera' switch room. Mister Farouk Ahmed should have shown us this but then we'll see him tomorrow perhaps, at Ramses.

Stepping into the high-ceilinged room we saw three rows of sturdy metal frames. Movement here and there caught our eyes, and accompanying clatter, as the strowger switches stepped, and dropped. Our team, over the years, had been in many such equipment rooms in the U.S. This one sounded no different. Strowger gear was on the way out in the United States, being replaced by computer controlled electronic switching systems, or as AT&T called them, ESS.

"All this is going to be replaced with electronic switching, eh Bob?" I asked rhetorically. Bob nodded. Bob Grissetti was ideally suited to head up the group to write descriptions of electronic switches for the ARENTO system. His background was with Western Union as chief engineer in their switching division. His manner was persuasive, yet calm, reserved and confident. Something the Egyptians liked. A team of Egyptian engineers, under Farouk Ahmed, would be assembled to work with Bob. Others from Arthur D. Little would come on board to complete the work of specification writing.

We walked along the aisles, observing the dusty switches, while they clacked and stuttered to select electric pathways between 'calling' and 'called' parties. Sami pointed out a few strowger switches that were out of service. "Control contacts got bad on this one so we had to by-pass it," he said. "What was the cause of that?" Hal asked. "We think dust. We tried to fix it. There are others with the same problems," Sami answered. "One last inspection, Sami. Could we please see the battery room?" I asked. Next door to the switch room, he led us to a smaller room that contained the batteries. Here as in other telephone central offices we found the usual array of twenty-six glass jars each containing acid, and lead plates that make up the battery system. We noticed open windows for allowing gases to escape.

"Ventilation you see. We don't have air conditioning in any of our exchanges, except in Ramses, in the carrier room, and in Opera's carrier room upstairs," Sami said. There along the opposite wall Sami pointed to the charger and controller panel. It appeared like something from an old movie, complete with knife switch, and 'twenties-era' circular meters for showing current - - AMPS one read - - and voltage - - VOLTS the other one read.

“Did you notice, broken windows as we came in, and the open windows in the battery room? It all adds up to sand and dust getting in from the desert, and ruining the contacts,” Hal observed.

“Yep, they’ve got a pile of problems with the telephone system here, and we’ve got to help them fix it,” I said wearily.