



David's Web Wonder

Ormand Family Activity

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April 2007: Trip to Sardinia

As part of my new role as TOW Weapon Systems Engineering, I was recently sent to Sardinia, Italy, to support range firings. I hope you enjoy my account of my travels.

Background

[Agusta](#), among other things, builds helicopters for European armies, particularly the Italian army. Their [A129](#) model incorporates a TOW launcher, which was designed many years ago, before the digital missiles came out, but when the digital TOW-2A missile was available for purchase, nobody thought to ask, "are these missiles compatible with the old launcher?" Well, shortly after the Italian army bought digital TOW 2A missiles, HeliTOW launchers started exhibiting a growing failure rate, but only after several years of mounting concern, the army disallowing the use of the launcher, and finally a live-fire test did they connect the dots between the launcher and the digital missile. Turns out the problem could be fixed in software, and [Saab](#), which is responsible for HeliTOW for the Italian army, made the fix. To allow the Italian army to recertify the A129 HeliTOW launcher for operational use, a live fire test was held mid-April 2007, and to support Saab on behalf of the missile system, I was designated to go to the range in southern Sardinia.



Agusta A129 attack helicopter, with rocket pods, Hellfire launchers on port side, and TOW launchers on starboard side.

Getting There

required a passport. I already had one from when I was supposed to go to Spain, but it was already expired. The State Department website said I could get a new one, or renew the old one if it was less than 15 years since it was issued. It would be 15 years ago in June, so I figured a renewal would be faster than a new one. I put in the additional \$60 for expedited handling, sent it in, and thought I would be fine: 4 days there snail-mail, the promised 3-4 days handling, and 4 days back.

Easy. Three weeks later, still no passport. The Program was getting concerned, and asking for status, but the website status indicator said nothing, and the phone number didn't help: You call, walk through a bunch of menus, then it tells you they're too busy, call back later, and hangs up! Your tax dollars at work. Five days before the scheduled flight, the status website says they have received my application, and I can expect the passport within three weeks. *So it took them three weeks just to open my envelope!* There was no way it was going to get here, so I was reconciled to not going; my partner (the international business manager) left without me, and I cancelled my flight. Saturday, a FedEx envelope arrives with my passport! I suspect the Program nudged a Congressman or a Senator. Anyways, I was back on; the plan was for me to get there myself, and meet him at the airport in Cagliari, Sardinia.

The flight to Chicago left at 6:00, so you want to arrive at 5:00 or so, which means getting up at 4:00. I get to Tucson International to find out all flights to Chicago have been cancelled due to a bad snowstorm! I make arrangements to do it again tomorrow. After a long day and another short night, I'm back at Tucson International, and everything is Go. Three hours later, I'm in Chicago. Four hours later I'm on the 767 to Rome.

The flight is ten hours; you leave at 3:30 CST and arrive in Rome at 8:00, which means flying at night, and you have to pretend to sleep on the plane. Ha ha. Even in Business Class, it's impossible. Two hours from Rome, the seat is getting intolerably uncomfortable. Finally we land in Rome. All the tourists are getting off, excited to get from the airport (on the coast) to Rome (inland, in the hills), and they announce that the railroad workers are on strike! But I make it through the Rome airport to the connecting flight to Cagliari. My worst fear has been laid to rest - many of the Italian airline workers speak good English. We go through the gate, loaded on a bus, drive out to the field, and climb one of those wheel-up staircases to get on the airplane. An hour later, I'm in Cagliari, getting my bag through customs.



Stupid American Tricks:

Everyone I talk to in the States, including the International Business Manager, Mike, pronounces the name of the city phonetically, the way it's spelled: Kah-gee-AH-ree. At the port of entry at the Rome airport, the customs official asks me (in good english) where I am bound for. I say, "Kah-gee-AH-ree". As I board the Italian airplane for Sardinia, I begin to suspect I have committed a stupid Americanism, to be confirmed when I arrive with our project team - Italians pronounce it "Kah-glah-REE".

The First Day

My partner, Mike Conrad, and the Agusta test engineer Roberto Cavazzini, pick me up at the airport and drive around to the National Guard air base. This is nothing like the Guard base at Tucson, which has an obvious entrance on a major road, like the one that shares Tucson International; if you didn't know where the gate was, you

would never find it. Inside, the team is all together:

- The Swedes from Saab: Johann, Thomas, Stephen, Johann (the lesser), and Kenneth
- The DSR guys from St. Louis: Mike and Tom. DSR owns what is left of Emerson, which originally designed the HeliTOW system, and Mike is one of those Emerson originals.
- The Agusta guys, Roberto Cavazzini and Roberto Putin (aka "The Russian Leader")
- The Raytheon guys, Mike and David

That's nine men. Over the next week we would be joined by Jim, the DSR field manager; Sergio, the Agusta rep; Paola, the Raytheon rep, and some guys from Galileo (nominally responsible for maintenance of the A129 fleet, and competing with Saab for a new nightsight system for the helicopter). We also met the army officers we would be working with, especially Giuseppe and Luka, the test pilots, and the Colonel, who is responsible for all Italian army helicopter aviation. The significance of all this is that for every dinner, the nine core people and some number of other people would be at the table. That's a big dinner party, every night!

I watch as they finish some tests on the TOW launcher on one of the two helicopters, and then sit in an office in the hangar reviewing data to verify that the problem is fixed. Finally, the Colonel and another pilot get into the helicopters, wind them up, and taxi out to the lift-off pad. It's a tremendously windy day, and they are having trouble, but they get into the air, do a check-out spin around the airfield, and then fly off to the west. We're done; someone has brought sandwiches, which we eat in the empty dining hall (Italian Nat'l Guard, and maybe regular army as well, are "volunteer" - read "contract" - and they get paid by the hour worked, and overtime after hours and on weekends, so the Command doesn't like keeping them around longer than necessary), and then leave to follow the helicopters to the range.

The firing range is the large peninsula on the southwest corner of the island, and there's not much civilization around there - our hotel is just outside the village of Sant'Anna Arresi. There are three ways to get there: Cross the island east-to-west on the "highway" and drop south to the village ("the Fast Way"), go south out of Cagliari and cut through the mountains ("Scenic Route 1"), or travel along the southern coast ("Scenic Route 2"). We choose the latter. Remember, it is a tremendously windy day. The sky is grey, with light showers. Not your model Mediterranean beautiful scenic day.



The near cliff over the sea. Note the impenetrable green shrubs, similar to manzanita in the Southern Arizona mountains.



The far cliff over the sea. What a view! Note the swells and the breakers over the rocks. The surf crashing against some of these rocks sent spray plumes tens of feet up into the stiff breeze.

These pictures are larger than the thumbnails show. Use the "View Image" feature of your browser for a larger look



Across the west bay. We think that's the peninsula of the firing range over there.



These tower things are all over the place. When we saw this one, we knew it could not be a defensive work - there's nothing on that rock to defend. Maybe it's a lighthouse. Later, we find we were wrong.

We arrive at [Hotel Punta Giara](#) and settle in, then go off to find a restaurant, and find one just a few hundred yards (meters?) toward town. My first exposure to the Italian dining experience:

- It lasts three hours minimum
- It starts with several appetizers (antipasti), which are always quite excellent, and you have to be careful not to fill up on them
- Followed by the "primo", first course. A pasta dish, usually. The Sardinian pasta specialty is "gnochetti", small noodles the size of rice or barley kernels, made of potato rather than regular pasta material. Delicious.
- Followed by the "secondo", second course. A meat dish, usually seafood.
- Followed by a dessert, often a sherbet (glace). Coffee (expresso) or Mirto (a Sardinian dessert wine) accompanies this.

During dinner, the storm that has been brewing all day long finally opens up in torrents and strokes of lightning. It's mostly over by the time we finish our Mirto and carry our stuffed bellies out to the cars

for the few hundred meters' trip back to the hotel. I waste no time getting to bed: it has been a very full 22 hours, it's 11:00pm locally, and we need to be at the base by 8:00 tomorrow morning.

The Weekend

Saturday: It rains all day. We travel to the base, which is about as far outside of town on the other side as the hotel is on this side; that is, not very far. On the way, we stop in town to restock.

- First, I discover that the ATM machine will indeed accept my American "Star" ATM card and dispense Euros. Whew, I can reimburse Mike for covering for me at dinner last night.
- Second, we go into a supermarket - in Italian terms, this is a small affair, nothing like what expansive Americans think, like Fry's or Albertson's; a small shop that has most everything including fruits, refrigerated meat, bread, pretty much everything you'd look for at Fry's, just not in large quantities. We purchase bottled water, since even though Sardinia is hardly third-world, travelers are advised not to drink the tap water.

Most of the day is spent settling into our rooms in the Hangar, and taking the stuff we don't need to the main part of the base, where we store it in the hospital basement. The base is rather small, and the Hangar is quite remote from the rest of the base, having been built to support aviation activities at the range, but abandoned shortly after being built. It's a great place to store the helicopters, but there's no guard - the part of the base occupied by the hangar is accessed by a simple gate from the main road. The main gate of the base is a well-defended and staffed affair, but the army doesn't want to pay soldiers to guard the Hangar. It seems the Colonel has enough influence to get a busload of soldiers to stay at the Hangar. Italian soldiers are short (mostly), trim, darkly-handsome; I can see why women would be infatuated. I'm glad Charity isn't here!

The observation crew takes the four-wheel-drive rental cars downrange to examine the observation point, the firing area, and the target. It's a long drive, so the data reduction crew (including yours truly) and the helicopter ground crew sit around in our rooms reading magazines, or at the hangar door talking and looking at the rain falling on the hills. Lunch was sandwiches thoughtfully provided by Roberto (Cavazzini) and The Russian Leader, and for dinner, we went off to a village between Sant'Anna Arresi and [Giba](#) to the northwest, to a popular pizzeria. In America, you get a big pizza, or several pizzas, and everyone takes slices as they want; in Italy, a pizza is a personal meal. Mike finds out that "pepperoni" means something different over there; his pizza is covered with red and yellow peppers! Since we know we have to get up early again tomorrow, we start our dinner early (7:30), and we're the only ones there. As the evening progresses, the local boys' football (aka "soccer") team and their families arrive and fill up the rest of the little restaurant! The boys all sit at one table, all the men sit at their end of another table, and all the women sit together at their end - don't know how typical this pattern may be.

Sunday: We have to go back to the Hangar for a briefing with the Colonel and the test pilots, to go over changes to the test plan and the checklists, but after that, *the day is ours!* Roberto (Cavazzini) is going to show us this corner of the island. In the rain.

The first destination was the island and town of Sant' Antioco, looking for a museum in the Old Town. So we arrived at the island (technically an island; a causeway takes the road right up to the island and then crosses a bridge) and entered the old part of town. Narrow winding streets, obviously built before there were autos, nevertheless lined with autos, winding up the hill upon which the city sat, until we got close and found a place to ditch the cars. We walked (in the rain)

through a piazza with a big bank building and a clock tower, and down a narrow alley, with old men sitting in their shop doorways, smoking and watching passers-by. We arrived at where the museum was supposed to be, and found it had moved. On the way back to the cars, we stopped to look down in a large depression at some Roman-period walls. Not much to see. So then we drove on the narrow streets back down out of the Old Town and around the back side of the hill to the museum. The rain is tapering off, and eventually ends.

The museum was located near Tophet. Of course, I picked up my ears at the name. Check out II Kings 23:10. Us Sunday School types associate Tophet with child sacrifice, with burning children alive in bronze idols. The museum was making the point that *this* Tophet, dating from the Phoenician and Carthaginian ("Punic") period of occupation, was for children's funerals, burning dead babies and burying their ashes as an offering to their fertility goddess. The Old Testament passages are solid historical evidences for the Canaanite practice of child sacrifice; I am willing to entertain the notion that the Phoenicians didn't do the same things, but I failed to see any historical evidence for this at this museum.



The ruins of a huge stone structure at the top of the hill, from the Punic period. Possibly defensive, more likely cultic. HUGE dressed stones. The field was covered with little clay pots.



Closer view of the little clay pots. Of course *these* pots aren't thousands of years old; the museum puts newer pots out to give you a feel for the days when the little pots of child ashes were placed with stelae honoring the fertility goddess, like the one shown center-right.

After peeking in the museum at the Phoenician jewelry and Greek pots and Roman coins that have been found in the district, we got back in our cars and drove further along to the Necropolis, where the Phoenicians buried their adult dead. The island is mostly soft volcanic stone, so it was easy to dig tombs in the side of the hill. When the Romans came along, they used the tombs to put their crematory urns. During the Middle Ages and the later Spanish period, the Berbers ("Barbary Pirates!" John Paul Jones, Thomas Jefferson; the Americans were not the only ones having serious problems with the muslims of North Africa) would raid the coasts and the islands, and eventually, nobody wanted to live here. Then, in the 1600s, the Church tried to entice people to come back with the offer of free land. People returned, a large percentage of whom were poor people, who, after they arrived, could not afford to build houses, so they tossed out the funeral objects inside the tombs and moved in! This state of affairs lasted until the mid 1970s, when the government evicted the old lady

who was the last of the "Grotti", or tomb-dwellers.



Here are two tombs, and our no-English guide (thank goodness for Roberto and his interpreting!). Note the chimneys. The tombs are small, even when the stone between adjacent tombs were cut away to make larger chambers. Families tended to be large, so kids as young as 8 were turned out on their own when the family ran out of room. There are LOTS of tombs; perhaps 1500 remain unopened.



A tomb home, some modern houses/apartments on the ground above them, and the Italian-period fortress on the top of the hill, commanding a view of both sides of the island. In 1812, the Berbers assaulted the fortress and killed all the soldiers, and continued to pillage the village, taking all the goods, enslaving the men and women, forcing conversion to Islam. Nice people (sounds a lot like now).

Back to the cars and across the island to the town of Calasetta, where we park the cars, purchase our tickets, and wait in the bar for the ferry to board. Note that, in America, a "bar" is a dark, smoky place with a jukebox, intended for drinking. Here, the "bar" is the neighborhood hang-out: a counter for buying magazines and candy and gifts, and tables to sit and drink your beer or your soda and chat with friends. Or sit out front, like some locals were doing, and watch the people. Very airy and pleasant. We then took the ferry across to the island of San Pietro.



The seafront piazza in Calasetta. The church is center-right, the harbour to the left. I wish I could have explored this town a bit more.



On the ferry leaving Calasetta.



A close-up of the Nuraghe in the town of Calasetta. The town has grown up around the foot of this Neolithic monument, the modern and the very ancient rubbing shoulders. Roberto explained later that the nuraghi predate the earliest inhabitants of the island, as do the menhirs and dolmens. They served different purposes, sometimes defensive, but they usually had religious significance.



On the ferry, looking at Calasetta off the stern. The tall fellow is Johann, leader of the Swedes, and the man with the glasses as right is Mike, the leader of the St. Louis DRS Americans (both of them).

San Pietro was colonized by the Genoans four hundred years ago. The architecture found in the city of Carloforte is characteristic of Genoa, and the language bears similarity to the Genoan dialect of four hundred years ago. The principle industry is tuna fishing, for large schools of tuna frequent the strait between San Pietro and Sant'Antioco. It is high-quality tuna, and the Japanese buy pretty much all there is to buy, so if you want to taste it yourself, you have to come to Carloforte. Which is why we're here; we enjoy a dinner (surprisingly brief at two hours; we had to make the last ferry back across) in which all the antipasti and secondo dishes are different ways to prepare different parts of the San Pietro tuna fish! A wonderful meal!



I'm guessing that tall pastel-colored buildings with lots of balconies are Genoan. On the way out, one of our group pointed to a tall house and said "I was born there!" A native San Pietran!



Another house. On the wall of one of these houses nearer the harbour was a plaque explaining that in WW I, a shell fired from a British warship at a German submarine flew through the window of the building and killed some people. Interesting/wierd.



Integrated into the tight architecture of the city is their Church. The bell tower has a clock, and the actual bells strike the hour.



Climbing the winding street to the top of the hill. Note the stairs under the portal arch; beautiful. And the living spaces on the top of the buildings. The streets are cobblestone, and most are impassible to vehicles. At least in the old part of town.



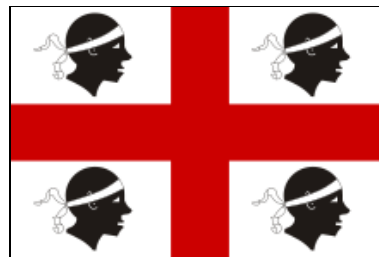
San Pietro has had a lot of trouble with the muslim pirates, so a few centuries back, they built a citadel wall, with musket slits. Here is one of the gates, and the inner perimeter road.



The main gate. Above the gate is a much-weathered lion, the arms of the Duke of Genoa. In the background is the Fortress of San Theresa. Roberto Putin, aka "The Russian Leader", inspects the walls.

After dinner, we take the last ferry across in the night, and drive across Sant' Antioco and back to Sant' Anna Arresi; the end of a thoroughly delightful day.

There is so much history in Sardinia, with multiple periods of occupation and several people groups involved: Phoenicians, Carthage, Romans, Spaniards, Berbers, and finally Italians. Through it all, the original inhabitants, the Sardi, have just moved to the interior, leaving the coastal areas to the transient occupiers, and preserving their unique language, culture, and genetic stock. They even have an unusual flag, the Four Moors, probably from the Spanish period, since the Spanish king at the time was just finishing driving the Moors out of Spain. There's lots of Sardinian info on the Web; check out the [Wikipedia](#) entry.



The Firings

Monday: Today, we work. The observation crew takes the four-wheel drives out to the observation point, and the data reduction crew fires up the laptops. Helicopters carrying VIPs come and go. I manage to lock myself into the restroom (stupid European doorknobs). When the A129 fires its load of four missiles, it returns for a fresh load, and the Saab guys download the data capture unit and print out the plots, to be inspected by the DRS and Raytheon engineers. Everything works fine,

except for an airburst: some TOW-2A missiles will detonate their warheads early, usually right after the safe separation distance when the warhead arms, but sometimes later. The Italians seem to have a high rate of airbursts.

For dinner, we travel eastwards to a largish town with a famous restaurant. A large dinner party. I have seafoot pasta (excellent, in spite of the shell fragments) for primo and some typical thin, dry Sardinian sausage (not bad) for secondo. Sergio the Agusta rep picks up the tab.

We have noticed a large camp of Italian soldiers west of the base. It is much larger today.

Tuesday: Much like yesterday, except that the plans today include some analog ITOW missile shots; the problem Agusta was having was with digital TOW-2As. After participating in a few data reviews for sorties, I am invited to come out and observe.

To get to the observation point, one must go through the main base. Several large flatbed trucks are unloading tanks, which look like German manufacture. The range is criss-crossed with tank tracks, and the dirt roads are chewed up by big treads and the recent rains, so it is a very bumpy 20-30 minutes downrange. The observation point is on the top of a hill overlooking the valley. It is quite a trip for the helicopter to land at the observation point to exchange gunners and then go **down** below the edge of the landing pad on its way back to the Hangar. It's also quite a trip to look **down** on a helicopter firing.



The A129 just fired a TOW 2A. This wasn't my picture; I don't normally take cameras on firing ranges, but the Italians didn't seem to mind. The flight motor is still burning, which makes this an interesting shot.



This is more like what I saw. The helicopter was some distance away, down in the valley. The target was a dug-up area on the hillside of the almost-island across the water, nothing that could be used to gauge accuracy. All too beautiful to be a firing range.



An airburst. The warhead has detonated just after it armed. This has got to be a shock to the gunner, who is concentrating on keeping the crosshairs on the target, and then this cloud of smoke and flame fill the sights.

For dinner, we travel back to Sant' Antioco, to a famous seafood restaurant. I think it was more hype and price than quality. The antipasti were good (including oysters on the half-shell) but not spectacular, the primo pasta dishes were rather small, but the secondo was a shock. Seafood. I thought I ordered something safe, and got a plate of very bony fish. But it wasn't half as bad as Kenneth across from me, who ordered the same thing - and got the fish *head*. He just looked at it, and looked at it, and we all laughed. I think in the end he made a manful attempt to eat something out of it. I was not impressed. Paola, the Raytheon rep, picks up the tab (I didn't pay for meals much this trip!). Afterwards, my friend Mike was feeling his wine, and asked me to drive back, so I got to drive the Fiat back to Sant' Anna Arresi in the dark on the narrow little Sardinian road.

Actually, this is another interesting thing about the European trip. I haven't seen a Fiat or a Peugeot or a Citroen in the States for ages, but over there, of course, they were everywhere! Even Opels (my favorite car brand, since that's what I had growing up)! Everything small, of course, and mostly diesel. Renaults, Mercedes, a few Alfa Romeos, even a few FORDS!

Wednesday: The TOW firings were now complete, but the army was going to try out the Gatling gun just to make sure that the fix didn't affect any other system, and we were invited out. A different observation point overlooking the sea; the helicopters would fly in over the water and fire upon a target on the beach, or against a cliff on the same little almost-island as yesterday. No real attempt at accuracy or scoring, just shooting the gun to shoot the gun. The last two sorties, the pilot was allowed to fire the gun using his helmet aiming system, which is similar to (and reportedly works better than) the same system in the Apache helicopter used by the US Army.

On the way off the base, driving through the firing range gate inside the base, we pass a convoy of vehicles: perhaps ten of those German-looking tanks, some transport trucks with roof-mounted 7.62mm machine guns, and other military vehicles. Obviously, these guys and those soldiers on the other side of the range are here for maneuvers. Glad we're done!

Since we were done, and there was nothing left to do, we were ready to leave. Mike and I say goodbye to the rest of the team, and accompanied by one of the Galileo men who needs to be at the Airport this afternoon, leave for Cagliari via the "Fast Way". Over the mountains. Very scenic - particularly the reservoir and the hydroelectric dam way up in the mountains. The best sight was down on the other side of the mountain range, headed for the main highway: On a colossal hill were the ruins of Acquafredda Castle. The remains of the walls at the top of the hill looked like devil horns - really eerie. Too bad there was no time to stop and look.



This is a picture from a tourism website. The view from below is far more evocative.

We deliver our friend to the Airport, return the rented Fiat, and get picked up by the [Hotel Grillo](#) shuttle. We make an early evening of it, for the flight from Elmas Airport is at 6:00, the hotel staff (Francesca) recommended we be there 1.5 hours early, and that means getting up and packing by 4:00.

The Return

Not that it matters. After a very fast taxi ride to the Airport, we find that there is almost no activity, and furthermore, our tickets are messed up, and my flight is delayed for an hour due to "Equipo Reposo" (Crew Rest). Love that European work ethic. So Mike leaves for Rome on a different airline on time, and I mope around the terminal for an hour before my flight. But we reconnect at the American Airlines terminal at Rome with just enough time to find I've been booked for an Economy seat and no time left to revise my plans for a Business Class seat. So I spend the next ten hours in not only an Economy seat, but the ones right in front of the bulkheads, such that the seats won't recline hardly at all. Now, for the return trip, you are traveling *with* the sun, so there's not even the pretense of sleeping during the night. Under these circumstances, even napping is impossible.

During the flight, the attendants pass out the US Customs and Immigration forms. I have to fill out this form declaring the valuables I acquired in my travels (\$20 of souvenirs from the Cagliari Airport). The Italian tourists all around me have to fill that form out, plus a form that declares where they're from, where they're staying, how long they're staying, and for what purpose. Amazing, I think to myself, there's none of this silliness to enter Italy; isn't it just like the United States to require official paperwork to enter.

Finally, the hours come to an end, and the flight lands at Chicago. We get off the plane, walk *forever* to get to the Customs bag check, where the agent gives my passport and paperwork a very perfunctory glance, and directs me to the baggage claim. We all wait for our bags to come off the airplane, carry them through a checkpoint, where the agent who is supposed to examine our bags waves us through, and we check them back in for the flight to Tucson. Gee, I'm thinking, all the

Customs in Italy was to have the bag X-Rayed, just like my carry-on bags to get *on* the plane; leave it to the United States to come up with this byzantine port-of-entry bag check scheme. But my bag is checked, I go through yet another take-your-shoes-off, unpack-your-carry-ons security check, and I'm ready for my four-hour wait in Chicago for my four-hour flight back to Tucson.

The only amusing thing in all this was, at the Customs bag claim, there was a Customs agent with a little dog sniffing bags. What was I to think? A drug-sniffing dog, or a bomb-sniffing dog. What's the chance of anything happening while I'm here? Darned if the little dog doesn't run right over to the arabic looking couple standing right beside me! So the agent has them open their bags, and takes out... some apples. Apples are contraband, and they have *fruit-sniffing dogs* to find it.

But I finally get back to Tucson after a *very* long 26-hour day, and I finally finish writing this up for your entertainment!