

Africa Fleet Mercy 2018 Cameroon



21 Feb 2018 Postcard 1



Greetings from my cabin aboard the Mercy Ship “Africa Fleet Mercy”, docked in Douala Cameroon. If you look carefully you can see me in the mirror, proving I really am here and not spending the month in Park City. I’m here developing experience in two very different procedures – the most low tech cataract extraction possible for adults (Manual Small Incision Cataract Surgery, or MSICS) and the most high-tech treatment possible for pediatric cataract (small incision cataract with foldable IOL and Pars Plana vitrectomy). Both have their place and I am fortunate to have been accepted for this training.



My mentor is Glenn Strauss MD, who you all may remember from Resident Day 2017. Glenn was our speaker for the Jorge Rodriguez Memorial Lecture, and

talked about his work on Mercy Ship and his efforts to develop a realistic surgical simulator for training new surgeons on the MSICS procedure. He invited me to participate last spring, and thanks to Pat doing all the paperwork, Dr Cairns approving this as educational time, and all my colleagues in the clinic covering for me, I’ll say it is time well spent.



First, about Douala. It is the most advanced city I have visited in equatorial Africa. Of course, it is also the ONLY city I have visited in Equatorial Africa. But, it is very advanced – the wires you see here is the biggest infrastructure mess I could find wandering around the city, and it represents a normal stopping point for a cable TV crew at the end of a day. The infrastructure here is good – roads are drivable, cars appear to be in good working order. It seems expensive – gas works out to about \$3/gallon.



Boeuf!

My sister-in-law Priscilla taught Sarah and I that the first place you visit in a new country is a grocery store. You learn a lot about the culture, availability of food, and interests in one place. This is one of several large super-grocery-almost-appliance-just-short-of-walmart-neighborhood stores that are near the port and frequented by shipmates. Cameroon has a colonial past that includes the Portugese, the Germans, the Scandinavians, the French, and the English, but where I am most recently the French. And the food influence delightfully persists:



Real Brie!



Emily, Pain au Chocolate!!!

The pastries are beautiful and the bread is delicious.



Joe's larder – I continue to believe that canned vegetables are the ultimate in on hand food. Just look for the pop tops and you'll be fine.



The food on board is excellent quality, and unbelievably, a safe salad bar! Un-believable!



Tortilla Night is a big hit.

Biggest worry about the food, according to the crew, is getting ‘Mercy Hips’ while aboard.



The food is locally sourced and delivered each day.



The Ship “M/V Africa Mercy” dates from 1980. It is one of a litter of 3 Train Ferries that were put into service in Norway. Sometime around 1990, a bridge was built and the ferry service was no longer needed. The ship was acquired to be retrofitted into a hospital ship. Warning--- it is going to get geeky for a bit. The ship has a very shallow draft and nearly flat bottom- in port it is drawing about 4 meters of water, making it easy to get into many ports, byt a very rough ride to sail in the open seay, as it tends to roll from side to side wildly in high water. She spends most of her time in port, with two medical missions per year, and an intermediate trip to a dry dock for heavy maintenance of one month. It is somewhat like the Floating Hospital for Children of Tufts University, except it really sails and



has a seaworthy crew on hand at all times.



When the ship was converted, there were two open decks that were for ferrying railroad cars and motor vehicles. Decks 3 and 4 were converted into the patient wards, operating rooms, support facilities such as radiology (yes, we have a CT, no we don't have an MRI), clinical laboratory, and pharmacy.



So, decks 1 and 2 (engineering) and 5,6,7 are largely as they were originally constructed, but 3 and 4 were converted from open space into a hospital that houses its staff. Only problem is the hospital consumes power galore, needs plumbing and HVAC that is HEPA filtered, clean uninterrupted power, and a vibration free environment so the operating microscope doesn't vibrate

constantly in tune with the generator!



I was able to talk my way onto the orientation tour of the new Ship Electrician by the Second Engineer Mick Dunne. To make everything work, the ship needed to have its infrastructure expanded by about 60 percent. There is this mix of (by engineering timeframes) Old (dating from 1980), Dated (dating from 1990), Recent (dating from 2000) and current (dating from 2006)



Controls and technologies everywhere. Example – touch screens alongside simple annunciators on the same panel.



The ship consumes a lot of power – generated on board by (4) 500 KW diesel generators that are of recent vintage. To fit them in, two of the four original large diesels that could either drive the screws or generators were replaced. Original plan was to not replace them, but the first day in the OR on the first mission, the ship was vibrating so that surgery couldn't proceed. Sort of like operating in Room 15 between jackhammers going to build the new hospital. Anyhow, Mick Dunne put up with my inane questions and had answers for them all, especially “what do we do with what goes down the toilet?” As you may expect that is a big deal.



Behold one of the two “digesters” onboard the ship, capable of processing 15K Liters of effluent per day. The ship’s engineer is critically aware of the biome of the digestive system, because a) when the digester is hosting an aerobic metabolism, the vented gas doesn’t stink, and b) when the digester turns anaerobic, hydrogen sulfide gas is produced (think rotten eggs). In parts of about 1 part per billion, you get the rotten egg smell, but above a relatively small threshold (about 1 part million) you can no longer smell the gas, and neurotoxicity sets in. At 150 parts per million, one lung full will turn you into an invalid for the rest of your life, which may be quite short. So, multiple sensors, back up emergency systems, big vents, and a happy biome.



The ship is constantly being maintained by the engineering crew, as every pump on board has a critical mission and has a backup. Even if they cannot be fixed, their status is known. Example above – one of the circulating pumps was torn down so the impeller could be replaced. A new impeller was ordered. Of course it was just a little different that the one that came out, so the flange doesn't quite fit.



No worries, mate, that's what the lathe is for!



For our residents, if this were found inside a phaco machine, would the phaco machine be classed as a) using a peristaltic pump or b) using a venture system for vacuum generation? Answer: ask me at rounds in two weeks. Other answer: Look up “Vacuum Driven Toilets on board ships” and you might find the answer if you don’t recognize what you are looking at.



Last two geek pictures – I promise. First, I once thought that replacing the clutch on an F-250 was a big deal deal after doing several VW clutches through the years. Now this ... this is a clutch! A giant dry friction plate clutch big enough for a sailing ship!



Thinking of doing a head job? Here is the cylinder head of one cylinder. Each valve is about the size of a dinner plate. The cylinder itself is about 2 feet in diameter! An overhead crane is built over each diesel to allow the heads to be lifted individually. Think of the rock crawler you could build with something like this!

OK, done with the Geek Tour.

Down to Business



After doing a few thousand, the procedure starts to be the 5 minute thing you see in the YouTubes. One of the unique things about Mercy Ships is the outstanding clinical environment that is presented, and the emphasis on education. Here is Dr Glenn Strauss using one of the two new Alcon LX3 microscopes set up with HD recording capability and stereo observer scope. Glenn does the difficult cases and the more straightforward cases he supervises. He was residency program director for 5 years at UTMB Galveston so he is all in on education. He has taught many American and European ophthalmologists MSICS and tells me I am no worse than most. Faint praise. He has also taught many African ophthalmologists how to do microsurgery. The trainees are with him for 3 months, and during this time they move from pterygia to closely supervised MSICS to operating while he is within shouting distance, with the goal being to have done 150 cases by the time that they graduate in three months. The goal is then to make sure that there are resources in place when they leave to continue to practice. He is a remarkable man in a remarkable institution.

If you would like to know more about Mercy Ships and their mission, please check out www.mercyships.org. This letter home is obviously not an official communication.

<https://www.mercyships.org/stories/training-local-doctors/> is the story of one of Dr Strauss’ fellows, Abram Wodome MD, who has carried on the work in Togo. I had the pleasure of meeting Dr Wodome last week, please watch the video to get a sense of the mission.

Thanks for reading, and be grateful for clean water.
Joe Miller 21 February 2018
jmiller@eyes.arizona.edu