



The Anesthesiologist and the Arts

The Hand of Goodbye

by Elizabeth A. Steele, M.D.

This summer I was delighted to receive Elizabeth Steele's e-mail updates on her journey to Africa. As I read them, I began to realize the beauty of her observations and reflections. This essay is a compilation of her missives, written, spontaneously and informally, during her volunteer experience. As electronic forms of narrative and art, such as web logs, web sites, flash programs, e-mail and other cyberspace creations, become more and more prevalent, I think it's important to recognize and celebrate these tech formats and their potential for communication and artistry.

Elizabeth A. Steele, M.D., was raised in Virginia, and received her undergraduate and medical degrees from the University of Michigan and the University of North Carolina, respectively. She completed anesthesia residency in June 2004 at Stanford. Dr. Steele has had a sustained interest in travel and service. During high school she lived as an exchange student in Denmark, and she has traveled extensively, including a solo trip around the world. After her sojourn in Africa, Dr. Steele will begin her work as an attending anesthesiologist at MetroHealth, Cleveland, Ohio.

See, for example, <http://www.peakware.com/encyclopedia/peaks/kilimanjaro.htm> for information and images of Mount Kilimanjaro.

The Anesthesiologist and the Arts column is open to all CSA members as a forum to express your interests in the arts and creativity. Contact me at ashafer@stanford.edu.

—Audrey Shafer, M.D., Associate Editor

After a long journey from California, I have arrived safely in Tanzania, East Africa, to begin six weeks of teaching and travel. The educational program is under the auspices of the American Society of Anesthesiologists Overseas Teaching Program (ASA-OTP) and I am grateful for the opportunity to volunteer. The program seeks to increase the knowledge of anesthesia for local providers and trainees. It's the old adage about giving a man a fish versus teaching him to fish. Having just completed my anesthesia residency at Stanford, including preparation for the written Boards, I figured I was ready to educate others.

When I decided to become an anesthesiologist, I worried that overseas volunteer opportunities would not be available. Happily I was wrong. Last August I went to Ecuador with Medical Missions for Children, which primarily provides facial reconstructive surgery. In that program, our team was nearly self-sufficient, and

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we used only a few of the local supplies. The ASA-OTP volunteer, however, works entirely with local staff and supplies, which is both rewarding and limiting.

Dr. Chagula, an Assistant Medical Officer, and his wife met me at the airport. It was 8:30 p.m. and quite dark; nonetheless, the high quality of the road and the prevalent use of electricity surprised me. Already I could sense a more advanced and modern Africa since my sojourn in West Africa in 1996. As we drove along I saw dry corn stalks in the fields bordering the road. It had been a drought year which will no doubt lead to hardship for those least able to afford it.

I'm staying at Blue Flat #3 in the Doctors' Compound, Kilimanjaro Christian Medical Center. We are a few kilometers from Moshi, the staging area for treks up the great mountain, Kilimanjaro. KCMC is quite a large outfit with training programs in many allied health fields, as well as schools of nursing and medicine. In the anesthesia department, I teach nurse anesthesia students, assistant medical officer (MO) students and physician residents. The various distinctions are confusing particularly since they are often all in the same classroom. On top of this, the MOs are addressed as Doctor but they have never been to university. The two MOs with whom I work are both bright and motivated. They have great ability, if not medical degrees.

My "blue flat" has blue doors but is otherwise white. It is in a six-plex: three up and three down. My neighbors to the right are two Duke internal medicine residents on a three-month rotation. And to my left is the hospital pastor. I have a maid three days a week for under \$10 and share a gardener with the other occupants for \$8/month each. I have a kitchen table, desk, several old anesthesia texts and a few recent ones, a fairly well stocked kitchen and a very important luxury—a hot water heater! The set-up is something like a studio. The flat is almost exclusively used for ASA volunteers, so the closet has a lock, stocked with items for our use only: such as a mixer, pressure cooker, radios without batteries and the notebooks of former volunteers. The notebooks have stories, tips, guidelines, rants and raves. My first full day here I read most of the notebooks and felt a bit discouraged. A little bit of "what am I doing here?" jet lag, insecurity and wondering if it will be at all enjoyable. In some ways I wish I hadn't read their stories. They prejudiced me.

There are a number of free-range dogs who sleep all day and begin barking around 10:15 p.m. The first rooster crows at 3:00 a.m. Across the road, behind the hedge, are the unmistakable sounds of cows. In our yard, there are lemon and lime trees, and to the side of the garage are papaya and banana. We also have two good-sized termite mounds: large, conical forms of red clay. Closer investigation did not reveal any termites, however. Our block of flats is comprised of cinder block and concrete. No doubt the termites have moved on to a better locale. Also

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in the yard is our garbage pit. You think twice about the refuse you generate when it goes into your front yard.

The Doctors’ Compound is contiguous with the hospital grounds. From the main hospital building, I head west past the nurses dormitories, through a small gate, by fields overgrown with thistle and sunflowers and then through a gate for the Doctors’ Compound. One evening, just as I reached the second gate, I saw Kilimanjaro for the first time. The clouds that had lain heavily upon the hills cleared, and Kilimanjaro soared above me. It stopped me in my tracks—huge, overwhelming, frighteningly large. It was so much higher than I expected that I might not have seen it earlier because I simply did not look high enough. The snows of Africa were clearly visible. It’s daunting to think that I shall soon be attempting an ascent.

Every day I attend morning report at 7:00 a.m. The night call person presents cases done overnight and the status of the SICU patients. Another student gives a “Capsule” which is a 15-minute presentation on a medical topic such as electrolytes, drugs or acidemia/alkalemia. After report, we go to the ORs.

It’s pretty spartan but fairly clean. Most of the anesthesia is very cookbook, e.g., atropine before every induction. There are no narcotics used and halothane is the inhalational agent. They save the ether for the eclamptic patients (!). Fortunately they have clean and disposable needles and syringes and enough gloves for everyone. The HIV rate is around 20%. Frequent hand washing is de rigueur. At lunch time, I head back to the blue flat or do errands, shop, attempt some e-mails. I teach again in the afternoon at 4:00 p.m. straight through till 5:30 or so, and then a little break and an extra session for the medical officers.

The two medical officers, John and Omar, have been doing research these last few weeks. They are half-way through a two-year training program. I’ve spent extra time in the evenings teaching them more advanced subjects. I’ve also reviewed their research proposals. Omar has looked into mortality rates of pediatric patients admitted to the surgical intensive care unit. Unfortunately the mortality rate is about 30 percent. He hopes to analyze the medical records to identify preventable deaths and thereby improve future care.

Mortality rates for adults are also high. One day in the ICU, I rounded with a nurse anesthesia student. John is one of the brightest and most motivated of the students. We talked briefly about the patients. The first patient, with a diagnosis of obstructive jaundice, had undergone surgery the previous day. She died about ten minutes after we talked about her. A second patient who concerned me was a trauma patient. His trachea was intubated, and he breathed spontaneously with a T-piece delivering 2 LPM of oxygen. His respiratory rate was high, intercostals

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were straining and he was tachycardic per his EKG. But he had no oxygen saturation monitor. A probe was attached to his monitor but not him. John told me it wasn't working. So I retrieved a nearby unused probe and discovered that the patient's saturation hovered around 80 percent. I turned up the oxygen flow and recommended a ventilator. Not more than 30 minutes later, the patient wasn't receiving any oxygen therapy at all. I was really worried about him. Some staff seem to think that they can "test" the patients respiratory function by not delivering oxygen and seeing what happens. Well, I've got a pretty good idea about what happens! Fortunately, they put him on a ventilator that evening. With very little monitoring, few laboratory tests and a limited formulary of medications, ICU care is basic and mortality high. The SICU often has a number of post-thyroidectomy patients. They are left intubated overnight, not on a ventilator and usually not on a T-piece. It's not such a bad idea to do this as it probably prevents a few deaths from airway obstruction.

The lack of monitoring and scarce resources are also problematic in the OR. EKG pads are used and reused and reused. Taped to the body with a little saline put underneath for conductivity, they work pretty well. If no EKG pads are available, a cotton ball soaked in saline will also work. Endotracheal tubes are reused ad infinitum until the cuff gets a hole. Currently they are short of the normal adult sizes (6, 7, 8) and often use size 10. I had never seen a 10 before; it's quite large! Oxygen saturation is not available in most rooms, BP may be done manually, and end-tidal gas analysis—what's that? I'm trying to instill in the students basic maneuvers that can make a difference even without monitors—adequate preoxygenation, good mask fit, using good clinical judgment. I've found a few surprises: they didn't know succinylcholine can be given IM, attendings will induce general anesthesia without preoxygenation, nitrous oxide is thought to provide pain control post-operatively, and the concept of MAC is not fully understood. And I've seen some techniques, drugs and machines which we have largely abandoned in the U.S.: lidocaine spinal, EMO vaporizer, Penlon vaporizer, ether, halothane. It's been great for me to see these things in action.

The one-year nursing students completed their examinations during my final week at KCMC. I did most of the question writing for their theory exam, in large part based on the material I had presented. When I graded the examinations, I was so proud that a number of them could correctly identify the changes in carbon dioxide and oxygen tensions after prolonged apnea. Unfortunately, no one could correctly describe how pH and pKa affect the action of local anesthetics. Okay, okay that was a hard one! I feel a personal investment in each student. When I finished grading the exams around 8:00 p.m. one night, I had several of the students walk me back to Blue Flat No. 3. One actually thanked me for writing the exam.

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One Sunday, Dr. Semu, the chair of the anesthesia department, took me to his hometown. He grew up not too far from here, in a village near Machame. He and his wife have a home there which they plan to use in retirement. We were delayed on the way by a truck loading bananas for shipment to Dar Es Salaam. We also stopped multiple times to greet relatives of the Semus. They knew everyone and were related to most everyone. One of his relatives was having a party celebrating the completion of his new house, which included two stories, a paved driveway and a satellite dish. He made his money in transport and import of used clothes from the U.S. Those T-shirts you donate to charity may end up in Africa. I’ve seen Stanford, Notre Dame and the University of Calgary T-shirts at KCMC. The party was well attended with food and beverage served. Dr. Semu’s wife told me that if you want a house here, you don’t buy it, you build it. So in the midst of a village, this large house was built.

The clouds that sheltered me the first two weeks have dissipated and the sun shines brightly. The ambient temperature is not so hot, but you can feel the strength of the sun on exposed skin, nascent melanomas blooming—I take cover under long sleeves and a wide-brimmed hat. My habit is to take a walk at lunchtime. One day, I neglected to apply sunscreen so I cut my walk short. When I returned to the office building, the security guard asked why I was back so soon. I explained that I had forgotten my sunscreen and “the sun is too strong.” He sized me up and replied, “The sun’s not too strong. You’re too white.”

Yet clearly, direct sunlight affects everything here. The dirt roads are hard packed and fissured as if they were cobblestone. Each footfall raises a small cloud of terra cotta dust. Grass crackles beneath you. Passing cars leave grit in your eyes and hair. And the dust gives a permanent hue to floors and walls. White towels are dusty red. And this is in the shadow of the mountain where water is more plentiful and the climate more temperate. In the sun, Kilimanjaro is revealed in all her majesty. As the sun sets, the glaciers give pink tinged reflections of the sky.

After a few short weeks, my students are already saying they’ll miss me. Last Saturday, I planned to take the day off. Dr. Sister Terimo, an assistant medical officer and a nun, had arranged an equipment review session for the upcoming examinations. The students asked me to come. “We need you,” one said. It’s hard to resist a direct appeal like that! At the end of the “capsules” the students, as requested by the program directors, “organize a few claps” for the presenter. First they rub their hands together, warming them up, then clap three times in unison. After several afternoon sessions, I requested, “Can we organize a few claps for Dr. Steele?” They laughingly agreed. And I led them in three claps for me! We were all smiles.

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This weekend the students had a farewell dinner. Most have come to KCMC from a distance, sent by their employers to be trained in anesthesia. They received their diplomas with gladness for a job well done and for a long year completed. The College paid me for my role as “External Examiner”: 30,000 Tanzanian Shillings (\$30), which I donated to the students for their celebration. At the party, I was asked to say a few words. I congratulated the students and wished them all well. Each student was asked to stand to say a few words, and perhaps receive “The Hand of Goodbye,” a term which was unfamiliar to me. When a person is recognized, you give them a gift called “The Hand of Goodbye.”

I feel good about the work I am doing here: actively improving the knowledge and quality of care of the next generation of anesthesia providers in Tanzania. I came to help them and in return I have felt appreciated, needed, liked and even loved. This has been my “Hand of Goodbye.”

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