

Report on a visit to Ghana, June 2010

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Dear Friends,

As you may know, I spent two weeks in June 2010 in Accra, Ghana giving a condensed graduate course on homology (the course's web site is at <http://www.math.toronto.edu/~drorbn/classes/0910/Homology/>). I have promised a report to a number of people, so here it is. I am writing this report in the restaurant at the University of Ghana Guest Centre a few hours before my departure back to Toronto.

Why? I was curious to see a bit of Africa, and I thought I might be able to do something useful there.

How? I met a graduate student from Ghana during a conference at ICTP, Trieste and told her I was interested (actually, I also told the same to some other people, but never heard back). She's put me in contact with her former professor in Ghana, Prof. Allotey, and he had put me in contact with the chair of the math department at the University of Ghana, Margaret McIntyre. All further arrangement were made between me and her.



On the main road, near the university

Who paid? I paid for my own ticket (I haven't decided yet whether to charge it to my research grant). The department here paid for everything else and even paid me a salary, more than enough for all my expenses while I was here. The leftovers I gave back to the math department.

What? Two weeks, five days a week, three hours a day. The first week on singular homology with the stated goal of "doing enough to prove the Brouwer fixed point theorem". The second week on Khovanov homology. In practice, I felt that we had run out of homological steam by day 8, so on days 9 and 10 we did other things, for just two hours a day. See the web site for more information.

Who came? Oy that's a hard question. Different people at different times. Mphil (Master of Philosophy) students from here, faculty members from here, 3 students from the University of Cape Coast (also in Ghana), one person from Kumasi (also Ghana), one person from Nigeria who was on sabbatical here, and perhaps a few others. One unpleasant thing was that while attendance was 10-15 throughout, only very few people came to all meetings. The rest may have gained something, but that "something" must be more cultural than a solid understanding.

How did it go? Reasonably well, I think. As I just wrote, I think the students learned some mathematics; some from the "formal" content and some from the various asides that I inserted. And I learned a lot about Ghana, though it is clear that I'm still a beginning student.

What did you learn? That's probably the hardest question to answer. I got some feel for what Accra is like, and by extension Ghana, and by extension West Africa. It became more 3D in my mind, with real individuals as opposed to statistical composites like "living to age X on income Y with probability Z of catching malaria on any given year". But converting those things that I've seen and felt into text is beyond my abilities to write, and perhaps beyond anybody's ability to write. You'll have to come and see for yourself.

There is certainly poverty in Ghana, and a few kings, yet there's also a large middle class of working people who aren't too rich and aren't too poor. It seems that most people that I met at the university and outside of it belonged to this middle class.

Apart from the cellular networks, which easily best their Canadian counterparts, infrastructure is very weak in Ghana. Water and electricity are unstable even at the university (so some departments have their own backup generators) and the roads are crumbling (with an occasional shiny new road here and there). There are so many cars! Though they seem to spend half their time in insane traffic jams that could have been avoided if traffic lights were more common.

How's math in Ghana? Weak. There is not a critical mass of people who understand the word "research" the same way we understand it in Canada and the rest of the developed world. Most university level faculty do not hold a PhD, and very few of those who do are active in research. And I fear that without the upward push that creative thinking generates, things can only go down. If there aren't fresh ideas the old ideas can only grow less and less appetising from one generation to the next. So I suspect that even undergraduate education in mathematics is less inspiring here than it can and should be. (This isn't to say that the people here aren't doing their best. They are, but there aren't enough of them).

What can be done? Me, a two-weeks old novice, how would I know? It would be highly pretentious of me to claim anything. Yet this letter is addressed to my friends, and you friends might know even less than me yet might be

interested. So here are a few suggestion how I/you can help. There may be more and if you think enough and study enough and visit enough you may come up with much better suggestions than mine.

1. Visit Ghana just like I did. Make your own contacts or ask me to connect you with mine, think of a course or a series of lectures that would give the people here something they cannot find within yet is within reach (you must consult with your hosts and keep an open mind!). There's also a formal IMU program along similar lines; see <http://www.math.ohio-state.edu/~imu.cdc/vlp/>.
2. Visit Ghana better than I did. At least at the University of Ghana in Accra there is a need for external supervisors for Mphil students and high level undergraduates. There are just a few local people qualified and ready to serve as supervisors, and they are overworked. Come to Ghana for a full working week every month or a little less if that's too much, and spend your time there holding marathon meetings with your students and the times in between buying the relevant books for the local library (which is rather limited, right now). This would be much easier if you live in Europe or are on sabbatical. Money does not grow on trees, but my guess is that the benefits of your efforts will outweigh their costs and that some granting agency, perhaps with the help of the university here, will be convinced of that and will be able to cover your expenses.
3. If you're a graduate student now, think of going for a post-doc in Ghana. There is no formal post-doc program at the University of Ghana, but there are many more job openings than applicants. As I wrote earlier, many of the faculty here do not hold a PhD. By coming as a post-doc you will bring your knowledge and standards and measurably strengthen mathematics here. You'll be doing a good deed, seeing the world, and it will look good on your CV too. This may be especially attractive if you need a buffer year for some reason anyway - and this invariably happens.

Best,

Dror.