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RE: Re-structuring of SBCS.

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To: **Professor Matthew Evans**

Head of Department  
Queen Mary University of London, SBCS  
3.14 Fogg Building

Dear Professor Evans,

My name is Wilson de Paula, and I am a SBCS PhD student. I am not affiliated with any organisation, or have any political aspirations. I am just a student trying to do some good science here in SBCS. I am writing this letter to humbly share with you a little of my daily life as a PhD student.

I did my undergraduate studies in Brazil, my M.Sc. degree in the USA, and now I am in the UK for my PhD. Although I have very little experience as a scientist, I have had the opportunity to work and visit different labs in three different continents for the past eight years. After two years being here, I can say with confidence that the QM-SBCS is the worst equipped department I have seen so far.

From the most basic resources a scientist needs to work with in a daily basis, to the most sophisticated equipment available out there - the QM-SBCS terribly lacks all of them! Please allow me to share with you a few experiences I have had here.

Starting from a simple crushed-ice machine. Nearly all molecular biology work needs to be done at 4°C. We have had situations where there was absolutely no crushed ice available in the entire Fogg building, and worst of all, we were told to pick up some ice from the Joseph Priestley building if needed. That was mid-summer, the campus pathways were closed due to the demolitions, so we would need to walk on Mile End road carrying an ice box. A bit humiliating for an every day work, isn't it? Each teaching lab has an ice machine, but it was closed most of the time. Now, thanks to some merciful heart, an ice machine was placed in the 4th floor. Reasonably speaking, one machine per floor is the minimum a biological sciences department needs, as well as a 4°C cold room.

Our poor instrumentation is further attested by the fact that we have only one 1 liter Beckman centrifuge, only one large autoclave, and not a single laminar flow cabinet for routine sterile work in the whole Fogg building. Although our research technicians do a great job keeping everything well maintained, those equipments are constantly running over their capacity and often breaking down, leaving us with no resort but to postpone our work until they are repaired.

Here is another struggle we have on basic needs - a spectrophotometer. It is such a simple and useful equipment, which is widely used since the early 20<sup>th</sup> century. We do not have a single one available full-time for research. My sincere thank you to all teaching technicians, who sometimes kindly lend us some of their nice ones used for demonstrations. There are dozens of new spectrophotometers in teaching labs, so wouldn't it be sensible to place at least one unit per floor for research purposes?

Another one: Radioisotope manipulation. Also widely used in molecular biology, among other fields. According to QM Health and Safety office, the Fogg building has currently no conditions to handle any work with radiation. Not officially though. I have submitted a request to work with one of the weakest radioisotopes, <sup>35</sup>Sulphur, used for basic protein import analysis. It took me 5 (five) months to hear anything back from the Health and Safety office. My formularies kept bouncing back and fourth, then forgotten somewhere, waiting for a chain of signatures, posts to be confirmed, and so on. But not only that, I was also constantly requested to produce information and resources that are completely out of my reach, such as a radiation laboratory plan and calibrated monitoring instruments,

which the department should have already made them available and ready to be used. Five months waiting to start a single experiment.

Our research thermo-cycler PCR machines are junked and scattered all over the place. The department has only 1 (one) Real-time qPCR machine used for gene expression analysis, and one of the cheapest and most simple ones. But it was broken, and no one willing to pay for fixing it. I took a week of my personal time to fix it. Now it is working again, and I know at least 5 colleagues who can now proceed with their work. I am not even dreaming of having access to one of the most recent ones, available in any competitive university, otherwise I would get a bit depressed.

Our greenhouses are a joke. With one of the most respected plant biology teams assembled in the world... Professors Leitch, Allen, Ruban, Mullineaux, Dr. Krauss, and others... is that really the best the department can offer? Have you been in our greenhouses Professor Evans? How can we grow plants in controlled conditions, and have good reproducibility in our experiments? No high impact journal would accept the conditions in which we have here. We really have to waste an immense amount of time to improvise and get things as close as possible to the acceptable. Amazingly, due to the high competence of those groups mentioned above, they still publish beautiful articles, but I bet that, if the conditions were better, their scientific production would be even more impressive.

Now here is a complete paradox. The SBCS has one of the most expensive EPR (Electron Paramagnetic Resonance) machines in London, worth nearly £1,000,000 (one million pounds). It is one of the top-notch machines for protein studies. However, no one here seems to know how to turn that machine on, or even where it is! I have to go to UCL in order to get my EPR experiments done in a much simpler and limited machine. At UCL they make some friendly jokes about this situation, then I have to put my head down, and shamefully smile.

I could write several pages boring you with my daily PhD student stories. Nevertheless, I believe that it is important for you to hear from us PhD students, because we are the ones with the "wet hands" here in the SBCS laboratories, besides the post-docs and research technicians. Most of our supervisors are always very busy writing grant proposals, overloaded with teaching, and some even frightened, ticking boxes to prove that they are capable and productive, so that they don't get sacked. Not really a healthy environment for science. Anyhow, my summary is that it is painful to carry out good science here. Science is already very challenging on its own, now try to do some high-impact research while swimming against a stream of administrative incompetence and extreme lack of resources.

One could ask me now: why don't you just go away then? Go back to Brazil or USA. My reply is that I am here because Prof. John Allen's group is here, and if you ask around, I am sure you will find many similar cases of PhD students being here because they want to work with their respective supervisors here present, and because they admire their work. Therefore, being at Queen Mary's SBCS building is simply a consequence of having brilliant scientists, the ones we wish to get our mentoring from. The Fogg building, and its administrative staff exist for this very only reason, which is to support not only teaching, but also the scientific work done by these academics. This is so obvious, but at the same time it seems to have been lost somewhere between politics and teaching profits.

One last thing: Please imagine this hypothetical situation, in which all SBCS academics have been replaced by Harvard academics. Do you think that, in 5 years, with our current facilities, they would all meet the minimum requirements in your current productivity criteria? Or even pass successfully the probation period?

I doubt it, and I kindly invite you to do some experiments in our facilities during one week's period. I guarantee you will think the same.

Sincerely yours,

Wilson de Paula

