3 September 2013

Society for General Microbiology Consultation Response

Science and Technology Committee (Commons) – Women in STEM careers

Introduction

We are pleased to respond to the Science and Technology Committee (Commons) inquiry into Women in STEM careers.

We have divided our response into four sections: (1) key points; (2) the Society for General Microbiology and its role in UK microbiology; and recommendations for (3) universities and the higher education sector, and (4) government, in promoting women in STEM careers.

We hope this information is useful to you as you work on your review. With our national reach, and deep knowledge of our discipline, we can provide further information as needed.

1. Key points

- Microbiology is a popular degree subject for both men and women. Women are also well-represented in PhD training programmes, and many continue in postdoctoral research at higher education institutions (HEIs). Significant numbers also enter science, technology, engineering, and mathematics (STEM) posts in companies. Despite this, women are not well represented amongst permanent academic staff in HEIs and are seriously under-represented at senior management level in science-based companies. This indicates that women are disengaging from microbiological science after they have finished the earlier, training stages of the career. A similar pattern is prevalent across all science and engineering subjects. It should be noted that this cannot be attributed to a lack of commitment or interest in their subject: women pursuing science training need to be highly committed, especially at PhD and postdoctoral level.
- Equal opportunities legislation tends to overlook significant differences between male and female approaches to working life. These differences become most apparent within STEM communities, and may contribute to female disengagement from careers in HEIs. More effort is needed to understand these differences and adapt career development paths accordingly. It is not enough to assume that the differences are simply because women need to take the lead in child care. The majority of female senior academics and company managers have children, so there must be other differences that are not properly identified or acknowledged.

- In a predominantly male working environment, women may be reluctant to engage socially, and this may be a disadvantage for career development. A more even gender balance would solve this problem, but in the interim, policies need to be developed to redress the balance.
- Inadvertently, senior managers in academia and industry may present an image of the priorities and pressures of science management that are inconsistent with women's ambitions and working practice. Many women may choose not to engage with the modus operandi in STEM for this reason.

2. About the Society for General Microbiology

The Society for General Microbiology (SGM) is a membership organisation for scientists who work in all areas of microbiology. It is the largest learned microbiological society in Europe with a worldwide membership based in universities, industry, hospitals, research institutes and schools. The SGM publishes key academic journals in microbiology and virology, organises international scientific conferences and provides an international forum for communication among microbiologists and supports their professional development. The Society promotes the understanding of microbiology to a diverse range of stakeholders, including policy-makers, students, teachers, journalists and the wider public, through a comprehensive framework of communication activities and resources. Further information about SGM is provided in Appendix 1.

In early 2013, the Council of the Society for General Microbiology agreed to establish a short-term Working Group to make recommendations to Council to improve the equality of opportunity and diversity of representation in the Society's membership. The Working Group is chaired by Professor Hilary Lappin-Scott, Equality and Diversity Champion. The Working Group is currently preparing the SGM Policy on Equality and Diversity for Council to consider.

3. Role of universities and the higher education sector

- HEIs need to address the distinct lack of senior female academics who would provide role models and mentoring for women who wish to develop a career in an HEI.
- HEIs need to be more proactive in encouraging opportunities for employment, grants, scholarships, travel opportunities to conferences, applications for promotion, etc. for both staff and students and not leave these as open calls. Men might be more likely to put themselves forward for these opportunities than women.
- Mentoring of all staff should help women apply for opportunities as well as men. Giving more career support to both men and women would allow them to plan their careers productively in academic science, industry, or other career pathways.
- All academic staff should receive unconscious bias training (e.g., to avoid stereotyping) before they can run a research group. While appointments committees are trained, individual principal investigators responsible for developing their research team members' careers may not be.
- Athena SWAN or other recognised accreditation should be a requirement for all HEIs, together with informal networking for women, since there is a need to establish a critical mass of women in STEM.

- It would be useful to implement measures such as a crèche facility at scientific meetings, and provide for grants for short overseas travel visits.

4. Role of Government

- Science education and career advice in schools should encourage women to enter science careers. There is a need to continue to remove entrenched perceptions that boys are more likely to succeed at STEM subjects while girls should be interested in arts and humanities. This will entail measures such as providing mentoring for girls in STEM subjects.
- Young women should be provided with a full range of opportunities to experience science, via work and educational placements, preferably in environments where they can see female role models at work. This could be achieved through a funding programme.
- There is a need to introduce a scheme to encourage formal interaction between HEIs and schools to promote and develop policy in science education, to ensure that all school-leavers are better equipped with the numerical, scientific and literacy skills essential to succeed in science.
- Government could establish core-funded part-time positions for returners to work after a career break in universities, industry, etc. If core-funded, this becomes part of the infrastructure, rather than a special arrangement with funding sources needing to be established. The Daphne Jackson Trust scheme (2 years 50% full-time equivalent) is an excellent example of good practice in this area.[1] There could be a government scheme to provide money to support research groups during maternity leave (or other work breaks taken for caring purposes).
- A precedent has been established by Department of Health stating that only university departments with Athena SWAN Silver awards will be eligible in the future for certain funding streams. This may be difficult to implement across the full range of institutions and funders, but Government should consider making it mandatory for institutions to have accreditation in order to receive research funding. Without this direct link to funding, high-income earning departments will not be incentivised to examine their training and working environments.
- At Research Council level, all grant applications should have a "Career Development" section for staff or students employed on the grant, and continuing professional development (CPD) activities should be funded.
- Research Council governance is not transparent in this area. Research Councils should have policy statements on funding equality, and release information on grant awardees at least annually. Research Councils should be asked to examine their gender statistics for awarding grants, and report these data broken down by grant awarding committee.
- Government could assess good practice in other countries; or in disciplines where women are well-represented in the leading positions. For example, in scientific publishing where there are forums that draw together female role models from authors, to editors, to the publishers themselves; these support the vision of reaching out to all parts of the talent pool within STEM.

[1] http://www.daphnejackson.org/

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Appendix 1

Vision

A world in which the science of microbiology provides maximum benefit to society.

Mission

To promote high-quality microbiological science, both nationally and internationally, to a diverse range of stakeholders.

Rationale

The potential socio-economic benefits arising from microbiology are substantial. They include:

- A healthier future (for humans, animals and plants) and a better quality of life, within the context of a sustainable natural environment.
- The development of biotechnology products (such as food, drinks, biopesticides, biofuels and medicines), which generate wealth and employment, and so support growth and innovation.
- The advancement of scientific knowledge, as a benefit in its own right, and to allow us to plan for the future and contribute to international solutions for global challenges, such as climate change, the burden of disease and food security.

Strategic priorities

To achieve its Vision and Mission, the Society will work towards the strategic priorities below.

- Publishing: to contribute to the science of microbiology through high-quality publications.
- Scientific conferences: to hold international scientific conferences to disseminate research knowledge and provide a forum for communication between microbiologists and to grow and support communities among them.
- Raising awareness: to inspire and educate people about microbiology, and allow them to make informed decisions which recognize the importance of microbiology and its advances.
- Influencing policy: to ensure that appropriate scientific information and expert opinion are made available to policy- and decision-makers and that the improvement of resources and infrastructure for microbiology is supported.
- Professional development: to promote microbiology as a career from school level onwards and support career and professional development of microbiologists.

The Society is a Charity registered in England and Wales (No. 264017) and in Scotland (No. SC039250) and a Company Limited by Guarantee, registered in England and Wales (No. 1039582).

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