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Meeting report

A witness seminar on the history of the Human Gene Mapping Workshops

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1. Introduction

In June 2015 the transcript of a 'Witness Seminar' on the history of the Human Gene Mapping Workshops c.1973–c.1991 was published by the History of Modern Biomedicine Research Group (www.histmodbiomed.org/witsem/vol54). The publication came from a meeting held in March 2014 to which key, mostly UK-based scientists contributed, two of whom had participated in the first Human Gene Mapping Workshop in 1973, and many of whom had been involved in subsequent HGMW (Table 1).

Witness Seminars are meetings to which a group of people who have been involved in particular discoveries, debates or events are invited to share their reminiscences and memories of 'what really happened, the stories behind the published literature' to quote Professor Tilli Tansey who heads the Group, and who developed this approach (Jones & Tansey, 2015).

Through the use of oral history in a group format, the Witness Seminar publications make a unique contribution to the international corpus of primary historical resources on twentieth century human/medical/clinical genetics, with a focus on the life stories of UK-based geneticists. The group format enables participants in the seminars to challenge, corroborate, and/or expand on the reminiscences of their peers. Although these Witness Seminar events and publications differ in style and content from the more traditional one-to-one approach to oral history, they also relate to the body of interviews conducted with scientists and clinicians by other individuals and institutions, such as: the Genetics and Medicine Historical Network of Cardiff University led by Professor Peter Harper (Genetics and Medicine Historical Network's, 2016); 'Conversations in Genetics' by the Genetics Society of America with USA-based scientists (Conversations in Genetics, 2016), and the National Human Genome Research Institute's staff interviews in Bethesda (NHGRI, 2016).

Similar to other high-quality oral history resources, the Witness Seminar publications are intended to interact with many other primary source materials which researchers and interested publics may engage with; for example, the 'Codebreakers: Makers of Modern Genetics' archival collections of geneticists and related organisations digitised by the Wellcome Library, London, in collaboration with other institutions (Codebreakers, 2016). The Witness Seminar publications also stand alone as significant historical narratives of biomedicine in their own right.

Each Witness Seminar meeting is facilitated by a chairman, the entire proceedings are recorded and transcribed, and then edited, with the addition of references, bibliographies and biographies, and published both in hard copy and as a freely available pdf. Several meetings have already been held and published on genetics-related or genetics-focused topics, including on haemophilia (Tansey & Christie, 1999); rhesus factor (Zallen et al., 2004); genetic testing (Christie & Tansey, 2003); clinical genetics (Harper et al., 2010); clinical cancer genetics (polyposis and familial colorectal cancer) (Jones & Tansey, 2013); and clinical molecular genetics (Jones & Tansey, 2014). All publications can be downloaded from the Group's website at: www.histmodbiomed.org/article/wellcome-witnesses-volumes.

2. Meeting report

Held over half a day, the Witness Seminar on the HGMW included a range of scientists and clinicians, as listed below, with Professor Peter Harper acting as a Chairman/facilitator (Fig. 1):

Professor Bert Bakker

(Technician in molecular genetics, 1977–1989/Head of the Laboratory for Diagnostic Genome Analysis, 1990–2015, Leiden University).

Professor Tim Bishop

(Assistant/Associate/Adjunct Professor at Department of Medical Informatics, University of Utah, 1979–1997; Director of the Leeds Institute of Cancer and Pathology, 2011–).

Professor Sir Walter Bodmer

(Professor of Genetics, University of Oxford, 1970–1979; Director of Research/Director General, Imperial Cancer Research Fund, 1979–1996; Head of the Cancer and Immunogenetics Laboratory, Weatherall Institute of Molecular Medicine, University of Oxford, 1996–2005).

Abbreviations: HGMW, Human Gene Mapping Workshops; *MPI*, mannose phosphate isomerase.

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Table 1
Locations and dates of the Human Gene Mapping Workshops.

HGM1	1973	New Haven
HGM2	1974	Rotterdam
HGM3	1975	Baltimore
HGM4	1977	Winnipeg
HGM5	1979	Edinburgh
HGM6	1981	Oslo
HGM7	1983	Los Angeles
HGM8	1985	Helsinki
HGM9	1987	Paris
HGM9.5	1988	New Haven
HGM10	1989	New Haven
HGM10.5	1990	Oxford
HGM11	1991	London

Professor Ian Craig

(Demonstrator/Lecturer, Genetics Unit, 1970–1996/Professor in Genetics (titular), 1996–1998, Department of Biochemistry, University of Oxford; Head of Molecular Genetics 1998–2001/Professor of Molecular Psychiatric Genetics, King's College, London, 2001 — retired as Emeritus Professor 2015).

Professor Malcolm Ferguson-Smith

(Burton Professor of Medical Genetics, Glasgow University, 1973–1987; Professor/Head of Pathology, Cambridge University, then Professor of Pathology at Cambridge's Department of Veterinary Medicine, 1987–1998).

Professor Peter Harper

(Professor of Medical Genetics; University of Wales College of Medicine, 1971–2004; convenor of the Genetics and Medicine Historical Network, Cardiff University).

Professor Veronica van Heyningen

(Postdoctoral scientist, Medical Research Council's Human Genetics Unit, 1977–1992, then Head of the Cell and Molecular Genetics Section, 1992–2012).

Professor Maj Hultén

(Head of the Regional Genetics Service at East Birmingham/Heartlands Hospital, 1975–1997; Professor Emerita, Karolinska Institutet, Stockholm, 2012–).

Professor Sue Malcolm

(Died 2015. Emerita Professor of Molecular Genetics, University College London, Institute of Child Health).

Professor Michael Morgan

(Director of Research Partnerships and Ventures at the Wellcome Trust (WT)/Chief Executive of the Wellcome Trust Campus in Cambridge, retired from the WT in 2002).

Professor Sue Povey

(Chair of the HUGO Human Gene Nomenclature Committee, 1996–2007; Haldane Professor of Human Genetics, University College London, 2000–2007).

Professor Chris Rawlings

(Project Manager of bioinformatics for HGM10.5/11, Imperial Cancer Research Fund; Head of Department of Computational Systems Biology, Rothamsted Research, 2004–).

Professor Ellen Solomon

(Senior/Principal Scientist, Imperial Cancer Research Fund, 1976–1995; Head of the Department of Molecular Genetics, 1995–2009, Prince Philip Professor of Human Genetics, 2004–).

Dr. Susan Wallace

(Director, Americas Office of the Human Genome Organisation; Lecturer, Population and Public Health Sciences, University of Leicester).

Professor Sue Povey (Fig. 2) of the Galton Laboratory gave a historical introduction to the seminar, reviewing that Laboratory's contributions to human gene mapping research from its 1930s work on haemophilia and colour blindness, comparing it with research conducted elsewhere on *Drosophila* mapping. Later in the seminar she further framed the historical context for the breakthroughs brought by gene mapping thus: 'In the 1970s, people, I anyway, didn't think we'd ever find a gene by where it was. I think that you (Walter Bodmer) introduced that in 1980, the reality of it' (Jones & Tansey, 2015). Professor Sir Walter Bodmer (Fig. 3) outlined his own intellectual role in the field, while acknowledging the input of many others, and pointed to the role of somatic cell genetics research in paving the path to human gene mapping, with personal reference to his experience of working in Guido Pontecorvo's lab. On this trajectory, he also cited a particularly influential paper of the late 1960s: '…I think the initial, the first real, experiment that showed

Fig. 1. Participants at the Witness Seminar on Human Gene Mapping Workshops. Photograph copyright: 'Wellcome Library, London'.

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