Obituary: Professor Hannah Steinberg

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Published online: 15 February 2020

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In the 1950s many new drugs were introduced for treating psychiatric states, including antipsychotics, anxiolytics and antidepressants. This was the beginning of the so-called “psychopharmacological revolution” and the effects of these drugs on the brain were studied intensively to clarify their then poorly understood mechanisms of action and to develop additional novel psychotherapeutic agents. Most investigations were built around traditional pharmacological approaches looking for drug-induced changes in the neurochemical and neurophysiological functionality of the brain, yet the drugs were used to exert their influence in the relatively neglected domain

of psychological functions such as emotions, feelings and behaviour. Hannah Steinberg was among the first generation of modern scientists whose work in both humans and animals was directed primarily at these properties of organisms. She was also very much aware that knowledge of the psychological effects of substances with known actions at the neuronal and systems levels had the potential to assist understanding of the normal functions of the undrugged nervous system.

Professor Hannah Ruth Steinberg was born in Vienna, Austria, on 16th March 1924. The early years of Hannah’s life were complicated by the politics of the 1920s and by a family situation that belied the stereotype of cosy, middle-class Jewish life. She confided to me that relationships in her immediate family were not happy and this situation impacted upon later events. Her schooling became traumatic when the 14-year old girl was brought to the front of the classroom to be abused by teachers as an example of an inferior and alien race. Her parents ensured her survival by sending her away in

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December 1938 under the Kindertransport scheme, thereby enabling her to enter England on condition that she “does not enter into any employment, paid or unpaid, while in the United Kingdom”. Hannah was able to complete her schooling in London and Reading, was naturalized as British, and enrolled in a Certificate in Commerce course at the University of Reading. After a short period of unsatisfying secretarial work, she secured entry into the University of London (University College - UCL) where she graduated in psychology (1948). Meanwhile her departure from Vienna as her parents’ only child had signalled to her mother that there was nothing left in life for her and she committed suicide soon afterwards. Her father walked across the Alps to Italy, boarded a ship to Tel Aviv, built a new family in Israel, and was briefly reunited with Hannah several years later.

After graduation Hannah made the bold and risky move to the Department of Pharmacology at UCL where her doctoral studies entailed investigating effects of psychoactive drugs on learning, memory, perception, mood and subjective states. After award of her PhD Hannah joined the academic staff of the department, initially as a Lecturer and subsequently as Professor of Psychopharmacology. With psychologist Professor Arthur Summerfield she became joint leader of a research group spanning UCL and the adjoining Birkbeck College. Grants from the National Institute of Mental Health (USA) and the Medical Research Council (UK) were major sources of the group’s support. Studies in which mixtures of drugs produced unusual profiles of effects that were not predictable from their known neuropharmacological actions were prominent in her early work (Rushton and Steinberg 1963). Mixtures of amphetamines with barbiturates such as the ‘purple heart’ tablets were being used clinically and were subject to widespread abuse. These concoctions featured conspicuously in the group’s studies and were shown in both rodents and humans to yield effects not attainable with any dose of either drug alone. Other studies shed light on to the development of drug dependence, helping to move research on drug addiction on from a focus purely on drug withdrawal syndromes to investigations of drug-taking behaviour and the psychological and brain mechanisms underlying it (Kumar et al. 1968). Hannah also published some of the very first papers showing that the previous experience of animals could influence behavioural drug effects (Steinberg et al. 1961) and advocated strongly the use of animals with precisely controlled breeding and housing conditions, along with minimizing stress-provoking test situations unless effects of stress were a subject of study. Students had to practice their technique for administering drugs to rats by subcutaneous injection until absolutely minimal restraint or sometimes, no restraint at all, was needed! Many of these notions are taken for granted nowadays but were novel and controversial at the time.

Hannah also played an active role in the training of medical and pharmacology students at UCL, devising a notable laboratory class in which students gained first-hand knowledge of the effects of some psychoactive drugs through controlled self-experimentation under laboratory conditions. Her research expanded into animal studies that paralleled her work in humans and she was rapidly recognized internationally as a leader in the field. The small group served as a training centre from which many individuals went on to make careers in psychopharmacology including the psychiatrist Ramesh “Channi” Kumar, behavioural psychologists David Sanger and Roger Porsolt, as well as pharmacologists Ian Stolerman and David U’Prichard. I was one among many students who had heated discussions with Hannah about the direction their work should take, and yet she seemed to value freedom of thought and action to the extent that students were often allowed to do what they felt was best even when she profoundly disagreed with their choices. Such an approach is rare in today’s grant-driven academic world, inhabited as it is by large groups and consortia. Nevertheless, on occasion Hannah would fearlessly stick to her position: during an evening meeting with the then Editor of *Nature* Hannah refused to make minor changes in a manuscript and stated she would withdraw it rather than make amendments that she felt were inappropriate. I observed this confrontation and was quaking at the prospect of losing a much sought-after publication in *Nature*, but Hannah won the day!

Numerous honours were bestowed on Hannah, including the degree of DSc of the University of London and the Lifetime Achievement Award of the British Association for Psychopharmacology; the society now grants an annual Hannah Steinberg Bursary to support attendance of a post-graduate student at its summer meeting. In 1992 she took Emeritus status at UCL and embarked upon a second career as a Visiting Professor at the University of Middlesex where, in collaboration with Dr. Elisabeth Sykes, she carried out pioneering work on the role of physical exercise in psychological and physical well-being. Her remarkable life came to an end on 11th December 2019.

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