After graduating from Oxford in 1964, I joined the research group of Luis Alvarez at the University of California, Berkeley, where I obtained a Ph.D. in experimental particle physics in 1969. That was a time of great excitement, with discoveries coming thick and fast. I studied the new phenomenon of CP (charge-conjugation times parity) violation in neutral K mesons, using the bubble-chamber technique for which Alvarez was awarded the 1968 Nobel Prize. In those days it was possible to do front-line particle physics in a small team at a local accelerator — in this case with just three collaborators, using the Bevatron at the Lawrence Radiation Laboratory (later renamed the Lawrence Berkeley Laboratory, LBL, to get rid of the dreaded R word). However, it was already clear then that the era of bubble chambers was coming to an end and the future lay with big collaborations using electronic detectors, for which I had little enthusiasm. In any case my aptitude lay more on the theoretical and computational side, and I was fortunate to be offered a post-doctoral position in the LBL theory group. Sensational new results from the nearby Stanford Linear Accelerator Center were indicating that the proton was composed of point-like constituents, consistent with quarks, which had previously been held to be a mathematical fiction. My first theoretical project was to show that meson scattering could be explained in a self-consistent way without invoking constituents (the so-called bootstrap hypothesis). This was suggested by Geoffrey Chew, the charismatic head of the LBL theory group and a leading opponent of quarks. However, to his disappointment my results suggested the opposite.

At that time Richard Eden, the head of the particle theory group in the Cavendish Laboratory, was visiting Berkeley and he encouraged me to apply for a position at Cambridge under a Science Research Council scheme to bring back young British scientists from overseas. I succeeded and moved to Cambridge in 1971. I discovered on my arrival that the situation of particle physics, especially theory, in the Cavendish Laboratory was then quite precarious. Successive Cavendish Professors after Rutherford had closed down research in nuclear physics altogether and shifted the emphasis of the department to condensed matter physics. Research in particle theory was mostly done in the Department of Applied Mathematics and Theoretical Physics (DAMTP), without the close contact with experimental physics that I had been used to. Furthermore, Richard Eden soon left particle physics to form a new group in energy studies, and in 1973 I became the only staff member in particle theory and de facto head of the group.

Nevertheless, over the years our small group thrived, thanks largely to our interaction with the outstanding experimental particle physics group at the

Cavendish and the many excellent students and postdocs who were attracted to work on theoretical problems closely related to experiment. We were also fortunate to be working at a time when the Standard Model of particle physics was being pieced together and to help in its confirmation. Our main research interest has been strong interactions, first phenomenological models and then quantum chromodynamics (QCD), a key component of the Standard Model. We enjoy working closely with experimentalists and have made many contributions at the interface between theory and experiment, including the Herwig event generator (a complete computer simulation of the main processes studied at particle colliders), new algorithms for finding jets of produced particles, event shape variables and models for non-perturbative QCD.

I became a Fellow of Emmanuel College in 1973, and since then I have been at various times a Director of Studies, a Tutor, and even for a while Editor of the College Magazine. It is especially gratifying to have taught the many able and enthusiastic physics students that Emmanuel attracts.

I was elected a Fellow of the Institute of Physics in 1987 and of the Royal Society in 2001. I received the 2008 Dirac Medal of the Institute of Physics "for pioneering work in understanding and applying quantum chromodynamics" and the 2012 J.J. Sakurai Prize of the American Physical Society "for key ideas leading to the detailed confirmation of the Standard Model of particle physics, enabling high energy experiments to extract precise information about quantum chromodynamics, electroweak interactions and possible new physics."

Although formally retired now, I continue this kind of work, aimed at a more precise description of the complex final states produced at the CERN Large Hadron Collider. I tend to be away from Cambridge much of the time, mostly at CERN, now that I no longer have to teach. In recent years I have also spent substantial periods at the Kavli Institute for Theoretical Physics in Santa Barbara, at New York University, at the University and Federal Technical Institute in Zurich, and at the Kavli Institute for the Physics and Mathematics of the Universe in Tokyo.

Bryan Webber

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