Our understanding of the 'hot' stars that form a halo around our galaxy is undergoing a renaissance: recent increases in the power of computers are now allowing a far more detailed and complete modelling of stellar evolution. A conference was held in Union College, New York, to gather experts in the field to re-examine the rôle of these hot stars and this volume draws together their articles to provide a timely review.

The articles show how advances in computer power have, in particular, allowed complex modelling of the core helium-burning and ultraviolet-bright stages. They go on to demonstrate how this modelling is leading to a better understanding of new observations of stars on the horizontal branch, both in the field and in globular clusters, as well as stars in later stages of stellar evolution.

Together these articles provide an up-to-date and comprehensive review for graduate students and researchers interested in the hot stars in the halo, especially the history of the halo and the evolution of old stellar populations of different metalicities.

Hot Stars in the Galactic Halo

A. G. Davis Philip

Hot Stars in the Galactic Halo

Proceedings of a Meeting,
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A. G. Davis Philip

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Preface

Greetings from the Warner & Swasey Observatory. We join with you in celebrating Dave Philip's 65th birthday. Dave is one of the many graduate students of whom we are justifiably so proud. He is also one of the early group, and thus is vividly remembered. The deep friendships that developed among that group, including also Art Upgren, Nick Sanduleak, Dick Herr, Bambang Hidajat, and Jack MacConnell, are testimony to the wonderful environment at the old Taylor Road Observatory, where our offices were. Funding levels alone tell us that those were halcyon days; the enduring friendships prove it!

Dave has exhibited splendidly the trait that so impresses me about our students, namely, an unflagging dedication to doing astronomy. Through good times and bad, their interest has never waned. And so, year after year, the cumulative contributions have been admirable.

Peter Pesch, William P. Bidelman
Cleveland, Ohio
November, 1993

I am pleased to welcome you to this meeting on behalf of Union College and its Physics Department. It is a well-deserved recognition of Professor A. G. Davis Philip which has brought together most, if not all, of those who contribute to his major field of astronomical interest.

Dave has strong local roots, inasmuch as he did his undergraduate work in physics at Union College, followed by a Masters degree at New Mexico State and a Ph. D. at Case Institute of Technology. His academic career includes stints at the University of New Mexico, and at the State University of New York at Albany, in the days when it had a Department of Astronomy. He has had a long connection with Dudley Observatory, beginning when it was in fact a working observatory and before it became a funding entity. I was on the Board of Dudley while he had was there. Now I am currently its Administrator.

His associations and honors are many. These include serving as a Shapley Lecturer for the American Astronomical Society and involvement with and serving as the President or Secretary of at least three IAU Commissions. He is currently organizing an IAU Symposium for next year at the General Assembly at The Hague. He has been instrumental in the success of the Astronomical Society of New York and the New York Astronomical Corporation. He is a Trustee of the Fund for Astrophysical Research, had been a visiting professor at many institutions, has his own press, L. Davis Press, and has organized the Institute for Space Observations, an umbrella organization for obtaining research grants. I understand that most of the members of this Institute are here.

At the present time he is a research professor at Union College and an adjunct professor at Wesleyan University. He must be one of the world's most active editors, not only of IAU Proceedings, but also publications of his own press, and the Contributions of Wesleyan's Van Vleck Observatory. For many years he edited Dudley Observatory reports. He is a fellow of the Royal Astronomical Society, and the American Association for the Advancement of Science. And to think that with all of this, he has stolen time to some fundamental things with Mandelbrot sets. Quite a record. Congratulations.

Ralph Alpher
Schenedtady, New York
November, 1993

Foreword

A. G. Davis Philip has been a pioneer in the study of faint blue stars in our Galaxy's halo. Holding a meeting to honor a colleague on his or her 65th birthday is a lovely and honored scientific and academic custom. It helps when a field like the subject of our meeting is active and there is a need for workers to come together and exchange results and ideas. We must thank Dave's parents for his being born at an appropriate time.

The rapid increase in the power of computers is leading to a more complete and detailed modeling of stellar evolution, especially through the core helium burning and ultraviolet-bright stages. This in turn helps astrophysicists better interpret the observations currently being obtained for stars on the horizontal branch both in the field and in globular clusters as well as for stars in subsequent stages of stellar evolution. This meeting re-examined the role of these hot stars in the halo, especially in the context of the halo's history and the evolution of old stellar populations of different metallicities.

The members of the Scientific Organizing Committee were Saul J. Adelman, The Citadel, Michael Frame, Union College, Donald S. Hayes, Pina Community College, Kenneth A. Janes, Boston University, Phillip K. Lu, Western Connecticut State University, Darrell J. MacConnell, Space Telescope Science Institute, Peter Pesch, Warner & Swasey Observatory, Case Western Reserve Univerity, Nickolai Samus, Sternberg Astronomical Insitute, Vytas Straižys, Institute of Theoretical Physics & Astronomy, Vilnius, Peter B. Steston, Dominion Astrophysical Observatory, Allen V. Sweigart, NASA Goddard Space Flight Center, Arthur R. Upgren, Van Vleck Observatory, Wesleyan University,

The chairs of the scientific sessions were Saul J. Adelman, Carla Cacciari, Kenneth A. Janes, Phillip K. Lu, David Kilkenny, Ruth C. Peterson, A. G. Davis Philip, Allen V. Sweigart, and Arthur R. Upgren.

Dave has organized many meetings. As we were on Dave's home turf, we have followed his pattern. We thank Cambridge University Press for publishing our Proceedings. Dave has had a considerable influence on such volumes.

Saul J. Adelman, Arthur R. Upgren
Co-Chairmen of the Scientific Organizing Committee

Acknowledgements

We would like to thank everyone who attended the conference for their mutual support with the production of this book. Mrs. Mary Bongiovanni helped with many important secretarial duties including getting the discusion comments typed. We are greatful for the help of Dr. Mei-Qin Chen and the use of her printer and Dr. William Denig for his help with latex. We appreciate the tolerance of The Citadel's Mathematics and Computer Science Department for SJA and CJA's frequent invasions of their domain.

We note the support of the International Science Foundation for grants to allow both Vladimir Elkin and Vytas Straižys to attend this meeting.