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0521019117 - Binaries as Tracers of Stellar Formation
Edited by Antoine Duquennoy and Michel Mayor
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More than two-thirds of stars belong to multiple stellar systems. Binary stars are considered now as one of the best constraints on stellar formation models. Not only do binaries keep memory of their birth conditions but their orbit will also be submitted to changes by tidal effects, wind accretion and encounters in clusters. Certainly the correlation between orbital eccentricity and period is a clue to our understanding of double star history. The most recent observations are discussed in these proceedings with the aim to disentangle evidence of stellar formation from later physical evolution. Each article is a paper that was read at a September 1991 meeting organized to honour Dr. Roger Griffin of the University of Cambridge for his pioneer work in galactic astronomy, dynamics of clusters and study on binary stars due to his cross-correlation technique to determine stellar radial velocities.

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Frontispiece. The Aletsch glacier. With a length of 18 km, this is one of the longest glaciers in the Alps. It is seen here from a ridge situated within a 30 mn walk from Bettmeralp, the small village where took place the meeting in September, 1991. One can note:

- the several central moraines (dark trails of stones on the glacier) originating from tributary glaciers;
- the limits of the last advance of the glacier (absence of vegetation on the mountain slopes near the glacier);
- the Jungfrauoch Observatory (marked by an arrow) on top of a small rocky peak, at 3600 m above sea-level.
- the heavy cloud coverage!

(From an assembly of pictures taken and kindly communicated by R. F. Griffin).

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Editors' note

In 1967, Roger Griffin published his first work (*ApJ* 148, 465) related to the determination of radial-velocities by cross-correlation technique. The exceptional efficiency of this method (a gain of more than 1000 times that of the photographic plate) allowed considerable progress during the past 25 years in many domains of stellar kinematics: statistical properties of binary stars, dynamics of globular clusters, galactic kinematics, etc.

In the domain of late-type double stars, progress is particularly remarkable. For the first time detailed orbital elements distributions are available for stars of different masses, ages and metallicities. It is now possible to search for traces of stellar formation among the statistical properties of binary stars. This workshop mainly showed (or recalled) the importance of the physical processes taking place *after* the stellar formation, which may alter the primordial properties of the binaries: tidal effects, angular momentum loss, mass accretion through stellar winds, dynamical interactions, etc.

Looking over the contributions presented here, the title of this workshop could have been “The $e - \log P$ Workshop”. It also could have been “The 100th Paper Workshop”. It is indeed to honour Roger Griffin that we organized this topical workshop, coinciding with Roger's 100th paper of his famous series published in *The Observatory*.

This meeting offered a real opportunity for intensive exchanges of ideas, during a week in the Swiss Alps (in Bettmeralp, a small village at an altitude of 1940 m above sea-level). The last paper of these proceedings, issued from the discussions, tries in particular to make a synthesis of the observations related to the orbital circularization of low-mass binary stars.

The Editors

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