nitrogen lines. Lines of hydrogen, cosmically the most abundant element, are hard to detect or absent in most of these objects. Most WR stars are associated with young, massive stars, but some central stars of planetary nebulae also show Wolf–Rayet-like spectra. The usual interpretation is that a WR star has lost its outer hydrogen-rich envelope, by ejection in a wind or nebula, or by transfer to a companion star, or both. This allows the inner layers of the star, which are rich in the products of nuclear reactions, to be viewed directly.

Enormous progress has been made in the study of Wolf–Rayet stars since the last major conference, held in 1971. Ultraviolet, infrared and X-ray observations are important channels for discovery now, as are the new computational studies of stellar evolution that incorporate mass loss via stellar winds or Roche-lobe overflow. In her summary at the end of the Symposium, Lindsey Smith points out how much our present view differs from that of a decade ago:

"The WR spectra are no longer pure emission spectra ...; the WN [nitrogen] sequence is not a single sequence of ionisation ... or of H abundance ... or of mass loss rate. ... The Of, WN and WC [carbon] stars are no longer discrete classes but are bridged by intermediate types ... and there are now WO [oxygen] stars as well. The Ring Nebulae are no longer around only strong-line, single WN stars, but are found around any type of WN star, WC stars and binaries. ..."

Smith discusses "things about which the majority of us will agree", but her summary also includes the words "contradictions", "confusion" and "dissarray" [sic]. This represents my feeling as well: although Wolf–Rayet stars were first described in 1867, their study is still an immature field in many ways, subject to rapid swings of opinion. I felt some unease as I read the attempts by theoreticians and observers alike to force unwilling data into pet scenarios. In 1971, Jorge Sahade predicted that "the next meeting will find everybody agreeing that (all WR stars must be binaries)". No such thing happened. What will be the consensus in 1991?

In addition to Smith's summary, I especially enjoyed the invited reviews by M. J. Barlow on observations of mass loss from OB and WR stars, and by C. de Loore on the evolution of massive binary stars. Many of the contributed papers were timely and relevant, but this was not uniformly the case. I wonder whether as a group they merit over 300 expensive pages.

There is a four-page subject index, but no index of objects. The subject index is not very helpful—why does "mantles" fall between "mass loss" and "mass transfer", and why is it "Messier 33" on the one hand and "M31" on the other? Why is "hydrogen/helium ratios" given an entry of its own and also a sub-entry under "chemical abundances"? The whole book was prepared from camera-ready copy and is riddled with typographical errors. Most of these are harmless (to a reader fluent in English!) but some are not. On page 26 read "incorrect" for "correct" in Underhill's remark, and on page 468 read "arcuate" for "accurate" in Heckathorn's first reply. The use of acronyms like "RLOF" for "Roche-lobe overflow" or "WNE" for "early-type WN stars", is a stumbling block for readers not familiar with the field.

The study of late stages of stellar evolution is at the very core of present-day astrophysics. Every active astronomer should acquaint himself with this Symposium, although he may not wish to buy the book. Newcomers may find it helpful to have looked into the proceedings of the previous Wolf–Rayet-star Symposium (No. 49, Wolf–Rayet and High Temperature Stars, ed. Bappu and Sahade, Reidel, 1973) for orientation.

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