Pacific **94,** 453) pointed out the possibility of using combined classical plates and modern devices. The procedure they proposed has the simplicity of classical plates and the photometric accuracy of modern cameras. This procedure will be used throughout when making up the "Monochromatic Atlas of PN".

For southern PN the IDS system will be used extensively in order to obtain spectra from point to point over the whole image of the nebula. We give in Fig. 3 a preliminary result on a peculiar nitrogen-rich nebula NGC 2440. The observations were made with the 1.52 m ESO telescope using the B & C spectrograph with a 4" × 4" entrance slit and a spectral dispersion of 59 Å/mm. We have obtained more than 65 spectra covering the whole image of NGC 2440. Contours of I (6717)/I(6731) of the [SII] lines shown in Fig. 3 reflect the variation of the "skin density" within the nebula, because [SII] lines are originated only from low-excitation part of the filamentary structure of NGC 2440.

Conclusion

Monochromatic photographs in various emission lines and extensive spectrophotometric measures are complementary data which increase our knowledge about both morphological and physical structure of PN. Filamentary structure, globules, faint halos, etc. are the consequence of the evolution of these fascinating objects. There are so many physical and stellar processes occurring within the expanding shell! Routine but accurate observations foreseen for our Atlas will tell us more about expected and unexpected features of PN.

The Bright Star Catalogue Complete in Radial Velocities

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In many investigations, it is desirable to have certain observational data available for all stars of a given group, all over the sky, but – alas – reality is often far from this ideal. If you are an observing stellar astronomer, you have probably heard the reproach that "even in the Bright Star Catalogue, there are still xx stars without . . .", and it is true that even for the 9,000 brightest stars many basic data are still missing.

One kind of such data is (was) radial velocities. A few years ago there were still some 1,500 HR stars with no radial velocity determination at all – only 12 of them in northern declinations. At the same time, uvbyβ photometry had become available for all HR stars to spectral type G0, with Geneva photometry in progress for the rest. Radial velocities were needed in order to include kinematics in the astrophysical discussion of ages, metal abundances, etc.

So, we decided to do something about it, and we are happy to report that after our final observation on September 28, 1982, all stars in the Bright Star Catalogue should now have a radial velocity determination.

The ~ 800 HR stars later than F5 were observed with the CORAVEL scanner as part of the larger collaboration to use this instrument on the Danish 1.5 m telescope (Imbert and Prevot, 1981, *Messenger* No. **25,** 6). The accuracy of CORAVEL is so high (about ± 0.2 km/s for bright stars) that just two observations per star, separated by a few months, are enough to detect most of the binaries. The speed and ease of observing with CORAVEL on a computer-controlled TV-equipped telescope was an experience we were well qualified to enjoy from the earlier part of the programme: With CORAVEL we could sit quietly and observe up to 17 stars per hour, results fully reduced – and no plates to develop and measure afterwards.

What a change from our 65 exhausting nights on the ESO 1.5 m coudé spectrograph, where we took some 3,000 plates of our ~ 800 early-type programme and standard stars! Unfortunately, CORAVEL cannot observe the early-type and/or fast-rotating stars, so the B–F4 stars had to be observed in the classical way. Even at 20 Å/mm, exposures are only about 5 minutes, and if you subtract the few nights that were too cloudy even for this kind of work, we took an average of about 50 plates per night, with a maximum of 89. To avoid losing time between exposures, ESO consented to our proposal for an observing team of two night assistants and two astronomers, where everyone had their assigned jobs like setting the telescope, making the exposures, changing and making plates, and keeping the observing log.

This may sound like overstaffing, but if you take 3–5 minute exposures all night, everyone is really busy all the time, even too busy to eat a decent meal at midnight. Often we just had to grab some snacks as we went along – had you ever realized that it takes about five radial velocities to eat a fried egg? If you then count an additional four hours of darkroom work every afternoon, you may well guess that we were exhausted after our two-week runs. So, we are sure, were all our devoted night assistants who raced back and forth all night with great enthusiasm. We trust they will be rewarded with a long life in strong health from all this physical exercise, and thank them all again for their efforts.

But our work only began when the plates had been taken: Using an oscilloscope measuring engine constructed with the kind help of ESO and the Munich Observatory, the plates still had to be measured, a much larger job.

Our two first catalogues of new velocities have just been accepted by *Astronomy and Astrophysics* together with a paper describing our standard star observations, spectral line selection where we have included specifically the problems caused by stellar rotation, variability criteria, etc. Let us just note here that the standard error for one plate turns out to be in the range 1.3–2.5 km/s, depending on rotational line broadening. Our mean velocities (from 3–4 plates per star) are thus quite good.

Although observations were still in progress and not all checks and calibrations were final at the time, we were happy to be able to supply some 700 new, preliminary radial velocities for the 4th edition of the Bright Star Catalogue, which has just appeared. We expect the remaining final data to become available towards the end of this year.

During the coudé programme, we came across many new interesting stars: If a star has no radial velocity determination, it was possibly never observed at high dispersion before. E.g., among the 50 or so new double-lined binaries we found in all, some 6 were subsequently discovered to be eclipsing, and we have now observed complete light curves and spectrographic orbits for them. One of them is TZ For (HD 20301), which is the only known double-lined eclipsing system with two normal G giants. Its long period (P = 75.7 days) has led to a collaboration