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The recent observation of white dwarfs in the open cluster NGC 2516 and the determination of their surface gravity and effective temperatures (Reimers and Koester, 1982) has enabled the establishment of the initial-final mass relation for low and intermediate mass stars which was published a few months ago and is presented here (Fig. 1 of Weidemann and Koester, 1983a). The most important conclusions drawn are:

1. The limiting mass for white dwarf progenitors is $8-9 M_{\odot}$ rather than $5-6 M_{\odot}$, with supernova production beyond;
2. The rather flat run of the initial-final mass relation in the main range of star production, $1-5 M_{\odot}$, explains the observed narrow mass distribution of white dwarfs and central stars of planetary nebulae around $0.6 M_{\odot}$;
3. High mass white dwarfs exist, as shown in the rich, young cluster NGC 2516, but are extremely rare in general.

A second constraint is provided by the fraction of white dwarfs which do not go through the PN stage. From Schönberner's evolutionary tracks (Schönberner, 1983) it can be seen that stars leaving the AGB below $M = 0.55 M_{\odot}$ do not show planetary nebulae. They evolve through the sdO-region towards the white dwarf stage, as demonstrated in the contributions of Kudritzki et al, Heber et al and Drilling and Schönberner at this meeting.

I present here the most recent mass distribution of DA white dwarfs, based on evaluation of Palomar multichannel photometry (Weidemann and Koester, 1983b) which not only demonstrates the steep increase at about $0.45 M_{\odot}$, the He-flash core mass, as expected from stellar evolution theory, but also shows the flatter tail towards higher masses. Cutting this distribution at $0.55 M_{\odot}$ we can estimate the fraction of white dwarfs produced without planetary nebulae to be 44 or 28 %, respectively, depending on the calibration of the multichannel photometry (Hayes and Latham, 1975, or Oke and Gunn, 1983). For details I refer to the full publications.

REFERENCES

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These remarks have been made as a conclusion of session I on low and intermediate mass stars.