

DISCUSSION

*G. J. C. Carpenter*¹—From your results there seems to be no doubt that there is less grain boundary sliding in the 12R72HV alloy than in 304 stainless steel and that this is related to the carbides at the grain boundaries. However, the inference of a direct correlation between reduced grain boundary sliding and improved postirradiation ductility seems less well founded. An alternative explanation could be advanced on the basis of the small size of the helium bubbles which probably nucleate on the fine carbide particles and would require a larger stress in order to grow. Is there any reason to reject this possibility?

C. G. Rhodes (authors' closure)—While it is probably true that the presence of fine carbides on the grain boundaries of 12R72HV will keep the accumulated helium dispersed as small bubbles, thereby inhibiting their stress induced growth, the comment presumes that this mechanism of helium embrittlement is also operating in Types 304 and 316 stainless steel, which is not the case. It is proper to point out that the fine carbides can mitigate helium embrittlement by inhibiting bubble growth as well as by restricting grain boundary sliding.

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