

# The Journal of Bone and Joint Surgery

## EDITORIALS AND ANNOTATIONS

### BONE LESIONS IN DIVERS

Although bone necrosis has been recognised for many years as a hazard for divers and compressed air workers, it is only comparatively recently that much attention has been paid to this problem. It has assumed prominence partly because of the increase in the construction of underground tunnels in connection with transport systems, partly because of the need to dive deep in the North Sea in connection with the oil fields, and partly because the various armed forces of the world from time to time lose extremely expensive pieces of equipment on the floor of the ocean which have to be retrieved. Not so long ago it was thought that if proper decompression schedules were followed, damage to bones would be avoided, and that only when some transgression of the accepted procedures occurred would there be any serious risk.

Some years ago a paper in this Journal (McCallum, Walder, Barnes, Catto, Davidson, Fryer, Golding and Paton 1966) drew attention to the fact that amongst compressed air workers in Great Britain there was a much higher incidence of bone necrosis than expected, and that a considerable number of men engaged in this occupation were suffering from serious disability in spite of having apparently adhered to the statutory decompression requirements. Since the publication of that article new decompression tables for compressed air workers have been introduced (Construction Industry Research and Information Association 1973), and we are now looking forward to a report of their success or otherwise in avoiding bone necrosis. The highlighting of the problem in compressed air workers resulted in a radiological bone survey of British Naval divers, and surprisingly this revealed at least some evidence of bone damage in what is usually thought of as a well-protected group (Elliott and Harrison 1970). The Medical Research Council Decompression Sickness Research Team is currently engaged in determining the incidence of this condition among commercial divers. Their Decompression Sickness Central Registry in Newcastle upon Tyne has the radiographs of 354 commercial divers. Of these, eleven have bone lesions and it is interesting that all of the eleven have dived to fifty-five metres or more.

Similar studies of both Naval and commercial divers are under way in the United States of America. The results are awaited with interest.

In this current Journal a detailed article is published concerning the occurrence of bone necrosis in Japanese shell-fish divers. It is an interesting paper because it shows the full potential of the hazard in that the divers concerned did not use any decompression procedure, even though they were carrying out both deep (up to seventy metres) and long (up to four hours' duration) dives. The fact that the incidence of bone necrosis among British Naval and commercial divers is considerably lower than in the Japanese shellfish divers would suggest that controlled decompression at least does something to prevent bone damage. Although that may not sound very surprising, it is nevertheless important because there are today some