

REFERENCE

¹ Pepperday, M. (1994). The *Nautical Almanac's* Faulty Calculator Instructions. *This Journal*, 47, 89.

KEY WORDS

1. Astro.
2. Computers.
3. Reduction and plotting.

Record

Dr Robert Leslie Ford

Les Ford died of cancer on 20 January at the age of 64, after a relatively short illness.

Les was educated at Rutherford Grammar School and studied electronic engineering at Durham University. From then on he worked at the Radar Establishment in Malvern, initially on a variety of control problems. These ranged from advising Esso on the problems of bringing very large tankers into port to the design of the steering system of a large optical telescope. In 1975 he joined a group engaged in the study of ATC problems. He joined the RIN in January 1977 and became a fellow in 1984.

His first ATC task was to contribute to an interdisciplinary study on the long-term planning of ATC for the Department of Industry. Its conclusion – that European ATC was a single system and should be planned as such, which was perhaps less obvious in 1977 than it is now – met with a resounding silence, and for the rest of his career Les's work concerned the risk of collision in the air. He published steadily in the *Journal*, including seminal work on the algorithms for detecting a collision threat, but he became more and more involved with the practical introduction of TCAS, the airborne collision avoidance system, and its international standardization. It is fitting that ICAO finally agreed the technical standards for ACAS (ICAO's preferred term) a few months before Les's death.

Les was a ruthlessly meticulous worker. The starting point for his work on collision risk involved calculations for random traffic in a fixed volume of airspace. The problem, as he defined it, could be solved by computer simulation or purely algebraically. The two approaches agreed, but only approximately, and this was not good enough for Les. The search for minor errors in both approaches continued until they agreed to four significant figures. This proved the computer simulations and provided a sound basis for subsequent work on the effect of vertical height rules, airways and TCAS on collision risk.

A private man, Les was always reserved and punctilious, but he had a strong, dry sense of humour that endeared him to friends and made it hazardous to challenge his work. An editor once explained that Les's paper had been published with errors in the algebra because his corrections had been unintelligible, and supplied him with a copy of a British Standard specification of the rules for proof correction. A short letter from Les thanked the editor and, in return, enclosed a copy of the *current* British Standard, which he had used to correct the proofs. On a second occasion, the FAA were so stung by UK criticism of a TCAS document they had drawn up that they pointed out that their expenditure on TCAS research and development was many hundreds of times greater than that of the UK. Les politely replied that one page of the draft nevertheless contained seven mistakes.

Les retired in 1989 but was retained as a consultant for a further 18 months to oversee the technical aspects of the UK trials of TCAS. He leaves a wife, Sheila, whom he married

in December 1963 and to whom he was devoted. His colleagues will remember a man of objectivity, integrity and great skill; his friends a man that it was a privilege to know.

Ken Carpenter

Review

Bridge Team Management, A Practical Guide. A. J. Swift, 79 pages, 30 × 21 cm. The Nautical Institute, London, 1993. £21.43.

This book is published by the Nautical Institute and aims to discuss the problems of modern bridge management by detailing many of the basic practices necessary to ensure the safe conduct of a ship at sea. Captain A. J. Swift, the author, has served in command at sea and is now a senior instructor on the ship simulator at the Centre for Maritime Operations at Warsash, Southampton. His training provides him with the background to address the subject with authority and experience.

Captain Swift has structured the book in a logical manner. It starts with a general overview of bridge organization, and the signs of its failure, and then moves on to examine the requirements for planning and executing a navigational passage. Once the author has established these basics he proceeds by scrutinizing the organizational aspects of bridge personnel, including an illustrative case study to underline the points made. The text concludes with chapters on 'Navigation with a Pilot Onboard' and 'Automated Bridge Systems'. The IMO srcw convention on 'Basic Principles to be Observed in Keeping a Navigational Watch' is usefully reprinted as an Annex.

The style of the book is straightforward with easy-to-read margin headings and brief sections; illustrations help to emphasize some of the points made. At only 79 A4 pages, it is not a large book but is nevertheless filled with material that should be helpful to anybody interested in the practical aspects of organizing a bridge at sea.

The book attempts to deal with the practical difficulties faced by current seafarers and tries to keep the subject matter as straightforward as possible. Unfortunately, in doing so some of the examples given do not expound good navigational practice; for instance, using floating marks, such as buoys, for clearing lines to keep the ship off danger, or using two different techniques, radar and visual, for consecutive wheel over marks in a pilotage.

If there is a major difficulty with the book, however, it is in the title. The term 'management' implies the use of executive authority over other people to achieve stated aims. The book does not really investigate how a person in charge of a bridge should do this; it simply addresses the practical aspects of what has to be done and leaves the reader to sort out the organizational difficulties. The areas that make one bridge team effective while another fails – such as delegation of compatible duties, proper supervision, an established routine for internal communications and a clear priority structure – are not properly addressed, leaving the reader unable to define the requirements necessary for establishing a bridge team to meet the particular needs of the circumstances. The title 'Bridge Practices' would probably be more appropriate, as the content of the book tends to examine general aspects of running a bridge, including navigational techniques, rather than concentrate on the subject of how to manage a bridge team.

The book, nevertheless, is one of the first to address the problems of running a modern bridge and is therefore a step beyond the traditional navigation manual.

Jonathan Huxley