

## Book Reviews

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*Inner Navigation: Why we get lost and how we find our way.* Erik Jonsson, Scribner, New York, 2002. ISBN 0-7432-2206-7. 195 × 135 mm. 347 pages and 53 figures. Price US\$ 25.00.

Erik Jonsson is an old friend to those of us who have participated in the quadrennial RIN conferences on Animal Navigation. His book provides welcome background to, and expansion of, the contributions he has made at those conferences on the subject of unaided human navigation. What he has to say makes stimulating reading, not only for animal navigation researchers, but also for anyone who has ever considered, introspectively, the seemingly effortless way in which we navigate in the course of our daily lives.

Erik has not set out to write a rigorous treatise. At one point, he nostalgically refers to a paper written in 1927. ‘Back then, articles in scientific journals could still have charm; the author was allowed to be delightfully human, somebody who, through his or her writing, could make friends with the reader.’ Erik writes in just such a relaxed, and even lyrical, style, so much so that he slips easily into actual verse from time to time. The references are unusual in that they list only the author and date, but the bibliography covers all the references and includes enough information to trace the original sources.

This book is not, then, a place to look for descriptions of controlled experiments and analyses of their results. Where it does have a scientific element is in the author’s ability to generate hypotheses for explaining the impressive navigational abilities of humans. Erik is well aware of this, and suggests ways in which his hypotheses might be tested. He even describes some impromptu and wildly uncontrolled pilot tests, which he conducted himself, often acting as both experimenter and subject, but with fascinating results.

Briefly, Erik suggests that human navigation ability is based on three components, a directional sense, a cognitive map, and a dead-reckoning system. The directional sense, he believes, is something of which we are unaware, but which may be based on a natural magnetic reference, as has been shown to exist in other animals. His concept of the cognitive map is a kind of mental head-up display. As he puts it, the picture we have in our mind has to correspond as closely as possible to what we do see when the real world comes into view. His dead-reckoning system is akin to an inertial system that can be updated and realigned whenever the cognitive map is adjusted to correspond with known landmarks.

Erik’s method has been to collect all the stories and anecdotes he could find concerning human wayfinding, to add these to his personal experiences, and then to seek to explain them in terms of his hypotheses. Many of his most instructive examples are cases where the human navigational sense has gone spectacularly awry, the most extreme being a German tutor whose sense of direction was reversed everywhere except for a few small areas in the vicinity of his home. Outside these areas, his disorientation was such that he saw the sun apparently rising in the west and setting in the east. Of particular interest to *Journal* readers, he describes a disorienting experience of his own when attending the RIN-87 Conference in Oxford. The reviewer is reassured to find that he is not the only person who can lose his bearings in that City.

Disorientation is a major feature of Erik’s stories. He also offers explanations for the apparently contradictory ability of ‘backwoodsmen’ to walk in a straight-line through featureless terrain while, in other cases, people walk in circles. These are, it seems, nearly always left-handed circles and, since the reported experience is mostly in the northern hemisphere, it looks as though we can forget Coriolis as an explanation.

Throughout the book, Erik makes a clear distinction between the ‘backwoodsman’ with his robust spatial system, who recognises landmarks because he knows where he is, and the urbanite with a weak spatial framework, who knows where he is because he recognises landmarks. This explains the deep-seated panic felt by a person with a strong spatial system when he feels he knows where he is, but the landmarks he sees do not accord with his cognitive map. People with weak spatial systems are, perhaps, lucky in that they do not experience such unsettling conflicts.

The book ends with a concise and lucid summary of Erik’s ideas, despite his claim that he does not have any ability to summarise coherently. Looking ahead, he promises (threatens?) to produce a second volume

covering primitive ocean navigation, the sport of orienteering and the capabilities of children and animals. We can only look forward to another charming and thought provoking book.

John Kemp

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*Boats of the World: From the Stone Age to Medieval Times*. Seán McGrail. Oxford University Press, 2002. ISBN 0-19-814468-7. 496 pages, halftone and line drawings, 3 maps, 276 × 219 mm. 480 pages. Price £120.

This is a joyous source book for anyone who appreciates academic clarity. It compiles, as far as one can tell, all the information known on early boats and ships and relates them to their historic periods, available materials and potential skills. It is a large work of distinguished scholarship by a senior maritime archaeologist. Some 480 pages of high-quality art paper are filled with information of great interest to both specialist and non-specialist readers. It is of such scope as might have graced eight or nine volumes, covering the development of the boat in all major parts of the world. That they are combined under one cover is largely to its benefit, although the sum of the contents are of such interest as to provoke regret that the discussion and illustrations are not extended. In fact, to get full access to the material discussed, an excellent library would be an asset especially as constant textual references are given to source material. There is also a comprehensive bibliography.

McGrail divides the seafaring world into ten regions, Egypt, Arabia, The Mediterranean, Atlantic Europe, India, Greater Australia, South East Asia, Oceania, China and the Americas. His time scale is generally from the beginning of records, often in the pre-bronze age to the medieval. The scope extends beyond the boats of the title to cover water transport in general and takes in bundles, rafts and ships. The author also sets his history of the various boat types against a detailed geographer's interest in the history of landscape and of the prevailing weather conditions for each area and each period discussed. The historical background to the maritime trading (and fighting) for which craft were built is also amply researched and presented. Navigational possibilities are well documented including the astronomical and compass aids available to each section of craft examined.

Although manning and operation are well covered the principal interest is in construction. This is projected on what is described as a 'probabilistic' basis supported by representations and models until the positive evidence of actual archaeological ship recoveries can be deployed. Several assumptions are made, possibly for the sake of archaeological tidiness. It is assumed that the earliest craft must have been rafts and non-planked craft, that smaller craft would be unsuitable for seagoing and that rafts can only be used in clement conditions. Assumptions were also made as to which aspects of each early illustration or model had to be exaggerated by the artist and why.

The detail of the construction of the remains of boats and ships of antiquity as recovered and recorded is given with great fullness. The interconnection of planking and its connection to framing is given in detail and provides one of the most interesting threads through every section. In particular, the sections detailing the various techniques for mortise and tenon and sewn constructions are most valuable.

The sophistication of construction world wide and back to the beginning of history is notable. It is also noteworthy that Professor McGrail treats all boatbuilders and indeed boat users back to the mists of time without the condescension that many consider natural when looking at the capabilities of their ancestors. Ship and boat building is one of the premier expressions of human intelligence. This book lists each phase of development in mainly historical terms without looking too closely at reasons.

Most of the text is in clear structured accounts, but any particularly interesting subject is lingered over and obviously relished by the author to our greater enlightenment. In particular these include discussions of the various reproductions of vessels of antiquity, which the author identifies happily as 'floating hypothesis'.

It is a measure of the attention to detail throughout this book that it comes as a surprise to find that not every significant location is noted on the excellent maps. I should also mention that modern sailing boat designers might take issue with a great many of the assumptions, apparently agreed amongst maritime archaeologists, about the facts of seafaring. However, this should not put anyone off, as a little disagreement only seems to add to the pleasures of consulting this classic and magnificent work.

Colin Mudie

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*The Fatal Flaw: Collision at Sea and the Failure of the Rules*. David Thomas. Phaiacia, 2002. ISBN 0-9541981-0-7. 232 pages. Price £10.

As the author explains, this book is divided into two parts. The first part is a critique of the present International Regulations for Preventing Collisions at Sea and the second part is an examination of what is described as a 'viable, practicable replacement system'.

Criticism of the Collision Regulations is not new. This has been the subject of numerous papers in this *Journal* and in other publications. Some of the criticism is certainly justified. The Rules are not as clear and concise as they might be. They are based on the principle of allocating prime responsibility to keep out of the way to one of the two vessels involved when there is a risk of collision. There has recently been discussion at IMO as to whether it is still appropriate to require a high-speed craft to initially keep her course and speed when there is a risk of collision, but the majority of delegates were opposed to making any amendment at the present time.

The main interest in this book is likely to be in the replacement system put forward by the author. He advocates a system based on dual action. At no time, under any circumstances, would any vessel be able to assume right of way over another. Action taken to avoid collision should be 'positive', i.e. it should result in anti-clockwise rotation of the bearing of the threat. This concept is not new. It was put forward by Calvert and Hollingdale before the 1972 Conference to consider major changes to the Rules and has been the subject of discussion in the *Journal*. David Thomas specifies action to be taken, depending upon relative bearing of the threat. This action is based on a manoeuvring diagram produced in 1971 by a working party of the RIN. This reviewer was a member of that working party and fully supports the manoeuvring diagram, but it was intended mainly for use in restricted visibility as an aid when complying with existing regulations. The substantial alterations of course recommended in the diagram may not be appropriate for the more usual condition of clear visibility.

The author sets out the advantages of the proposed replacement system but appears to turn a blind eye to possible flaws. Under the present system, the vessel that is generally more capable of keeping out of the way is given prime responsibility to take action. Under the replacement system, such a vessel may be more likely to wait making it necessary for a vessel being overtaken, a vessel engaged in fishing or a vessel restricted in ability to manoeuvre, to take positive action to keep out of the way. In a traffic lane of a traffic separation scheme, an overtaking vessel would be expected to make a substantial alteration of course to starboard under the replacement system, which may not be practicable due to position in the lane. Sailing vessels would be expected to take 'positive' action, irrespective of wind direction.

In this review, it is not possible to consider the rules of the replacement system in detail, but readers must decide for themselves whether the author is putting forward a scheme that would bring about real improvement in safety. The proposed replacement system seems unlikely to receive support for consideration by IMO at the present time, but this book may encourage further research, which may lead to a more practicable alternative solution.

Norman Cockcroft