

Oddity" (John Noble Wilford, *New York Times*, 18 August 1999) — discovered three years ago but still unexplained. In the world of science, observations and theories are placed on the table for others to digest and respond to. If the scientific method is working properly, alternatives are put forth and compared until one stream of thought takes hold. A fine recent example was the debate on the nature of quasars that raged for over twenty years following their discovery in the mid 1960s. It is a fascinating episode in modern astronomy but, regrettably, it only receives a brief mention in *Seeing and Believing*.

In the end, I am still wondering who the primary audience of *Seeing and Believing* was intended to be. The lack of photos, other than those on the dust cover, means it will not particularly appeal to most adolescents.

Christopher A. Andreae, *Lines of Country: An Atlas of Railway and Waterway History in Canada*

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Andreae, Christopher A. *Lines of Country: An Atlas of Railway and Waterway History in Canada*. Erin, Ont.: Boston Mills Press, 1997. 227 pp., illus. and maps. \$95, ISBN 1-55046-133-8.

In every sense this latest work by Christopher Andreae, president of Historica Research Ltd will probably be considered as his "magnum opus." The author is a respected transportation historian who, during the various contracts undertaken by his company over the years, has amassed a large amount of material, which though perhaps not germane to the projects then at hand has provided the substance for the present book. When the need to put bread on the table is a priority the gestation period for a major work is apt to be lengthy, in this case about twenty years. It is gratifying to report then that the labours of Sisyphus were in this case not in vain. As the author notes in the Preface there is a double meaning to the title. "Line of Country" can be a semi-archaic interrogative as in "what is your line of country?", that is, "what do you do for a living?", but in this context refers to the assembly of the linear transportation networks that contributed so much to the building of Canada. As to the subtitle, the word "atlas" immediately conjures up images of size and in this respect *Lines of Country*

However, I could well imagine that I would have loved it as a teen when I was attempting to glean information from any and every accessible book on astronomy. Indeed, for today's junior and senior high-school students similarly fascinated by astronomy, *Seeing and Believing* will be appreciated. The level of content is clearly not directed at university students as even basic astronomy courses cover the material in more depth, though, as noted above, usually in a much more traditional manner. This perhaps leaves, as a primary audience, the casual reader looking for some relatively light reading that is also informative and even a bit thought provoking. For that audience, it is a good read but, notwithstanding high editorial and production standards, the price of the hard cover edition seems a bit steep for this type of audience.

does not disappoint. It is a hefty volume measuring some 41 x 31 cm and weighing in at 3.5 kg, quite literally a "coffee table" book. The review copy arrived with a badly bumped corner, so its mass was obviously an unexpected surprise to one of its handlers. Somewhat more startling was to find a number of pages bound in upside down, this in a work costing with taxes well over one hundred Canadian dollars: perhaps the fact that it was printed and bound overseas may have been a contributing factor.

The design is the work of Mark Fram and is very well done. There is no dust jacket, instead the usual credits are sleeved onto the boards. The latter are black, evocative of the colour of most North American locomotives in the days of steam and of the fuel that powered them. The front features a full-width vertically-cropped photograph of the old Brantford station and the adjacent trackage, thus anticipating the linear theme of the contents. As befits the title these are heavy on photographs and maps with the latter being executed by the cartography office of the Department of Geography at the University of Toronto. These are beautifully rendered using a technique that advances in computerized mapping made obsolete before the completion of the work. However, despite

the cost, the method continued to be used, doubtless for the sake of visual consistency.

The text is a model of clarity and the evolution of land and water transportation in Canada is explained in terms intelligible to the non-technical reader. Given the importance of the waterways in the early history of the country it is interesting to compare the Canadian experience with that in gentler climes. Canals were a prime method of moving goods in Europe while parts of Canada were still being fought over and remained so even after an extensive rail network had been built, declining only slowly as the nineteenth century progressed. In this country, with its harsh climate, such canal systems that had evolved quickly fell into disuse with the development of the railways, the exception being those forming part of the St Lawrence seaway. The Rideau canal is a typical example. Built originally as a military communications link it was used commercially after its completion in 1832 but scarcely twenty years later a near-parallel rail sealed its fate and it rapidly fell into disuse.

The work is divided into three parts. "Prologue" describes the development of road, rail and water transportation and touches on the modern advances of pipelines and aviation. Part I, "Building the Lines," is exceptionally well done, particularly the section on how Canadian railways were first surveyed and constructed. It is a reminder, if one were needed, of the tenacity displayed by our forebears and what they accomplished using nothing but animal power and manual labour. The techniques involved are of course well-known to professionals and there is an extensive literature on the subject, but here it is presented in a manner that makes it interesting for the layperson. Very little is omitted: bridges, tunnels and infrastructure are all covered as are similar topics in the related fields.

As with the rest of the atlas, Part I has its own bibliography for quick reference and is illustrated by many black-and-white photographs and if a mild criticism can be levelled it is over these. The author worked for the Canadian National Railways for a number of years and has drawn heavily on their photo collection as well as those of Canadian Pacific, the National Archives of Canada and his own resources. All reproductions are of good quality and pertinent to the text but several have already appeared elsewhere. It is therefore to be regretted that use was not made of some of the

material languishing in readily accessible public and private collections that still await a publisher.

Part II of the work comprises some forty plates of maps and photographs depicting the status of the railways and canals across the country at defined periods. The author has selected the years 1863, 1882, 1897, 1917, and 1992 as being most significant insofar as changes are concerned, benchmarks that may generate controversy. Since the publication of the atlas in 1997 many more lines have been sold or abandoned and several so-called "short lines" have come into being so that in future years 1992 may not appear to be a particularly significant date. These events are obviously out of the author's hands and perhaps may best be met by the issuance of an updated supplement at a suitable time. A legend facing each map shows how to interpret the information presented and from this the reader can find when the line (or canal) was built and abandoned: the coverage is comprehensive and includes street railways. The plates covering eastern and western Canada are separated by six more detailed maps depicting the network of lines surrounding the conurbations of Montreal, Toronto, Winnipeg, Edmonton, Calgary and Vancouver.

Part III, "Classifying the Lines," is a synoptic history of Canadian railways giving dates of incorporation and amalgamation or changes in ownership. Canal companies are included as are U.S. railways operating in Canada. Each listed company carries the same identifier that is used in Part II, thus making for easy cross-referencing to the maps. Part III concludes by offering a miscellany of arcane though useful information that is usually hard to come by: an explanation and summary of trackage (running) rights; a list of non-standard track gauges used in Canada; and dimensions of canal locks. There is also a comprehensive bibliography and two indexes, one thematic.

To summarize, this work is a worthwhile addition to the literature in its field, containing within its 227 pages a vast amount of information. Unfortunately its price will probably limit its market to libraries and transportation aficionados, which though regrettable by no means diminishes its value. For all purchasers the size will present something of a storage and handling problem that in the case of libraries will probably mean confining the book to the reference shelves.