BOOK REVIEWS

Edited by ANDY LIU

Experience in Problem Solving - a W. J. Blundon Commemorative,
edited by R. H. Eddy and M. M. Parmenter.
Published by the Atlantic Provinces Council on the Sciences, 1994,
ISBN # 0-9698965-0-6, 82+ pages, hardbound, $25.00.
Reviewed by **Murray S. Klamkin**, *University of Alberta.*

This book is the culmination of efforts of its editors, whose idea it was to honour the late W. J. Blundon, by collecting his problem solving contributions to the mathematical literature. The preface contains a short bibliography of Blundon. *CRUX* readers before 1990 may remember some of his contributions.

The book consists of all (as far as its editors are aware) the published problems and/or solutions of Blundon and which have appeared in Crux, American Mathematical Monthly, Mathematics Magazine, College Mathematics Journal, Elemente der Mathematik, SIAM Review, and Nieuw Archief voor Wiskunde. The problems and solutions are given under four categories: Geometry, Geometric Inequalitites, Number Theory, and Miscellaneous.

Jack Blundon, whom I knew personally from my days on the Canadian Mathematical Olympiad Committee when he was the chairman, was a very personable man as well as mathematician, and was particularly fond of geometric inequalities (as can be seen from the corresponding section of the book). Further evidence of this is his several papers on this topic. In particular, his seminal paper *Inequalities associated with the triangle*, Canadian Mathematics Bulletin 8 (1963) 615-627, was a catalyst for a subsequent series of papers from around the world dealing with the theory for triangle inequalities, on which very little had been done before. He was also, as the editors note and I agree, an ardent disciple of elegance in mathematical exposition, often rewriting a proposal or solution several times in order to meet his exacting standards. As a problem section editor, this is something I would hope my contributors would also do.

As a very small sampling of his nice, easily understood proposals from each of the four sections and which did not appear in Crux, we have:

- If, in triangle ABC, we have

$$\frac{\sin A + \sin B + \sin C}{\cos A + \cos B + \cos C} = \sqrt{3},$$

prove that at least one angles of the triangle is 60°.

- For any triangle (other than equilateral), with circumcentre O, incentre I and orthocentre H, let the angles have measures $\alpha \leq \beta \leq \gamma$. Prove that

  (1) $1 < \frac{OH}{IO} < 3$;

  (2) $0 < \frac{IH}{OH} < \frac{2}{3}$;

  (3) $0 < \frac{IH}{IO} < 1$ if $\beta < 60°$, $\quad IH = IO$ if $\beta = 60°$, $\quad 1 < \frac{IH}{IO} < 2$ if $\beta > 60°$.

- Find all solutions in integers of the equation

$$y^2 + y = x^4 + x^3 + x^2 + x.$$

- Find necessary and sufficient conditions on a, b and c in order that the system of equations

$$x + \frac{1}{x} = a, \quad y + \frac{1}{y} = b, \quad xy + \frac{1}{xy} = c$$

  has at least one solution.

Finally, it is to be noted that the editors, who were younger colleagues of Professor Blundon at Memorial University, have done a good job in compiling this nice collection of eighty-one problems and solutions. Not only did it remind me of results that I had forgotten and was looking for, it also suggested to me a number of new problems which I will be submitting to Crux!

[Ed.: The book is available, only from:

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