SYNOPSIS

1 The Academy Corner: No. 16  Bruce Shawyer
Featuring some more solutions to a 1940's university entrance scholarship examination.

4 The Olympiad Corner: No. 187  R.E. Woodrow

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18 Canadian Mathematical Society Award for Contributions to Mathematical Education
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20 Cyclic ratio sums and products  Branko Grünbaum
The well known classical theorems of Menelaus and Ceva deal with certain properties of triangles by relating them to the products of three ratios of directed lengths of collinear segments. Less well known is a theorem of Euler which states, in the notation of Figure 1, that

\[ \sum_{j=1}^{3} ||QB_j / A_j B_j|| = 1 \]

for every triangle \( T = [A_1 A_2 A_3] \).
A theorem of Euler states that if $B_j$ is the intersection of the line $A_j Q$ with the side of the triangle $A_i A_j A_k$ opposite to $A_j$, then

$$\sum_{j=1}^{a} \|QB_j/A_j B_j\| = 1.$$ 

Here, and throughout this note, $\|MN/RS\|$ means the ratio of signed lengths of the collinear segments $MN$ and $RS$.

However, while the theorems of Menelaus and Ceva have been generalized to arbitrary polygons, and in many other ways until very recently there have been no analogous generalizations of Euler’s result. The author writes on this theme.

26 The Skoliad Corner: No. 27  R.E. Woodrow

Featuring the British Columbia Colleges Junior High School Mathematics Contest Preliminary Round (1997); and the answers to the 1996 Kangourou des Mathématique.

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45 Problems: 2301–2313

This month’s “free sample” is:

2302. Proposed by Toshio Seimiya, Kawasaki, Japan.

Suppose that the bisector of angle $A$ of triangle $ABC$ intersects $BC$ at $D$. Suppose that $AB + AD = CD$ and $AC + AD = BC$.

Determine the angles $B$ and $C$.

45 Solutions: 2145, 2153, 2167, 2181, 2198–2207