Some Thoughts on Mathematical Olympiads

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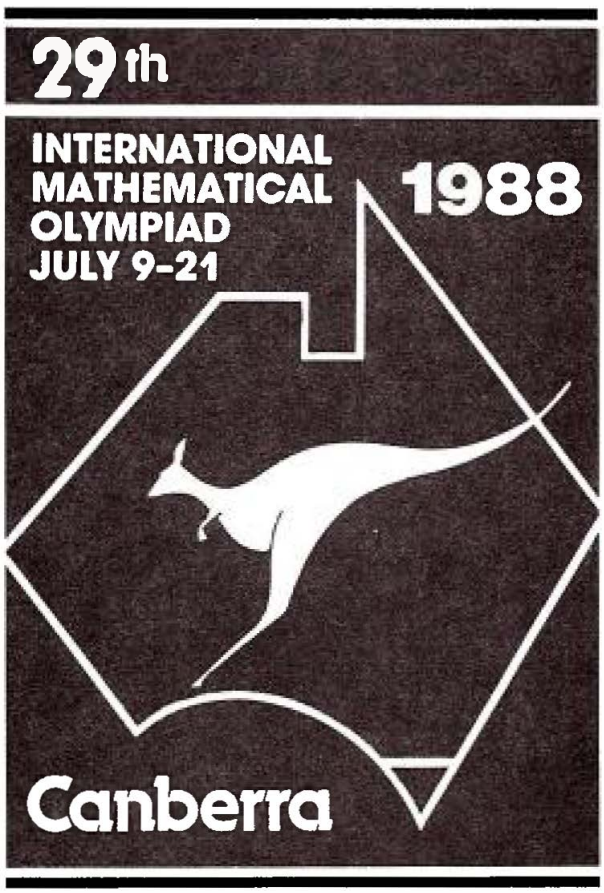

Mathematics contests for secondary school students are well established and widespread. In some countries they are extremely popular, while in others they are more elitist in character.

A common feature of most competitions is that they are organized stepwise, that is, in two or more rounds, each with an increasing degree of difficulty. Participants obtaining high scores in a lower round are invited to take part in the next one. From the best students in national competitions teams of six are formed to take part in the International Mathematical Olympiad (I.M.O.), a contest of considerable prestige; its problems pose demanding challenges even for the professional mathematician.

As one who served as a member of the jury of the International Mathematical Olympiad from 1973 to 1985 and as one of the organizers of the Dutch Mathematical Olympiad for a somewhat longer period, I would like, on retiring, to express some thoughts on mathematics contests, in particular on those of the highest level: the final rounds of national competitions and the I.M.O. I want to concentrate on the effects of these olympiads on the participating students.

The official goal of all contests is, of course, to enhance interest in mathematics and to discover and stimulate mathematical talent. But there are beneficial side effects that may not be obvious.

By the very nature of these competitions, students obtaining high scores in final rounds have exceptional talents. Usually, they excel not only in mathematics but also in many other areas. Often they are by far the best in their family, their class and their school. For the students themselves, their ability is not always entirely positive. They often find school extremely boring and their brightness may alienate them from their schoolmates. Many of these students are shy, feel lonely and have social problems.

Taking part in an olympiad presents these students with real challenges, often for the first time in their lives, and they very much enjoy it. It also brings them into contact with fellow students with similar interests and abilities. Organizers of olympiads should be alert to this aspect and create ample opportunities for formal and informal contacts among the competitors.

Various "camps for young mathematicians" which have been organized in several countries have taken note of this social need. While competitions, lectures on mathematics by university professors and small research projects are the "official" items on the program of such camps, the informal contacts which are a by-product are probably no less important and contribute greatly to the camps' success.

The same benefits can accrue in the sessions preceding the participation of national teams in the I.M.O. and, of course, at the I.M.O. itself. The Olympiad lasts ten days, with only two days of "examination" and provides a unique opportunity for interchange, both intellectually and socially, among the participants (and, as a matter of fact, also among organizers and members of the jury). Students who have taken part in an I.M.O. usually keep in touch with their team-members when they are at university and these international contacts very often continue for many years.

Thijs Notenboom and Jan Donkers, who currently lead the Dutch team to the I.M.O., pay particular attention to these social aspects and organize formal and informal meetings among members of future and former I.M.O. teams. They plan to arrange a special section during the yearly Dutch Mathematical Congress for former I.M.O. participants.

To summarize, apart from discovering and stimulating mathematical talent, olympiads also provide social benefits, bringing bright students into contact with one another and with professional mathematicians. This fact deserves special recognition by organizers of such competitions and by the mathematics community in general.