The application deadline is **31 March 1991** for the 1991-92 academic year. Admission application forms are available from :Graduate Office, IHPST, Victoria College, Room 316. University of Toronto, Canada, M5S 1K7. Those wishing to apply for the May Fellowship should indicate their intention on their admission application.

All-Union Conference on "The Problem of Substantiation in the Context of the Development of Culture"

May 1991, Ufa, Bashkiria, USSR

The USSR Society of Philosophy, the Bashkir Branch of the USSR Society of Philosophy, Bashkir State University, Leningrad State University, and the USSR Association of Lecturers of Social Sciences are co-sponsoring an All-Union conference on the topic "The Problem of Substantiation in the Context of the Development of Culture" to be convened in Ufa in May 1991. Section 5 of the conference will center on the topic of "The problem of substantiation in the system of sciences (logical and mathematical, natural, social, and technical). A round-table on the problems of substantiation of mathematics will be held within the framework of this section.

Two copies of four-page abstracts of proposed contributions will be accepted until 10 January 1991 and should be sent to: 450074, Ufa-74, Frunze Street, 32, Bashkir University, Department of Philosophy.

Third University of Wisconsin–LaCrosse Math-History Conference

(Sixth Midwest Math History Conference)

5 – 6 October 1990

The Third University of Wisconsin–LaCrosse Math-History Conference convened on 5-6 October 1990. Organizers of the program, which was sponsored by the University of Wisconsin–LaCrosse mathematics department, were J.D. Wine (University of Wisconsin–LaCrosse), Irving H. Anellis (Modern Logic Publishing and Des Moines Area Community College), Douglas Cameron (University of Akron), and Charles V. Jones (Ball State University).

Scheduled talks of special interest to historians of logic included Thomas Drucker (Dickinson College) on "The roots of model theory", Nathan Houser on "The difference a notation can make", Valentine A. Bazhanov on "A history of mathematics at Kazan State University", and Robert Brabanec on "A tale of two mathematicians – Fourier and Cantor".

Bazhanov's talk first gave a broad outline of the history of mathematics at Kazan (State) University, from the founding of the university to the recent past, and then centered on the work of the logician Nikolai Aleksandrovich Vasil'ev, who was the first to develop multiple-valued logics, and in particular paraconsistent logic, around 1910-1913.

Brabanec's talk was to have examined the role which Fourier's work on theory of heat played in the developments in function theory through the nineteenth century, and in particular to how Cantor's study of sets over which Fourier series converge led to the development of set theory; this topic has already been considered at great length by Dauben in his book *Georg Cantor: His mathematics and philosophy of the infinite* (Cambridge, Harvard University Press, 1979; paperback reprint: Princeton, Princeton University Press, 1990) and in his article *The trigonometric background to Georg Cantor's theory of sets* (Archive for History of Exact Sciences **7** (1971), 181–216).

Drucker's talk looked at the connections between the work of Leibniz and the work in particular of Abraham Robinson. Houser's talk focused on Charles S. Peirce's theory of notation, and examines the work of Glenn Clark and Shea Zellweger in developing notations for Peirce's truth-functional definitions of the sixteen binary connectives of propositional logic. Following are abstracts of Drucker's and Houser's talk.

Thomas Drucker, "The roots of model theory". Many of the ideas underlying model theory are already present in the work of Leibniz, although it is generally felt that they were more expressions of pious intentions on his part rather than executed projects. Part of the reason that his plans were not followed up was that there was not much interest in entirely formal calculi, although a few disciples continued to push forward Leibnizian ideas throughout the eighteenth century. That work is little known and is not taken as part of the philosophical mainstream.

With the appearance of general and symbolic algebras in the nineteenth century the interest in Leibniz revived. In the earlier part of the century most of the algebras still had some interpretation attached to them, but by the time of Whitehead's *Universal algebra*, the notion of looking at algebraic systems was becoming familiar. Whitehead himself studied the formal systems but still attached more interest to interpretation.

Not all the founders of model theory recognized the Leibnizian roots of the discipline, but Abraham Robinson aptly discussed model theory in the same breath with 'the metamathematics of algebra'. This saw a fulfillment of the dream of Leibniz as far as being able to resolve controversies about the consequences of the axioms of a formal system. The search for the universal language in which it could be determined whether or not a given conclusion held was sacrificed by early model theorists in the interests of producing results they could prove.

Nathan Houser, "The difference a notation can make". One's choice of a notation for mathematical or formal logic can have far-reaching consequences. This will not come as a surprise to historians of mathematics, who are all familiar with the relative benefits of different notations, such as the increased power gained by the shift from Roman to Arabic numerals. Nevertheless, the criteria for the selection or creation of appropriate and powerful notations is a neglected topic. But the theory of notation has occasionally been taken up by logicians of considerable power, as it was around the turn of the century by Charles S. Peirce.

In this paper I shall first review Peirce's theory of notation, focussing on the importance of "matching" one's basic symbols with the structures they symbolize, and also of specifying in advance whether one is primarily interested in analysis or in theorem derivation. Then I shall look at the recent findings of Glenn Clark and Shea Zellweger, who have taken the first serious and extended look at Peirce's most developed notation for the propositional calculus and who have found it superior to other similarly motivated notations. In conclusion, I shall point out how Zellweger has improved on Peirce by more systematically applying Peirce's own principles for good notations.

The publication of a volume of proceedings is being planned.