

CENTREFOLD

Professor Rob Goldblatt



At a relatively young age Rob Goldblatt has achieved a well deserved reputation as one of New Zealand's leading mathematicians. His recent selection for the foundation New Zealand Mathematical Society's Research Award (separately with Professor John Butcher of Auckland University) recognised the outstanding qualities of his mathematical research over the last ten years, building on research activity that began in the early seventies with his Ph.D. studies at Victoria University of Wellington under the general supervision of Professor Max Cresswell. This Research Award is only the latest in a series of honours acknowledging Goldblatt's mathematical achievements: A Nuffield Foundation Fellowship held at Oxford University in 1977–8, a Fulbright Senior Scholarship held at Stanford University in 1986, the award of the Research Medal of the New Zealand Association of Scientists in 1985 and election as a Fellow of the Royal Society of New Zealand last year form an impressive list.

Goldblatt's mathematical career to date has been based at Victoria University of Wellington, both as a student and a staff member. He was appointed to a personal chair in Mathematics early in his career in 1981 and for the last several years has ably combined responsibilities as chairperson of the Department of Mathematics at Victoria with a strong teaching role and a continuing productive research output. It is encouraging evidence of the maturity of the New Zealand mathematical community that people such as Goldblatt can be nurtured within it and rise to senior positions in universities here, while achieving international recognition as being amongst the top researchers and scholars in their fields.

Goldblatt's major field of research activity is mathematical logic, supported by strong interests in general algebra. One would probably not describe Goldblatt's work as innovative or creative in a fundamental sense. Its characteristic strength lies in his ability to bring together wide ranging mathematical ideas and techniques in the investigation and analysis of a particular field of research enquiry, weave these ideas and techniques into a coherent and perceptive exposition that gives a comprehensive understanding of that field and, with all,

solve specific and hard problems associated with it, some that may have defied successful resolution by other researchers over a considerable period of time.

Probably the best expression of the maturity and strength of Goldblatt's early research is contained in the two *Reports on Mathematical Logic*, 6 and 7, published in 1976 by Polish Scientific Publishers, Warsaw-Cracow, entitled "Metamathematics of Modal Logic, Parts I and II". This concern with generalisations and applications of systems of modal logic is carried further in an outstanding paper entitled Varieties of Complex Algebras, published in 1989 in the *Annals of Pure and Applied Logic*. In this work of considerable mathematical depth Goldblatt develops an abstract theory built with concepts from universal algebra and topology and which includes modal logics as one of many special cases. In other directions Goldblatt has applied his profound understanding of the metamathematics of modal systems to areas as diverse as Computer Programming and Spacetime Geometry. His "Logics of Time and Computation", published as *Lecture Notes Number 7*, by the Center for the Study of Language and Information, Stanford University, has attracted wide interest. The first edition published in 1987 was quickly followed by a second printing in 1988. An expanded second edition is due to appear this year and a Russian translation is in preparation in Moscow.

Goldblatt's ability to solve hard and specific problems is demonstrated throughout all his work. An early example is his solution to a Completeness Problem of Lemmon and Scott, published in 1975 in the *Notre Dame Journal of Formal Logic*. Another later example is his demonstration that Orthomodularity is Not Elementary, published in 1984 in the *Journal of Symbolic Logic*. A recent example is his paper appearing this year in the *Journal of Symbolic Logic* establishing that the McKinsey Axiom is Not Canonical.

One cannot complete this brief over-view of Goldblatt's published work, contained in 4 books and 25 refereed papers and reports, without reference to his extraordinarily good and major work of exposition entitled *Topoi: The Categorical Analysis of Logic*, published by North Holland Publishing Co., Amsterdam. The first edition comprising some 500 pages was published in 1979. This first edition appeared in Russian translation in 1983. A revised and expanded edition appeared in 1984 followed by a second printing of this Revised Edition in 1986.

This major work shows in all its cycles the strengths of Goldblatt's expositional and didactic qualities at their best. These include his remarkable and uncommon mastery of quite diverse aspects of mathematics, his ability to write clearly and interestingly about complex and technically demanding ideas and techniques and to place them within a coherent whole. A rich combination of scholarly, research and expositional skills.

Those of us who are privileged to know Rob Goldblatt as a colleague and friend rejoice in his success to the present. His personal qualities and human sensitivities match his mathematical achievements. We are all enriched through the continuing and growing strength of his contribution to mathematical scholarship and to New Zealand's scholarly and intellectual reputation.

Wilf Malcolm