BOOK REVIEWS

[**Th2**] _____, Three-dimensional manifolds, Kleinian groups and hyperbolic geometry, Bull. Amer. Math. Soc. (N.S.) 6 (1982), 357–381.

[Th3] ____, Finite state algorithms for the braid groups, preprint 1987.

[Y] S. Yamada, The minimal number of Seifert circles equals the braid index of a link, Invent. Math. 89 (1987), 347-356.

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The lost notebook and other unpublished papers, by Srinivasa Ramanujan, with an introduction by George E. Andrews, Narosa Publishing House, New Delhi, Madras, Bombay, 1988, xxv + 419 pp., 250 rupies. ISBN 81-85198-06-3, North American and European distribution: Springer-Verlag, ISBN 0-387-18726-X

In the spring of 1976, G. Andrews was looking through a box of Watson's material in the library of Trinity College when he came across about 90 sheets of paper, most of them in Ramanujan's handwriting. In 1957 the Tata Institute for Fundamental Research had published photostatic copies of Ramanujan's early notebooks [2], so Ramanujan's writing was well known to Andrews and quite a few others. However very few people would have been able to recognize exactly what was in this box in the Trinity library. Andrews had written a thesis on mock theta functions, so when he saw that some of these sheets contained claims of Ramanujan about mock theta functions, he knew this was a major find. These sheets consist primarily of work Ramanujan did in the last 15 months of his life, after he left England and returned to India. For the last ten years, Andrews has published a number of papers proving results in these sheets, and a few other people have published a little more, but the mathematical community at large has not had access to this fascinating collection. Thanks to Narosa Publishing House, anyone who wants to can now try his or her hand at proving some of Ramanujan's last results.

Many other fascinating things are contained in this book. There is Littlewood's letter to Hardy commenting on Ramanujan's second letter. Among other perceptive comments in this letter is the following: "I can believe that he's at least a Jacobi."

There are some manuscripts of Ramanujan that were not published before, either because of financial problems that the London Mathematical Society had, or because they were unfinished. There is a fascinating sheet (p. 358) which is undated, but was probably written in 1915. It contains four reasons why

(1)
$$1 + \frac{x}{1-x} + \frac{x^4}{(1-x)(1-x^2)} + \frac{x^9}{(1-x)(1-x^2)(1-x^3)} + \cdots \\ = \frac{1}{(1-x)(1-x^6)(1-x^{11})\cdots(1-x^4)(1-x^9)(1-x^{14})} \cdots$$