

PREFACE

William Paul Thurston was born on October 30, 1946 and died on August 21, 2012 at the age of 65. During his lifetime Thurston changed the landscape of mathematics in at least two ways. First, his original ideas changed and connected whole subjects in mathematics, from low-dimensional topology to the theory of rational maps to hyperbolic geometry and far beyond. But, just as importantly, through both his written and non-written work Thurston changed the way we think about and encounter mathematics.

One hope in bringing (almost) all of Thurston's written work together in one place is that it might shed light on the long intellectual journey of a unique thinker: how Thurston developed his viewpoint; what it brought to the subjects he wrote about; and how he applied insights gained in one topic to understand others. Just as important, perhaps, are the countless gems contained in these papers, many well-known but perhaps some still undiscovered by the general mathematical community.

A central theme running through all of Thurston's work is his emphasis on understanding and imagination. We invite and challenge the reader to find others.

Contents. Thurston's holistic approach to mathematics makes it difficult to organize his papers in a way that does not seem to erect artificial dividing lines between different topics. Of course one must pick some ordering, and hence some groupings. We have done our best.

We have organized Thurston's collected work into three volumes, with a fourth consisting of his famous and highly influential 1977-8 Princeton Course notes. Volume I contains Thurston's papers on foliations, on surfaces and mapping class groups, and on differential geometry. Volume II contains Thurston's papers on the geometry and topology of 3-manifolds; on complexity, constructions and computers; and on geometric group theory. Volume III contains Thurston's papers on dynamics and on computer science; it also contains his papers written for general audiences, as well as a few miscellaneous papers, including his 1967 New College undergraduate thesis, a fascinating document that foreshadows Thurston's broad view of mathematics.

At the start of each grouping of Thurston's papers we give an introduction, both as a warmup discussion and as a means of placing the papers in a broader context. We have tried to abide by the philosophy that "less is more", as Thurston's papers truly stand on their own.

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