CAUCHY AND THE CREATION OF COMPLEX
FUNCTION THEORY

Between 1814 and 1831, the great French mathematician A. L. Cauchy
created practically single-handedly a new branch of pure mathematics.
Complex function theory was and remains of central importance, and its
creation marked the start of one of the most exciting periods in the
development of mathematics.

In this book Dr Smithies analyses the process whereby Cauchy created
the basic structure of complex analysis, describing first the 18th century
background before proceeding to examine the stages of Cauchy’s own
work, culminating in the proof of the residue theorem and his work on
expansions in power series. Smithies describes how Cauchy overcame
difficulties including false starts and contradictions brought about by over-
ambitious assumptions, as well as the improvements that came about as the
subject developed in Cauchy’s hands. Controversies associated with the
birth of complex function theory are described in detail. Throughout, new
light is thrown on Cauchy’s thinking during this watershed period.

This book is the first to make use of the whole spectrum of available
original sources; it will be recognised as the authoritative work on the
creation of complex function theory.

Frank Smithies, a Fellow of St John’s College, Cambridge, taught and
researched in mathematics at the University for over 40 years, specialising
in the area of functional analysis. During that period he has published many
papers in research journals, written a book on Integral Equations, and
edited a volume of G. H. Hardy’s Collected Papers. Over the last 20 years
he has been increasingly interested in the history of mathematics, giving
numerous lectures on Cauchy. His activities have culminated in the present
book.
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FRANK SMITHIES
St John's College, Cambridge
To the memory of Sir Edmund Whittaker, who first aroused my interest in the history of mathematics.
Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1 The background to Cauchy’s work on complex function theory</td>
<td>6</td>
</tr>
<tr>
<td>2 Cauchy’s 1814 memoir on definite integrals</td>
<td>24</td>
</tr>
<tr>
<td>3 Miscellaneous contributions (1815–1825)</td>
<td>59</td>
</tr>
<tr>
<td>4 The 1825 memoir and associated articles</td>
<td>85</td>
</tr>
<tr>
<td>5 The calculus of residues</td>
<td>113</td>
</tr>
<tr>
<td>6 The Lagrange series and the Turin memoirs</td>
<td>147</td>
</tr>
<tr>
<td>7 Summary and conclusions</td>
<td>186</td>
</tr>
</tbody>
</table>

References: 205
Notation index: 214
Author index: 215
Subject index: 216