

TABLE OF CONTENTS

	Page ..
CHAPTER I. Preliminary notions.....	1
1. The Laurent expansion about an isolated singularity.....	2
2. Theorems of Cauchy and Liouville.....	4
3. The indetermination of a uniform function in the neighbourhood of an isolated essential singularity.....	7
4. Convergent sequences of regular functions.....	8
5. The construction of an integral function with assigned zeros.	9
6. Factorisation of a function $F(z)$	14
CHAPTER II. The function $M(r)$ and the coefficients in the expansion of $f(z)$.....	16
I. <i>The growth of the functions $M(r)$ and $A(r)$.</i>	
1. Comparison of the functions $M(r)$ and $A(r)$	17
2. Hadamard's theorem on the growth of $\log M_1(r)$	20
3. Results due to Blumenthal.....	22
II. <i>The maximum term $m(r)$ and functions of finite order.</i>	
4. A general relation between $M(r)$ and $m(r)$	28
5. Definition of order. Functions of finite order.....	32
III. <i>The relation between $M(r)$ and the sequence of coefficients.</i>	
<i>Functions of finite order and regular growth.</i>	
6. Practical rules.....	38
7. Functions of regular growth.....	41
8. Functions defined by Poincaré's functional equations.....	46
CHAPTER III. The zeros of functions of finite order and Borel's theorem.	48
I. <i>The exponent of convergence and the formal factorisation.</i>	
1. Jensen's theorem.....	48
2. The sequence of zeros and the exponent of convergence.....	51
3. Canonical products.....	53
4. Formal factorisation.....	58
5. Examples.....	60

II. The zeros of functions of finite non-integral order.	
6. Proximate orders.....	64
7. The distribution of the zeros.....	67
8. The zeros of functions of regular growth.....	70
III. Functions of integral order and Borel's theorem.	
9. Borel's theorem.....	72
10. The order of multiplicity of the zeros.....	74
IV. The distribution of the zeros of integral functions of finite order in general.	
11. The minimum modulus of a polynomial.....	78
12. A general theorem.....	81
13. Deductions from the general theorem.....	85
14. The genus of functions of integral order.....	87
CHAPTER IV. On the values assumed by an integral function in the neighbourhood of points of maximum modulus.....	93
I. Fundamental inequalities and theorems of Borel.	
1. Ordinary intervals.....	93
2. Some fundamental inequalities.....	98
3. Theorems concerning $A(r)$ and $M^*(r)$	102
4. A relation between $M(r)$ and $m(r)$	105
II. The solutions of certain algebraic differential equations.	
5. Linear equations with rational coefficients.....	106
6. Algebraic differential equations.....	109
III. The zeros of an integral function of infinite order.	
7. The growth of $\log M(r)$	111
8. The zeros of functions of infinite order.....	113
IV. A direct proof of the general Picard theorem.	
9. Picard's theorem.....	116
CHAPTER V. Asymptotic values and paths of determination.....	121
I. Lindelöf's theorem and functions of order less than 1/2.	
1. A generalisation of a theorem of Cauchy.....	122
2. Wiman's theorem.....	125
3. Functions of zero order.....	132

II. Paths of determination of functions of finite order.	
4. Some results due to Lindelöf.....	138
5. The number of tracts of a function of finite order.....	141
CHAPTER VI. Generalisations of Picard's theorem.....	147
I. The Schottky-Landau theorem and its direct applications.	
1. The properties of the modular function.....	148
2. Picard's proof.....	151
3. Landau's inequality.....	151
4. Applications to the functions of the class $F(z)$	153
II. Normal families of regular functions.	
5. Families of regular functions.....	158
6. Normal families of regular functions.....	161
7. Families of functions omitting to assume the values 0 and 1 in a domain.....	162
8. Application to the functions $F(z)$	165
III. Some theorem due to Julia.	
9. The family of functions $F(z\sigma^n)$	168
10. The set of points at which the family $F(z\sigma^n)$ is not normal.....	171
11. Some generalisations.....	173
APPENDIX A. A note on algebraic functions.....	177
APPENDIX B. The genus of a function of integral order.....	182
APPENDIX C. On the zeros of functions of integral order and regular growth.....	188
APPENDIX D. The inverse function of an integral function $f(z)$.....	196
BIBLIOGRAPHY.....	205