## CONTENTS

	PREFACE					
CHAPTER I.	THE TRAFFIC PROBLEM AND A FIRST OR	DER NONLINI	EAR			
	EQUATION					
1.1	Introduction	••	1			
1.2	Weak solutions	••	5			
1.3	Initial value problem	••	6			
1.4	Initial value problem with shock	• •	15			
1.5	Modifications by diffusion and dis	sipation	27			
1.6	Propagation of singularities in de	rivatives	29			
1.7	Computing methods	• •	31			
CHAPTER II.	ONE DIMENSIONAL GAS DYNAMICS					
2.1	Equations of motion	• •	46			
2.2	Thermodynamical relations. Entropy		48			
2.3	One dimensional flow	••	50			
2.4	Shock conditions	• •	55			
2.5	Contact discontinuities		59			
2.6	Shock reflection	• •	60			
2.7	Hugoniot curve. Shock determinacy	• •	62			
2.8	Riemann problem	• •	68			
2.9	Solution of initial value problem	• •	73			
2.10	Combustion. Detonations and deflag	rations	83			
2.11	Riemann problem with detonations a	ınd				
	deflagrations	• •	88			
2.12	Internal mechanism	• •	89			
CHAPTER III. TWO DIMENTIONAL STEADY FLOW						
3.1	Equations of motion	• •	93			
3.2	Classifications of flow equations	• •	96			

	٠	
7	7	3
-	ㅗ	_

3.3	Supersonic flow	• •	97
3.4	Shock polar	• •	99
3.5	Equations in the hodograph plane		102
3.6	Small disturbance equation	• •	106
3.7	Transonic flow	• •	107
3.8	General theory of boundary value	problems	
	for mixed equations	• •	108
3.9	The boundary value problems of tr	ansonic	
	wing flow	• •	116
3.10	Perturbation boundary value problem		121
3.11	Design by the method of complex		
	characteristics	• •	123
3.12	Numerical solution with shocks:		
	Off design computations	• •	128
3.13	Nozzle flow	• •	131
	BIBLIOGRAPHY	• •	134